COOK COVE

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ENVIRONMENTAL SITE ASSESSMENT
COOKS COVE DEVELOPMENT ZONE
PREPARED FOR COOK COVE INLET PTY LTD
CES Document Reference: CES130608-BP-AR

Written by: Dr V. Arias
SC41156 & CEnvP (General) 682
Reviewed by: T. Goodbody
Authorised by: D. Lowe

Client: Cook Cove Inlet Pty Ltd
Level 3, 161 Castlereagh Street
Sydney, NSW, 200

Date: 31 March 2023

Telephone: *02 8569 2200* • ***Fax***: *02 9983 0582 0* • ***ABN*** *67 151 524 757*
55-65 Grandview Street • Pymble NSW 2073 • Australia • www.consultingearth.com.au

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EXECUTIVE SUMMARY

This report has been prepared by Consulting Earth Scientists Pty Ltd (CES), on behalf of Cook Cove Inlet Pty Ltd (the Client), to support the public exhibition and assessment of the Cooks Cove Planning Proposal (PP-2022-1748), which was issued a Gateway Determination by the Department of Planning and Environment on 5 August 2022. The proposal seeks to amend Bayside Local Environmental Plan 2021 (BLEP 2021) to rezone and insert planning controls for certain land known as Cooks Cove within the BLEP 2021.

The Cooks Cove Planning Proposal aims to facilitate the long-planned transformation of 36.2ha of underutilised and strategically important land at Arncliffe, located to the north of the M5 Motorway and adjacent the western foreshore of the Cooks River. The project seeks a renewed focus on delivering a contemporary logistics and warehousing precinct within a well-connected location, surrounded by enhanced open space provisions. The site forms part of the broader Bayside West 2036 Precincts and generally comprises the footprint of the former Kogarah Golf Club, now in part occupied by a temporary M6 Stage 1 construction compound.

The Environmental Site Assessment (ESA) and subsequent Remediation Action Plan are required to satisfy State Environmental Planning Policy (Resilience and Hazards) 2021 former State Environmental Planning Policy No 55—Remediation of Land (SEPP 55).

The Cooks Cove Master Plan 2022, as prepared by Hassell, represents an optimised and refined reference scheme, to guide best practice design and the preparation of detailed planning controls to achieve an attractive precinct with high amenity. Key features of the Cooks Cove Master Plan are:

- A net development zone of approximately 15ha with up to 343,250m^2 Gross Floor Area (GFA) comprising
  - 290,000m^2 of multi-level logistics and warehousing;
  - 20,000m^2 for hotel and visitor accommodation uses;
  - 22,350m^2 for commercial office uses;
  - 10,900m^2 of retail uses;
- Multi-level logistics with building heights generally up to 5 storeys (approx. 48m)
- A retail podium with commercial office and hotel above, up to a total of 12 storeys (approx. 51m)
- Built form of a scale and composition which caters for the generation of approximately 3,300 new jobs

- A surrounding open space precinct including:
- A highly activated waterfront including the Fig Tree Grove outdoor dining and urban park precinct
- A significant contribution to the extension of the regional Bay to Bay cycle link, 'Foreshore Walk', including active and passive recreational uses, together with environmental enhancements
- Master planned and Council-owned 'Pemulwuy Park' – with an agreed embellishment outcome of passive open space and environmental enhancements to be delivered in stages post construction of the M6 Stage 1 Motorway
- Complementary on and off-site infrastructure to be delivered by way of State and Local Voluntary Planning Agreements.

Cooks Cove is located in the suburb of Arncliffe within the Bayside Council Local Government Area (LGA). The site is located to the west of the Cooks River, approximately 10 km south of the Sydney Central Business District (CBD). The site enjoys adjacency to key trade-related infrastructure being immediately west of Sydney Kingsford Smith International Airport and approximately 6 km west of Port Botany.

Cooks Cove is strategically located within close proximity to a number of railway stations including Banksia, Arncliffe, Wolli Creek and the International Airport Terminal, which vary in distance from the site between 700m and 1.1km. The M5 Motorway, providing regional connectivity to the Sydney Metropolitan area, runs in an east-west direction immediately to the south of the site. The M8 and M6 Motorways are, and will be, constructed in tunnels approximately 60 metres beneath the adjoining Bayside Council 'Trust' lands. The Sydney Gateway project, presently under construction to the immediate north of Cooks Cove and Sydney Airport, will substantially improve future accessibility to the St Peters interchange and the wider M4/M5 WestConnex network, via toll free connections, as well as the Domestic Airport and Port Botany.

The Cooks Cove Development Zone is located to the north of the Southern and Western Suburbs Ocean Outfall Sewer (SWSOOS), and is generally bound by the Cooks River to the east and Marsh Street to the north and west. The site is approximately 36.2ha and is owned and managed by a number of landowners, both public and private. Surrounding development includes the Sydney Airport International Terminal precinct, Mercure Sydney Airport, an area of low density dwellings presently transitioning to medium-high density residential flat buildings, recreation and open space facilities and road and airport related infrastructure.

The 2008 environmental site assessments of the site (identified as Area A and Area B at the time) determined the area of the site referred to as, and currently occupied by, the WestConnex M8 and M6 Stage 1 Motorway Temporary Compound, as suitable for use as public open space. No knowledge of further contaminating sources had been introduced between 2008 and 2023 and as such the suitability of the site for the proposed use remained the same. It is understood by CES that Westconnex took possession of the site in 2016 and as such committed to returning the site to a suitable condition for use as public open space at the completion of their works. Therefore, CES has not included the current Westconnex temporary compound in this environmental assessment.

The temporary construction compound for the WestConnex M8 and M6 Stage 1 Motorway tunnelling works was originally established in June 2016. The temporary construction facility occupies approximately 7.5ha and is expected to remain until 2025. At this time the facility will reduce to 1.5ha to accommodate the permanent Arncliffe Motorway Operations Complex (MOC), located in the western corner of the site, adjacent Marsh Street. The complex will house ventilation and water treatment plant and maintenance equipment for both the M6 and M8 sub-grade motorways.

This report comprises a consolidation of the previous Area A and Area B ESAs (CES Document References: CES050706-BCC-17-F, Rev. 1 and CES050706-BCC-18-F Rev. 2, both dated 28 July 2008). This consolidation has required the following changes:

- An amendment to the site boundaries was required since a portion of the site will be temporarily occupied (during the construction of the WestConnex M8 and M6 Stage 1 Motorway project) by the WestConnex M8 and M6 Stage 1 Motorway Temporary Compound (WTC) and will be permanently occupied by the Arncliffe Motorway Operations Complex (MOC). These areas are defined in Figure 2. After completion of the WestConnex project, the WTC will be returned by the current occupants to its previous condition and handed back for incorporation into the Cooks Cove Precinct for use as passive open space to be known in the future as Pemulwuy Park. The MOC area will be retained permanently, and as such is no longer part of the site.
- The proposed development in 2008, comprised a Trade and Technology Zone. The current Cooks Cove Planning Proposal comprises a mixed use concept including recreational, commercial, retail, hotel and multi-level logistics and warehousing land uses. site.
- To assess whether any additional contaminants of potential concern may have been introduced to the soil and groundwater since 2008, a review of the land use and land uses changes has been undertaken. No changes were identified since the site has been used as a golf course during the period between 2008 and 2023;
- In order to check whether there had been any material change to the groundwater quality between 2008 and 2017, an additional groundwater sampling round was undertaken in February 2017.
- The consolidation revises the adopted screening criteria used in 2008, which were used to assess the soil and groundwater concentrations detected by the laboratory and replaces them with the investigation and screening levels presented in Schedule B1, Guideline on Investigation Levels for Soil and Groundwater (National Environmental Protection Measure

(NEPM) 2013). The assessment of the data was then checked, and any changes made to the summary and recommendations made in 2008.

The site has been extensively landscaped to attain its current levels and landforms consistent with use as a golf course. Fill material on the site comprises mainly dredged material from the adjacent Cooks River that was placed on the site during works to re-align the river during the 1950s.

The site is currently zoned for Open Space, Trade and Technology and Special Use land use under the State Environmental Planning Policy (Precincts—Eastern Harbour City) 2021 and is occupied by the Kogarah Golf Club for its golf course.

It is proposed to rezone the site for Infrastructure, Public Recreation and Enterprise uses as presented in Planning Proposal Justification Report, as prepared by Ethos Urban.

Soil Assessment

With the exception of copper, nickel, zinc, lead, benzo(a)pyrene and BTEX, the soil assessment criteria were not exceeded in the collected natural soil and fill samples that were scheduled for analysis. The elevated concentrations of copper and lead were detected at sampling location AMW207 and were associated with isolated metal impact within the fill material at a depth of 0.5-0.7 mBGL.

The assessment criteria for heavy metals (copper, nickel, zinc, and lead) were exceeded in eighteen fill samples across the site. Three zinc concentrations in the fill exceeded the adopted ecological-based SAC. These exceedances lie within proposed Block 3C – Logistics hub and were at a depth below the top 2 metres of soil. As the zinc concentrations did not exceed adopted health-based SAC and were identified below this depth remediation is not considered necessary. Two lead concentrations in the fill material exceeded the adopted heath-based SAC and these lie within proposed Block 3C – Logistics hub. These samples (located in BBH430 and BBH433 bores) were collected from fill material a depth of between 2.4 and 2.6 mBGL. Considering these are located at a depth of between 2.4 metres and 2.6 metres and will be capped during construction of proposed buildings (i.e. Block 3C), it is not considered likely to cause a risk to human health of the future receptors, and as such does not require remediation. However, a management strategy for lead contaminated soils will be included in the Remediation Action Plan (RAP). Eight Copper concentrations in the fill material exceeded the adopted ecological-based SAC and varied in depth ranging between 0.2 m BGL and 2.6 m BGL. As the copper concentrations did not exceed adopted health-based SAC, it is not considered likely to cause a risk to human health of the future receptors and remediation is not considered necessary. Four nickel concentrations in the fill material exceeded the adopted ecological-based SAC and varied in depth ranging between 0.5 m BGL and 2.6 m BGL. As the nickel concentrations did not exceed adopted health-based SAC, and the 95% UCL calculation for nickel in the fill material of 8.36 mg/kg was less than the adopted EILs, it is not considered likely to cause a risk to human health of the future receptors and remediation is not considered necessary.

The assessment criteria for BTEX were exceeded in four fill samples in the immediate vicinity of the underground storage tanks located close to the maintenance sheds at the northern end of the site and lie within proposed Fig Tree Grove pavilion.
As a result of the elevated concentrations of BTEX, remediation and/or management measures are required to ensure protection of the environment and human health. The removal of the bowsers, USTs, associated pipework and impacted soil will be required under a Remediation Action Plan (RAP) as part of the redevelopment of the site.

Two Benzo(a)pyrene TEQ exceeded the adopted health-based SAC and lie within the proposed Flora Street intersection upgrade and extension in the east side of the site. These samples (located in BBH453 and BBH402) were collected from fill material a depth of between 0.2-0.3 mBGL in BBH453 and 0.5-0.6 mBGL in BBH402. As a result of the elevated concentrations of Benzo(a)pyrene TEQ, remediation and/or management measures are required to ensure protection of the environment and human health. The removal of the impacted soil will be required under a Remediation Action Plan (RAP) as part of the redevelopment of the site. Benzo(a)pyrene TEQ concentrations were not detected at depths greater than 0.3 mBGL in BBH453 and 0.6 mBGL in BBH402 and consequently the contamination is unlikely to extend underneath those depths.

Asbestos fibres were not found in near-surface fill during drilling works, however fragments of fibrous cement sheeting were found in surface fill in a limited number of locations across the site within fill on unsealed surface areas. Small scale remediation (localised) or management of the ACM fragments prior to the commencement of development construction will be required.

Potential Acid Sulfate Soils (PASS) are present in natural material below the water table. If these materials are not disturbed during the development process, they will not pose a risk to the local environment. However, it is expected that the planned development of the site may result in disturbance of the PASS, therefore, an acid sulfate soils management plan (ASSMP) will be required.

Groundwater Assessment

Sixteen groundwater wells were installed along the boundary of the site and within the site to assess whether contamination resulting from the presence of landfills to the south was migrating onto the site. Of the suite of substances analysed in the groundwater samples, copper, lead, nickel, zinc and ammonia were detected at concentrations that exceeded the SAC established for groundwater, while TPH C_6-C_{14} and ethylbenzene concentrations above the laboratory detection limit were detected around the USTs adjacent to the maintenance shed.

With respect to the concentrations of TPH and BTEX exceeding the laboratory reporting limit, as the concentrations of these substances was only detected within ABH202 and ABH2105, which are located close to the western end of the maintenance shed (northern tanks) and were not detected in the down gradient groundwater well, the potential for migration of contaminants appears to be limited. In addition, the contaminant concentrations have decreased between 2008 and 2017 – and are no longer exceeding the reporting limit in ABH202 and are below the screening criteria in ABH2105.
With respect to metal concentrations, given the nature of the fill materials identified, and that the concentrations identified are unlikely to occur naturally in the soil types in the area, it is considered likely that metals contamination in groundwater were possibly sourced from dredged sediments and pore water placed on the site during the realignment of Cooks River.

With respect to the low concentrations of ammonia detected in groundwater, it is considered likely that the potential source of ammonia is naturally occurring organic content in the dredged material placed on the site during the realignment of Cooks River and minor impact of fertilizers used during maintenance of the golf course. It is noted that ammonia concentrations in the wells have reduced between 2008 and 2017 – and given a pH adjustment (average of 6.7), are below the relevant screening criteria (marine of 0.91 mg/L) or are unlikely to adversely impact the Cooks River.

Ground Gas Assessment

Concentrations of methane, carbon dioxide and oxygen in the gas extracted from six subsurface gas monitoring wells installed along the southern perimeter of the site were not indicative of the presence of landfill gas. There was no evidence that the former landfills to the south of the site are impacting on soil gas in the Cooks Cove Development Zone.

Summary and Recommendations

With the exception of BTEX impact in fill material surrounding bowsers and USTs located within the Kogarah Golf Club House car park and benzo(a)pyrene, copper and lead identified hotspots, the soil across the site does not contain contamination such that extensive remediation would be necessary to make the site suitable for the proposed mixed land use. However, it will be necessary prior to redevelopment of the site to remediate the impacted areas by decommissioning and removing the USTs and associated infrastructure; removing/managing benzo(a)pyrene, copper, and lead impacted soils and to ensure that fragments of Asbestos Containing Materials present in mainly surface fill in limited areas across the site are managed and disposed safely and in accordance with regulations.

It is recommended that a Remediation Action Plan (RAP) be prepared to address hydrocarbon-impacted areas associated with refuelling infrastructure in the Kogarah Golf Clubhouse car park, the areas of the benzo(a)pyrene, copper and lead hotspots, and the presence of fragments of asbestos cement sheeting on the site.

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LIST OF ABBREVIATIONS

ACM	Asbestos Containing Material
ASS	Acid Sulfate Soil
CCI	Cook Cove Inlet Pty Ltd
BTEX	Benzene, Toluene, Ethylbenzene and Total Xylenes
CES	Consulting Earth Scientists Pty Ltd
CLM	Contaminated Land Management
COC	Chain of Custody
CT	Contaminant Threshold
CV	Coefficient of Variation
DQO	Data Quality Objectives
EIL	Ecologically-based Investigation Level
EPA	Environment Protection Authority
HIL	Health-based Investigation Level
mBGL	metres Below Ground Level
mAHD	metres Australian Height Datum
nd	not detectable
NSW	New South Wales
OCP	Organochlorine Pesticide
PAH	Polycyclic Aromatic Hydrocarbon
PAAH	Phenoxyacetic Acid Herbicides
PCB	Polychlorinated Biphenyl
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance and Quality Control
RPD	Relative Percentage Difference
SAC	Site Assessment Criteria
SD	Standard Deviation
TPH	Total Petroleum Hydrocarbons
UCL	Upper Confidence Limit
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

1 INTRODUCTION

This report has been prepared by Consulting Earth Scientists Pty Ltd (CES), on behalf of Cook Cove Inlet Pty Ltd (the Client), to support the public exhibition and assessment of the Cooks Cove Planning Proposal (PP-2022-1748), which was issued a Gateway Determination by the Department of Planning and Environment on 5 August 2022. The proposal seeks to amend Bayside Local Environmental Plan 2021 (BLEP 2021) to rezone and insert planning controls for certain land known as Cooks Cove within the BLEP 2021.

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The 2008 environmental site assessments of the site (identified as Area A and Area B at the time) determined the area of the site referred to as, and currently occupied by, the WestConnex M8 and M6 Stage 1 Motorway Temporary Compound, as suitable for use as public open space. No knowledge of further contaminating sources had been introduced between 2008 and 2023 and as such the suitability of the site for the proposed use remained the same. It is understood by CES that Westconnex took possession of the site in 2016 and as such committed to returning the site to a suitable condition for use as public open space at the completion of their works. Therefore, CES has not included the current Westconnex temporary compound in this environmental assessment.

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This updated report comprises a consolidation, update and review of the previous Area A and Area B ESAs (CES Document References: CES050706-BCC-17-F, Rev. 1 and CES050706-BCC-18-F Rev. 2, both dated 28 July 2008).

A Stage I Environmental Site Assessment was conducted by CES (2001). Pursuant to the Stage I report, additional investigation works required were specified in a detailed Sampling, Analysis and Quality Plan (SAQP) prepared by CES (CES, 2005; Appendix 1).

The additional investigation works were carried out in accordance with the SAQP (2006) and SAQP (2005), which was reviewed by the former Site Auditor for the Cooks Cove Development Zone, Dr Bill Ryall, ENSR Australia. The site Auditor's Preliminary Comments on Draft SAQP: *Environmental Site Assessment, Area A, Cook Cove Development Site*, dated 28 June 2006, and *Environmental Site Assessment, Area B, Cook Cove Development Site*, dated 3 November 2005, were also considered when undertaking this investigation.

Additional groundwater sampling was undertaken in 2017 to quantify any changes to groundwater chemistry since the previous investigation.

It is noted that the Cooks Cove Planning Proposal (PP-2022-1748) site boundary shown on the plans in Figure 2 has been revised since the previous assessment. The revised boundary excludes 7 boreholes (BBH416, BBH424, BH437, BBH444, BBH449, BBH454, BBH459), from which soil samples were included in the previous assessment. As these soil sampling locations are outside of the revised site boundary, they have been removed from the updated assessment. One groundwater well (BMW403) and three gas wells (BLG401, BLG402, BLG403) are also outside the revised boundary, however, these have been retained as the information from sampling of groundwater and gas is relevant to the revised subject site

This report has been prepared in general accordance with the CES Area A and Area B Sample Analysis and Quality Plans (SAQP) (Ref: CES050706-BCC-01-F and CES050706-BCC-02-F), and with the requirements specified for a Site Investigation as published by the NSW Environment Protection Authority (EPA) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (State of NSW and Office of Environment and Heritage (OEH)), 2011 and the National Environmental Protection Measure (NEPM) *Guideline on Site Characterisation (Schedule B2) 1999, as amended 2013*.

It is noted that the *Contaminated Sites Sampling Design Guidelines* (NSW EPA, 1995) have been superseded by the new *Contaminated Land Guidelines Sampling Design Part 1 – Application* (NSW EPA 2022) and *Contaminated Land Guidelines Sampling Design Part 2 – Interpretation* (NSW EPA 2022).

It is also noted that the *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (State of NSW and Office of Environment and Heritage (OEH)), 2011 have been superseded by the NSW EPA, *Contaminated Land Guidelines: Consultants Reporting on Contaminated Land* (NSW EPA, 2020).

Based on a review of the new guidelines, overall, the investigation has been completed in general accordance with the updated guidelines and not impacted the assessment.

This report has formed the basis for preparation of the Cooks Cove Development Zone Remediation Action Plan (RAP) (CES Document Reference: CES130608-BP-AS) for the site redevelopment.

2 OJECTIVES AND SCOPE

In accordance with the SAQP's (Appendix 1) objectives of the investigation were to:

- Provide a broad-scale assessment of soil and groundwater quality across the site;
- Address existing information gaps on soil and groundwater conditions across the site;
- Undertake a preliminary Acid Sulfate Soil (ASS) Assessment of the site;
- Undertake a preliminary Salinity Assessment of the site; and
- Assess whether the site is suitable for the proposed mixed land use.

To achieve this objective, in accordance with the SAQP's (Appendix 1) CES undertook the following scope of works:

- Preparation of the SAQPs;
- Drilled at sampling locations set out in a grid pattern across the site so that statistical analysis could be employed to assess the suitability of the site for the proposed use. A total of 182 sample locations (which equates to a sample density of 5 sample points per hectare or a sampling grid of approximately 45m) were drilled. Applying Procedure 'F' of the EPA (1995) guidelines, the sampling pattern equates with a 95% probability that a circular hotspot with a 53 m diameter would be detected. The sample density was less than the minimum sampling points for site characterisation recommended in the NSW EPA (1995) *Contaminated Sites: Sampling Design Guidelines*. A reduced sampling density is appropriate considering that the land is being redeveloped for a less sensitive land use and that the risk of high-level contamination at the site is low;

  It is noted that the Contaminated Sites Sampling Design Guidelines (NSW EPA, 1995) have been superseded by the new Contaminated Land Guidelines Sampling Design Part 1 – Application (NSW EPA 2022) and Contaminated Land Guidelines Sampling Design Part 2 – Interpretation (NSW EPA 2022). The sample density was less than the minimum sampling points for site characterisation recommended in the NSW EPA (2020), however, is still considered appropriate considering:

  - land is being redeveloped for a less sensitive land use,
  - a review of the sampling locations (Figure 2) indicated a comprehensive site coverage
  - the guidelines allow for judgemental/targeted sampling based on knowledge of the probable distribution of contaminants at the site, with known or suspected areas of contamination being specifically targeted based on the CSM.
- Fifteen of the boreholes were converted into groundwater monitoring wells and ten into gas monitoring wells. The boreholes for the sub-surface gas wells were extended to the water table

while the groundwater wells were extended to base of fill or 1 m below the observed water table;

- Soil/fill samples were analysed for metals and metalloids (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg), Total Petroleum Hydrocarbons (TPH), the monocyclic aromatic hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), Organochlorine Pesticides (OCPs), Polychlorinated Biphenyls (PCBs), Phenols, Phenoxyacetic Acid Herbicide (PAAHs), nutrients (ammonia, nitrite, nitrate, TKN and total phosphorus) and asbestos fibres. In addition, pieces of potential Asbestos Containing Materials (ACM) were analysed as appropriate;
- Soil samples collected as part of the ASS assessment were field screened, with selected samples submitted for Suspension Peroxide Oxidation Combined Acidity and Sulfate (SPOCAS) analysis;
- Soil samples collected as part of the salinity assessment were analysed for pH, electrical conductivity, salinity, resistivity, texture, soluble sulfate and chloride;
- Wells were installed using Geoprobe prepacked screens, and were developed prior to sampling. Groundwater sampling was undertaken using low-flow methods ensuring minimal drawdown;
- Groundwater samples were analysed for field parameters (depth to water table, temperature, pH, electrical conductivity, dissolved oxygen and redox potential), dissolved metals and metalloids, major ions, nutrients, TPH, BTEX and PAHs;
- As part of the salinity assessment, groundwater samples were also analysed for pH, electrical conductivity, salinity, total dissolved solids, resistivity, saturation index, alkalinity, ammonia, sulfate and chloride;
- Gas wells were monitored to assess concentrations of methane, carbon dioxide, oxygen and combustible gasses as well as formation gas pressures and gas flow rates;
- The results of the environmental assessment were prepared into a report outlining the results of the former investigations along with the results of the current investigation. In the report the data were assessed to allow conclusions about the suitability of the site for commercial/industrial land use or to recommend any further investigations or remediation which may be required; and
- A registered surveyor was engaged by the project manager, Cadence Australia Pty Ltd (Cadence) to survey all borehole locations both spatially and to Australian Height Datum.

The preparation of this consolidated report has required the following scope of works:

- An amendment to the site boundaries was required since a portion of the site will be temporarily occupied (during the construction of the WestConnex M8 and M6 Stage 1 Motorway projects) by the WestConnex M8 and M6 Stage 1 Motorway Temporary Compound (WTC) and will be permanently occupied by the Arncliffe Motorway Operations Complex (MOC) and Cooks Cove Planning Proposal (PP-2022-1748) presents a revised boundary to the south of the site. These areas are defined in Figure 2. After completion of the WestConnex project, the WTC will be returned by the current occupants to its previous condition and handed back for incorporation into the park land adjoining development. The MOC area will be retained permanently, and as such is no longer part of the site.
- The current Cooks Cove Planning Proposal comprises a mixed use concept including commercial, retail, hotel and multi-level logistics and warehousing land uses within the site.
- An assessment of whether any additional contaminants of potential concern may have been introduced to the soil and groundwater since 2008;
- An additional groundwater sampling round was undertaken in February 2017 to check whether there had been any material change to the groundwater quality between 2008 and 2017; and
- The consolidation revises the adopted screening criteria used in 2008, which were used to assess the soil and groundwater concentrations detected by the laboratory and replaces them with the investigation and screening levels presented in Schedule B1, *Guideline on Investigation Levels for Soil and Groundwater* (National Environmental Protection Measure (NEPM 2013). The assessment of the data was then checked and any changes made to the summary and recommendations, which was made in 2008.

3 DATA QUALITY OBJECTIVES

The DQOs have been formulated by experienced CES Environmental Scientists.

Step 1 – State the Problem
The problem is that the limited investigations undertaken on the site to date do not provide sufficient information to adequately characterise soil and groundwater quality. Further, there has been a limited assessment of whether the site has been impacted by landfill gas migrating from the landfills located to the south of the site.

Based on historical use of the site as a golf course, the risk of high-level contamination at the site is considered to be low.

Step 2 – Identify the Decision Statement
The aim of this step is to identify what questions this program will attempt to resolve and to discuss what actions may result.

The primary question that this programme will attempt to resolve is:

- What is the extent of soil, groundwater and landfill gas contamination on the site, if any, as a result of previous land uses on both this and adjacent sites?

By resolving this question, it will be possible to develop focussed remediation requirements and options for the site.

Step 3 – Identify inputs to the decision
The following data are required to resolve the decision question(s):

- The key contaminants of concern as identified from the findings from previous consultant investigations and more recently by CES;
- The drilling of boreholes across the site, with fifteen boreholes converted to groundwater monitoring wells and ten boreholes converted to gas monitoring wells. In addition, it will be attempted to locate four existing groundwater monitoring wells installed on the site during previous investigations;
- Collection of soil samples at regular depth intervals in each borehole;
- Collection of groundwater samples from each of the groundwater monitoring wells following development and purging in accordance with appropriate methods;
- Standing water levels to be recorded in each monitoring well prior to sampling;

- Monitoring of landfill gas characteristics in each of the sub-surface gas monitoring wells;
- Analysis of both soil and groundwater samples for the contaminants of concern and other analytes which will assist in developing remediation techniques;
- Comparison of the results with relevant site assessment criteria (*ie*. NEPM (2013) *Investigation Levels for Soil and Groundwater* and ANZG 2018 water quality guidelines; and
- Obtain survey data, including the position and relative heights, for each of the monitoring wells. When combined with the water level data and analytical results this will enable a determination of the spatial and vertical extent of contaminant plumes and direction of groundwater flow.

It is noted that ANZECC (2000) water quality guidelines have been superseded by the Water Quality Guidelines, ANZG (2018). Additional comments are presented in Section 10.2.

Step 4 - Define the boundaries of the study

The site has been referred to as the Cooks Cove Development Zone. It is located to the north of the Southern and Western Suburbs Ocean Outfall Sewer (SWSOOS), and is generally bound by the Cooks River to the east and Marsh Street to the north and west. The site is approximately 36.2ha. The site boundary is presented on Figure 2.

The legal description of the developable land is Part of Lot 1 Deposited Plan (DP) 329283, Part of Lot 1 DP 108492, Part of Lot 14 DP 213314, Lot 31 DP1231486, and Lot 100 DP1231954. It is located within the Local Government Area (LGA) of Bayside, Parish of St George, County of Cumberland.

It is anticipated that the vertical extent of the study will be the top approximately 10 m, with this depth considered sufficient to provide an assessment of natural soil as well as intercept the shallow groundwater zone.

The fieldwork undertaken by CES as described in this report was carried out during April, May and June 2008 and February 2017.

Step 5 - Develop a decision rule

The purpose of this step is to define the parameters of interest, specify the action levels and combine the outputs of the previous DQO steps into an "if…then…" decision rule that defines the conditions that would cause the decision maker to choose alternative actions.

The parameters of interest (or contaminants of concern) in the soil for this investigation are metals and metalloids, TPH, BTEX, PAHs, OCPs, OPPs, VOCs, PAAHs, phenols, nutrients and asbestos. For the groundwater investigation, the contaminants of concern are metals and metalloids, nutrients, TPH, BTEX, PAHs, OCPs, OPPs, VOCs and phenols. In addition to soil and groundwater, landfill gas is also a contaminant of concern.

The action level which will be used to decide if the parameter represents an unacceptable risk for the proposed land-use are provided as Investigation Criteria in Section 10 of this document.

If the 95% Upper Confidence Level (UCL) of the mean of a population of a measured concentration of a parameter or compound in soil exceeds the SAC, then this is deemed to present an unacceptable risk if the Site is redeveloped for commercial/industrial land-use. Unlike soils, it is not appropriate to assess groundwater and landfill gas concentrations by comparing the UCL with guideline levels. The level of impact on groundwater and from landfill gas will need to be assessed at each monitoring location.

The types of data quality required during the fieldwork component of the investigation and for the laboratory analyses are specified in Section 11. The acceptable limits for this data are defined in Tables 8 – 10.

Based on these data quality types and limits the following decision rules will apply:

- Impacted soil will be identified by concentrations exceeding the assessment criteria;
- Impacted groundwater will be identified by concentrations exceeding the assessment criteria;
- The presence of elevated concentrations of landfill gas (from landfills in the Southern Precinct to the south) will be identified by concentrations exceeding the assessment criteria;
- If contaminants of concern are detected in the trip blanks, then potential cross contamination may have occurred during sample transport. To assess whether this is the case, CES will check the trip blank results with the laboratory and compare the results with other blanks provide by the same laboratory. It is possible that detections in trip blanks may reflect background concentrations in laboratory-supplied water or analytical error. If it is concluded that decontamination procedures were inadequate CES will assess the severity of the cross contamination and subsequent impacts on the ability to resolve the decision question. Possible actions may include the raising of working detection limits or the collection of replacement data;
- If RPDs for blind replicates or split samples are outside the acceptable limits, then there may be errors in laboratory analysis process. When assessing duplicate pairs with elevated RPDs, CES will check the results with the laboratory(ies) and examine the nature of the sample being assessed, since heterogeneous samples can often provide high RPDs. If it is believed that

irreversible errors have occurred during the laboratory process then additional investigation will be required to resolve the decision question; and

- If any of the laboratory data quality tests do not meet the acceptable limits, the laboratory will be requested to retest samples or provide justification for the results.

Step 6 - Specify acceptable limits on decision errors

There are two types of errors:

a) Deciding that the site is acceptable for the mixed development land use when it actually is not (Type I error). The consequence of this error may be unacceptable ecological or health risk for future users of the site.

b) Deciding that the site is unacceptable for the mixed development land use when it is acceptable (Type II error). The consequence of this error is that the client will pay for further investigation / remediation that is not necessary.

The more severe consequence is with decision error (a) since the risk of jeopardising human health outweighs the consequences of paying more for remediation.

It will not be possible to conduct statistical hypothesis tests as the proposed sampling programme consists of the collection of one round of samples only. With groundwater, unlike soils, it is not generally appropriate to compare guideline levels with Upper Confidence Limits (UCLs) for the mean of measured concentrations. Consequently, the level of impact on groundwater and from landfill gas will need to be assessed at each monitoring well.

Step 7 - Optimising the Design for Obtaining Data

The purpose of this step is to identify a resource-effective data collection design for generating data that are expected to satisfy the DQOs.

The resource effective data collection design that is expected to satisfy the DQOs is described in detail in Section 9. To ensure the design satisfies the DQOs a comprehensive Quality Assurance and Quality Control plan will be implemented as described in Section 9.

4 SUMMARY OF PREVIOUS INVESTIGATIONS

The following environmental and geotechnical investigation reports have been prepared for the entire Cook Cove Development Site.

- Consulting Earth Scientists (April 2001). *"Site Contamination Issues Paper: Cook Cove Development Site.* Prepared for Trafalgar Properties Pty Ltd and Page Kirkland Management Pty Ltd";
- Keighran Geotechnics (August 2001). *"Preliminary Site Investigation, Cook Cove Industrial Development, Kogarah Golf Club, Arncliffe";*
- Consulting Earth Scientists (August 2001). *"Phase 1 Environmental Site Assessment: Cook Cove Development Site.* Prepared for Trafalgar Properties Pty Ltd and Page Kirkland Management Pty Ltd";
- Consulting Earth Scientists (September 2001). *"Report on Wetland Sampling Conducted 26 August 2001"*;
- Consulting Earth Scientists (October 2001). *"Report on Well Installation and Groundwater Sampling Programme: Cooks River Development Site.* Prepared for Trafalgar Properties Pty Ltd and Page Kirkland Management Pty Ltd"; and
- Golder Associates (January 2002). *"Contamination Investigation and Conceptual Remediation Approach for Cooks River Development, Arncliffe"*.

The main conclusions drawn from these reports with respect to contamination and other environmental constraints associated with the proposed development are outlined below:

- The site has been subjected to extensive landscaping to form the golf course;
- The site is underlain by sand fill to depths of 0.2 to 0.8 metres below ground level (mBGL) overlying alluvial sands and clays. Sandstone bedrock was encountered at depth ranging from 0.9 mBGL near the existing clubhouse to 10.5 mBGL in the flatter sections of the site;
- Contaminating activities currently and historically known to have occurred on the site include reclamation works adjacent to adjoining water bodies, disposal of dredged material and canal sediments, use as a night sullage depot, market gardens and activities/operations associated with the maintenance of the golf course ;
- The former Unhealthy Building and notice registry (repealed by the Contaminated Land Management Act) managed by the NSW EPA noted the presence of "garbage and industrial waste disposal areas" in areas to the south of the Cooks Cove Development Zone;

- The site adjoins several environmentally sensitive receptors including wetlands, surface water bodies and residential premises;
- No leachate controls have been constructed within any of the areas subjected to landfilling (which are located offsite to the south of the Cooks Cove Development Zone);
- Contamination typically associated with the landfilling of waste materials (putrescible and uncontrolled landfilling) has been detected in soils and groundwater offsite to the south of the Cooks Cove Development Zone
- Landfill gas (containing methane) has been detected at concentrations above the Lower Explosive Limit (LEL) beneath the former landfills to the south of the site. Buildings, tunnels and services present beneath and adjacent to the site could potentially be impacted by the migration of landfill gas from the site;
- Virtually the entire site is thought to be underlain by Potential Acid Sulfate Soils (PASS). Acid Sulfate Soils (ASS) could also be present within the stockpile of material generated during the construction of the M5 Tunnel; and

4.1.1 Data Quality Review of Previous Investigations

4.1.1.1 *CES (August, 2001)*

Although the formal seven step Data Quality Objectives (DQOs) were not prepared prior to undertaking the investigation, the CES (August, 2001) investigation met the majority of the critical components of the DQO approach. This included:

- The objectives and scope of the investigation were stated;
- The appropriate type of samples were collected for the purposes of the investigation;
- Appropriate site investigation criteria were adopted for the proposed future land-use;
- Chain of Custody documentation was used to track all samples during transport to the laboratory;
- Samples were appropriately preserved and maintained during transport to the laboratory;
- Samples were analysed within the recommended holding times by a NATA accredited laboratory using NATA accredited methodologies;
- Detection limits for the chemicals of potential concern were appropriate for the site investigation criteria;
- Field duplicates, rinsate blanks, trip blanks and trip spikes were collected during the investigation; and
- The laboratory QA/QC included analysis of laboratory duplicates, matrix spikes, surrogates, laboratory control samples and laboratory blanks.

The above QA/QC programme is generally acceptable for the purposes of the investigation. The only major QA/QC component not undertaken or addressed was the collection of split sample(s) for inter-laboratory analysis.

4.1.1.2 *Golders (2002)*

A data quality and sampling plan was prepared by Golders prior to commencement of the project. CES have not seen a copy of this plan. A Field and Laboratory Quality Control Report is provided in Appendix C of the report which summarises the results of the QA/QC programme.

The stated Data Quality Objectives of the project (Section 7.1) were:

"*…to generate data quality that was consistent with the objectives of the investigation. This mainly consisted of generating quality data on the soil and groundwater conditions in the areas targeted for sampling. The key elements to achieve the DQO related to implementation of the field work, collection of quality control samples and generation of internal laboratory quality control data to support the reported results and the assessment of laboratory results.*"

The Golders (2002) investigation met the majority of the critical components of the DQO approach. This included:

- The objectives and scope of the investigation were stated;
- The appropriate type of samples were collected for the purposes of the investigation;
- Appropriate site investigation criteria were adopted for the proposed future land-use;
- Chain of Custody documentation was used to track all samples during transport to the laboratory;
- Samples were appropriately preserved and maintained during transport to the laboratory;
- Samples were analysed within the recommended holding times by a NATA accredited laboratory using NATA accredited methodologies;
- Detection limits for the chemicals of potential concern were appropriate for the site investigation criteria;
- Two field duplicates (10 %), a rinsate blank and a trip spike were collected during the soil sampling programme and five field duplicates (~10 %), one trip blank and two trip spikes were collected during the water sampling programme; and
- The laboratory QA/QC included analysis of laboratory duplicates, matrix spikes, surrogates, laboratory control samples and laboratory blanks.

The above QA/QC programme is generally acceptable for the purposes of the investigation. QA/QC components that were not undertaken or addressed were the absence of split samples during the soil and water sampling programme and the absence of a trip blank during the soil sampling programme. It was concluded that the data are reliable as background information in terms of the DQOs adopted for the current project.

4.2 SITE INFORMATION REVIEW SUMMARY

From the information review, the site has been subjected to a number of potentially contaminating activities including agricultural activities (entire area), reclamation of land using dredged sediments (eastern and southern boundary), miscellaneous landscaping (entire area) and activities/operations associated with the maintenance of the golf course. It is possible that the southern portion of the site has been subjected to, and/or affected by, the landfilling activities known to have occurred on the adjoining Southern Precinct.

Boreholes drilled across the site reported underlying stratigraphy consisting of sand fill and shell matter (consistent with dredged material) overlying natural alluvium (sand and silt) and weathered clays beneath the eastern portion of the site. The dredged fill was not encountered within the central portion of the southern half of the site. No waste materials were encountered within any of the boreholes/testpits excavated within the site. The previous sampling and analysis undertaken within the southern half of the site reported concentrations of ammonia (in groundwater) above the respective guideline levels.

The following points outline the gaps in the information already obtained for the site which will need to be addressed in order to assess the suitability of this area for its proposed mixed development land use:

- Seventeen boreholes/testpits have been excavated across Area B. However, information has only been made available on four. The remaining thirteen boreholes/testpits are located adjacent to the southern border of the southern half of the site and do not offer adequate site coverage. In consideration of the size of the area (approximately 9.5 hectares), the sampling density is significantly lower than the recommended minimum sampling density outlined in the NSW EPA (1995) *Sampling Design Guidelines*;

- The boreholes excavated have not targeted all the areas of concern which could have been impacted by historical contaminating activities;

- Only a limited number of groundwater monitoring wells has been installed in the southern half of the site. The information available from these wells indicates that groundwater is impacted with ammonia. The extent of the groundwater contamination beneath the southern half of the site has not been adequately assessed; and

- Limited landfill gas testing has been undertaken within the southern half of the site. The landfill gas testing undertaken has reported elevated concentrations. However, Golder noted that these may be due to natural methane generation being emitted from estuarine soils. The extent of the landfill gas migration beneath the southern half of the site has not been adequately assessed.

Data provided in previous reports has not been used to characterise the site. Consequently, a data quality review of these reports is not required.

5 SITE INFORMATION

5.1 COOKS COVE PLANNING PROPOSAL

5.1.1 Site Description

Cooks Cove

Cooks Cove is located in the suburb of Arncliffe within the Bayside Council Local Government Area (LGA). The site is located to the west of the Cooks River, approximately 10km south of the Sydney Central Business District (CBD). The site enjoys adjacency to key trade-related infrastructure being immediately west of Sydney Kingsford Smith International Airport and approx 6km west of Port Botany.

Cooks Cove is strategically located within close proximity to a number of railway stations including Banksia, Arncliffe, Wolli Creek and the International Airport Terminal, which vary in distance from the site between 700m and 1.1km. The M5 Motorway, providing regional connectivity to the Sydney Metropolitan area, runs in an east-west direction immediately to the south of the site. The M8 and M6 Motorways are, and will be, constructed in tunnels approximately 60 metres beneath the adjoining Bayside Council 'Trust' lands. The Sydney Gateway project, presently under construction to the immediate north of Cooks Cove and Sydney Airport, will substantially improve future accessibility to the St Peters interchange and the wider M4/M5 WestConnex network, via toll free connections, as well as the Domestic Airport and Port Botany.

The Cooks Cove Development Zone is located to the north of the Southern and Western Suburbs Ocean Outfall Sewer (SWSOOS), and is generally bound by the Cooks River to the east and Marsh Street to the north and west. The site is approximately 36.2ha and is owned and managed by a number of landowners, both public and private. Surrounding development includes the Sydney Airport International Terminal precinct, Mercure Sydney Airport, an area of low density dwellings presently transitioning to medium-high density residential flat buildings, recreation and open space facilities and road and airport related infrastructure.

Kogarah Golf Club

Kogarah Golf Club was established in 1928, with the Club occupying the land subject to the Planning Proposal boundary since 1955. At this time, the Cooks River was reconfigured to its current alignment to accommodate the expansion of Sydney Airport. The land presents a highly modified environment, with relatively flat topography, gently moulded fairways and greens, separated by strips of vegetation and man-made water bodies. The golf course clubhouse, car park and maintenance facilities are located in the northern corner of the site, adjacent the Cooks River. Access is provided via Levey Street. The members of Kogarah Golf Club will relocate from the site in May 2024 to new playing facilities.

Arncliffe Motorway Operation Complex

The temporary construction compound for the WestConnex M8 and M6 Stage 1 Motorway tunnelling works was originally established in June 2016. The temporary construction facility occupies approximately 7.5ha and is expected to remain until 2025. At this time the facility will reduce to 1.5ha to accommodate the permanent Arncliffe Motorway Operations Complex, located in the western corner of the site, adjacent Marsh Street. The complex will house ventilation and water treatment plant and maintenance equipment for both the M6 and M8 sub-grade motorways.

RTA Frog Ponds

The site contains the existing RTA Frog Ponds, located in the south-west corner of the site, adjacent Marsh Street and SWSOOS. The two fenced areas contain ponds, constructed by the RTA as part of the M5 Motorway construction in 2002, as compensatory habitat for the Green and Golden Bell Frog.

Easements and Affectations

The Sydney Desalination Plant pipeline runs through the development zone, north-south adjacent the Cooks River. The pipe has a diameter of 1.8m and sits within an easement of 6-9m in width. From south to north the pipeline is constructed in a combination of trench and above ground with mounded cover and then transitions to micro-tunnel and typical depth of circa 11m. The Moomba to Sydney Pipeline, containing ethane gas, follows a similar general alignment north-south adjacent the Cooks River. The pipe has a nominal 225mm diameter, within an easement generally 5m wide and with the pipe located at a depth of 1.2m-2.3m..

5.2 SITE IDENTIFICATION

The site is referred to as the Cooks Cove Development Zone, Cooks Cove, NSW. The site was previously referred to as the Northern Precinct and prior to that Areas A and B, but have been consolidated as one portion of land in this report.

The site covers an area of approximately 36 Ha of which 15 ha is proposed to be developed with the remainder utilised to accommodate infrastructure and recreation facilities.

This report details the assessment of the site area covering approximately 26 ha of the site of which does not include the current Westconnex M8 and M6 Stage 1 Motorway temporary compound (WTC) or the parcel of land legally identified as Lots 14 DP213314 and Lot 31 DP1231486.

It is understood by CES that the area occupied by the WTC has been disturbed by recent site works and no longer indicative of the prior ground conditions. It is understood that Westconnex has committed to returning the site to a suitable condition for use as public open space at the completion of their works. Lots 14 DP213314 and Lot 31 DP1231486 have been subject to its own Environmental Site Assessment Report (CES Document Reference CES130608-BP-AT). The legal description of the developable land is Part of Lot 1 Deposited Plan (DP) 329283, Part of Lot 1 DP 108492, Part of Lot 14 DP 213314, and Lot 100 DP1231954. It is located within the Local Government Area (LGA) of Bayside, Parish of St George, County of Cumberland.

A plan showing the site layout is presented in Figure 2.

5.3 SITE ZONING AND LAND USE

The site is currently zoned a combination of Open Space, Trade and Technology and Special Use land use under the State Environmental Planning Policy (Precincts—Eastern Harbour City) 2021. It is proposed to rezone the site for SP2 Infrastructure, RE1 Public Recreation and SP4 Enterprise uses.

5.4 TOPOGRAPHY

A review of the Botany Bay 1:25000 Topographic map (9130-3-S) indicated that the site elevation ranges from 0 to 10 m above Australian Height Datum (AHD). The site topography has been significantly modified through the placement of fill material over the original swamp and delta. An undulating surface has been created to form the golf course including several small lakes as shown on Figure 2.

The site generally drains in an easterly direction towards the Cooks River, although localised flow paths occur across the golf course, including an un-named intermittent stream draining the golf course shown on the 1:25000 Topographic Map. In addition, the central portion of the golf course drains internally towards a series of lakes.

5.5 GEOLOGY

A review of the Sydney 1:100 000 Geological Series map indicated that the site is underlain by silty to peaty quartz sand, silt and clay. Ferruginous and humic cementation occurs in places with common shell layers also reported. This material is most likely of alluvial origin, deposited as sub-aerial and sub-aqueous components of the Cooks River delta. This deposit was reworked significantly last century as part of river diversion and training works. These works would have involved significant dredging operations.

An outcrop of Hawkesbury Sandstone is also shown in the location of the existing Kogarah Golf Club House. A review of the Sydney 1: 100 000 Soil Landscape Sheet 9130 indicated that the site is underlain by anthropogenic fill material. The southern portion of the site is underlain by sandy soils which are believed to have been dredged from the Cooks River and deposited on the site to form the KGC golf course.

5.6 HYDROGEOLOGY

5.6.1 Regional Hydrogeology

The groundwater at this site is expected to lie within a shallow unconfined aquifer, although localised layers of low permeability (*eg.* clay, peat and layers of localised iron-cemented sand) may act as local confining layers. Groundwater at the site is expected to flow in an easterly direction towards the Cooks River.

The Cooks River, Muddy Creek and the Spring Street Canal are tidal in the study area. It is expected that saline or brackish intrusion occurs around the periphery of the site. Diurnal fluctuations in groundwater levels in the peripheral areas are also expected to occur in response to tidal cycles.

5.6.2 Local Hydrogeology

CES (2001) undertook a search of the groundwater database at the DLWC (now Department of Planning and Environment (DPE). A total of 66 registered groundwater wells were identified within a 2 km radius of the centre of the Cooks Cove Development Zone site. Work summaries are presented in the SAQP (2006), Appendix 1. Twenty five wells are registered for "General Use" with a further seventeen registered for "Domestic Use". Wells for general use were registered between 1950 and 1969 while wells for domestic use were registered between 1991 and 2000. It is proposed that general and domestic wells refer to use by private persons for non-potable use. The different classes are attributed to a change in well classification methods by the DLWC.

Three wells are registered for recreational or irrigation use. All of these wells are registered to local sporting facilities, including the Kogarah Golf Club (installed in 1966). Twenty one of the wells are registered for environmental monitoring or testing. Sixteen of these wells are registered in association with the M5 East Motorway.

The only well registered in the site is GW027664 which is registered to Kogarah Golf Club for irrigation purposes. It is located in the north western corner of the golf course and was drilled to a depth of 6 m, which was equal to the depth of bedrock.

Inspection of DLWC work summaries reveals reported well yields of up to 3.0 L s^{-1}, with most yields of the order of 0.5 L s^{-1}. The salinity of wells installed is reported as "good". These data indicate that the study area is surrounded and underlain by relatively permeable strata. Low ("good") salinity of water extracted from the wells indicates that saline or brackish intrusion is likely to be limited to peripheral areas adjacent to the Cooks River and tidal reaches of tributaries thereof.

5.7 ACID SULFATE SOIL RISK

A review of the Botany Bay Acid Sulfate Soil Risk Map (2nd Ed, 1997) produced by the DLWC indicated that the site is located in an area of "*…high probability of occurrence of acid sulfate soil materials. The environment of deposition has been suitable for the formation of acid sulfate soil materials. Acid sulfate soils materials are widespread or sporadic and may be buried by alluvium or windblown sediments*". If present, acid sulfate soil is expected to be between 1 and 3 m below the ground surface.

Although extensive filling has occurred across the site, the fill material is most likely to consist of sediments dredged from the Cooks River. Therefore, this material, although technically fill, has the potential to be acid sulfate in nature.

6 SITE HISTORY

6.1 HISTORICAL AERIAL PHOTOGRAPHS

Historical aerial photographs from the Department of Land and Water Conservation were examined. Aerial surveys have typically been conducted every 8-10 years with the earliest photographs being taken in 1930. The following photographs were examined for this report: 1930; 1951; 1961; 1970; 1978; 1986 and 1999. In addition, the 1943 aerial photograph acquired by the Department of Main Roads (DMR), now Roads and Marine Services (RMS), was also examined. Conversations with lifelong members, present and former staff of the KGC assisted with the historical over view of the site.

The findings of air photo investigations are as presented below:

1930 (DLWC)

Cooks River is more torturous than at present day and does not adjoin the north-eastern section of the site as it does today. Muddy Creek and lower Cooks River are very thin and appear to be small tributaries off the main river only. The Cooks River outlet to Botany Bay is further north than presently located.

The site has been subdivided. The northern half of the area presently occupied by Kogarah Golf Club, appears to be comprise paddocks (possibly market gardens). The house in the north eastern part of the site presently utilised as the clubhouse has been built and may be surrounded by a few smaller buildings and a number of large trees. The southern half of the present day golf course and the area to the south has been subdivided and appears sandy with some scrubby vegetation.

The water main easement running across the Cooks River from the western to the eastern banks is present. Although property to the north west of the southern half of the site adjoining the river appears to comprise sand it does seem to have been landscaped. River bank is in the present day location. Neighbouring areas to the west and northwest are predominantly paddocks although some industrial buildings are present. Land south west of the southern portion of the site has been urbanised. East of the southern portion of the site across the lower Cooks River and Muddy Creek, the land is comprised of large subdivided blocks of dunes with some grass. White sand dunes occur on the north eastern side of the Cooks River.

1943 (DMR)

The 1943 aerial photograph indicates that the Cooks River is still fairly torturous in comparison to the aligned state of the present day. The golf club is present on the northern half of the site, with what appears to be the present day club house in position. The northern portion is generally covered in vegetation with some patches of sandy areas and some sealed sections around the clubhouse.

Market Gardens are present to the south of the southern half of the site, residential property to the west, open space to the north and the Kingsford Smith International Airport to the east.

1951 (DLWC)

The shape of Cooks River has been altered extensively with the lower parts of the river now bounding the property. Muddy Creek has been considerably widened and canalised. Spring Street Canal has been constructed, as has the present day channel opening of the Cooks River into Botany Bay. Dredges and sand stockpiles in the photo indicate that these works were still in progress at the time.

The entire area of the present day Kogarah Golf Club appears to have reverted back to grass-and scrub-covered sand dunes, with the southern half being sandier.

There is a continued build-up of industry in the neighbouring area to the northwest and airport developments on the eastern side of the river are continuing.

1961 (DLWC)

The Cooks River has been reshaped and repositioned since the 1951 photograph. The north eastern side of the property now bounds the river. In addition Muddy Creek has been significantly narrowed.

The northern half of the site is now occupied by the golf course and is close to the present day layout. Numerous vehicles were noted around the golf club.

To the north of the site, land on the rivers edge has been landscaped and some small buildings erected. Additional factories and houses have been built on properties to the northwest and numerous trucks and smaller vehicles are visible around these buildings. Airport runways and aircraft hangars have been completed on the eastern bank of the Cooks River and are in operation with numerous planes visible in this area.

1970 (DLWC)

Additional alterations to the Cooks River have been performed since the 1961 photograph with the river essentially as in its present day form. Further industrial development has occurred to the north west of the site as well as superficial changes to other buildings in this area.

The construction of the airport overpass at the north eastern end of Marsh Street has commenced. Numerous construction site sheds are visible in on the north eastern corner of the Kogarah Golf Club. The golf course area is essentially the same as in the 1961 photograph although looking a little more grassy and with the addition of numerous small ponds.

1978 (DLWC)

The Kogarah Golf Club has been further landscaped with areas having been built up and additional ponds put in place. The western-most section of this area, previously occupied by market gardens is now included as part of the golf course.

To the north of the site demolition and construction of industrial buildings has occurred. The main span of the Marsh Street airport overpass has been constructed. Remaining neighbouring property appear essentially the same.

1986 (DLWC)

The site in general has not undergone many changes since the 1978 photograph.

To the north west of the site across Marsh Road, tennis courts have been built, as has the Airport Hilton in the place of the demolition area noted in the last photo. In addition, superficial changes have been made to other buildings in this area. A central section of the Marsh Street overpass to the airport has been constructed.

1999 (DLWC)

On the Kogarah Golf Course a large maintenance shed has been constructed on the northern most part of the property next to Marsh Street. From interviews with lifelong members, present and former staff, CES understand that two USTs were installed and the maintenance shed was constructed in the early 1990's. In addition, a small building in the middle of the golf course was constructed at a similar time.

On neighbouring properties to the north small-scale construction and demolition works have been carried out. Houses on the corner of Marsh and West Botany Streets have been demolished. Directly north of the site across the river, some construction works or redevelopment activities are being carried out. The central section of the Marsh Street overpass to the airport has been completed.

1999- 2022 (Nearmap)

A review of the historical photographs produced on Nearmap (accessed 3 February2023) was undertaken. The review indicated no significant change to the site or its surrounds between the dates of 14 November 2009 and November 2022, with the exception of the construction of the Westconnex M8 and M6 Stage 1 Motorway Temporary Compound during August 2016 to date. The remaining data gap between the dates of 1999 and 2009 were unable to be addressed due to lack of photographic evidence, however the site did not appear to have significantly changed during this period when comparing the 1999 and 2009 aerial photographs.

6.2 SUMMARY

A summary of the aerial photographs indicates that the site was part of the Cooks River floodplain prior to its reclamation and development. The golf course has been required to move over time in concert with reclamation activities of former mangrove areas. Therefore, although the golf course has been present in the area since circa 1930, it has not always been in its existing location.

The following potentially contaminating activities have been carried out on the site:

- Introduction of contaminants in fill material. The most probable source of fill material is dredged spoil from the Cooks River and its delta;
- Market gardening activities; and
- Chemical inputs associated with the golf course such as fertilisers and pesticides.

In addition, the site is located to the immediate north of a number of former municipal landfill sites. These former landfills are located to the south of the site. It is understood that neither leachate nor gas management systems were constructed on these landfills. Consequently, the potential exists for either leachate or landfill gas to have migrated onto the site.

7 SITE CONDITION AND SURROUNDING ENVIRONMENT

Descriptions of site and background information were previously presented in the Phase 1 Environmental Site Assessment (ESA) undertaken by CES (2001) on the entire former Cook Cove Development Site. It is not intended to fully replicate this information herein. However, a summary is provided below.

7.1 CURRENT OWNER, OCCUPIER AND OPERATIONS

The Site is currently on land owned by Kogarah Golf Club Limited (Lot 100/DP1231954 and Lot 31/DP1231486), with a section along Marsh Street on the western and southern boundary owned by The Municipality of the Council of Bayside (Lot 1 DP108492 and 14 DP213314), and a section along the southern western boundary (Lot 1 DP329283) owned by TfNSW/ Roads and Traffic Authority. . The site is currently occupied by Kogarah Golf Club for a 15 hole golf course operation, with the balance occupied for use as the temporary M6 and M8 construction compound and associated permanent Motorway Operations Centre .

7.2 SITE DESCRIPTION

The following description of the site is based upon a site inspection and information provided in previous reports.

Current access to the site is from Marsh Street via an underpass that crosses beneath the bridge that traverses the Cooks River. A car park, Club House and maintenance shed are located at the north eastern corner of the site. The remainder of the site consists of features typical of a golf course such as greens, fairways, sand bunkers and surface water bodies.

Vegetation on the site generally appeared to be healthy during fieldwork. No odours indicative of contamination or landfill gas were noted on the site (excluding during drilling and sampling within the Club House car park).

With the exception of the car park and access roads, the majority of the site is unsealed and used for a golf course. The areas encompassing the Club House and maintenance shed were sealed bitumen pavements with brick paths leading to the Club House from the course. All bituminous surfaces were in adequate conditions with no cracking or staining that was not associated with general everyday activities.

7.3 TANKS AND ASSOCIATED SERVICES

Prior to commencement of the field programme it was understood that one Underground Storage Tank (UST) was present in the north eastern corner of the site. During the investigations field scientists were informed of the presence of further three USTs within the Club House car park (Figure 3a).

One UST containing unleaded fuel and one UST containing diesel fuel, two bowsers and associated pipes were located adjacent to the maintenance shed and used to fuel the various items of plant operated by the course curators. A further UST was located within the centre of the Club House car park but was not in use. However, it is not known if the tank has been decommissioned. A waste oil UST was located between the course maintenance shed and the KGC entry. This tank is currently in use. The location of the USTs is shown in Figure 3a.

7.4 SURROUNDING LAND-USE

Without gaining access, the properties immediately surrounding the site are as follows.

- *North* – Marsh Street forms the northern boundary of the site. To the north of Marsh Street are the Mercure Hotel and St George Rowing Club;
- *South* – The M5 East and SWSOOS easements adjoin the southern boundary of the site;
- *East* – The Cooks River forms the eastern boundary of the site. To the east of the Cooks River is the International Terminal of Kingsford Smith Airport; and
- *West* – Marsh Street also forms the western boundary of the site. Residential properties are located on the western side of Marsh Street.

7.5 NSW EPA CONTAMINATED LAND RECORD

A search of the NSW EPA Contaminated Land Record was undertaken by CES for the Bayside (formerly Rockdale City) Council Local Government Area. It indicated that there are no notices relevant to the site on the Record.

7.6 INTEGRITY ASSESSMENT

Historical and site information was sourced from NSW Government departments with no known interest in the site. CES have relied on the accuracy of the documentation provided and our experience in historical document interpretation. Whilst there is a small margin for error in interpretation, CES consider the information presented in this assessment to be accurate.

8 CONCEPTUAL MODEL OF POTENTIAL CONTAMINATION

The conceptual model of potential contamination has been developed to provide an understanding of the critical parameters required to understand the contamination status of the site. Its purpose is to develop a hypothesis on the contamination of the site which can be tested through a programme of soil, groundwater and landfill gas testing.

The model has been developed from a review of background information, historical documents and a detailed site inspection. It includes potential sources of contamination and their associated Contaminants of Potential Concern (CoPC), characteristics of the CoPC, site conditions and a summary of the approach of the investigation.

8.1 POTENTIAL SOURCES OF CONTAMINATION AND ASSOCIATED COPC

A review of background information, historical documents and a detailed site inspection indicate that the following potential sources of contamination are present at the site or its immediate surrounds.

8.1.1 Underground Storage Tanks

Four known USTs are located in the north eastern corner of the site within the Club House car park. Three are currently in use, it is not known if the fourth has been appropriately decommissioned.

The CoPC includes metals and lead, TPH, BTEX and PAHs.

8.1.2 Use of Dredged Material as Fill

The southern portion of the site has been filled as part of the re-alignment of the Cooks River during the 1950s. The fill material is believed to comprise spoil dredged from the River, its tributaries and it's delta in Botany Bay.

Given the historical industrial activities carried out on the Cooks River the CoPC include metals and metalloids, TPH, BTEX, PAHs, OCPs, OPPs, PCBs and VOCs.

8.1.3 Market Gardens

There was a market garden in southern corner in the 1930s and 1940s. Aerials photographs indicated it was removed by 1950s. This market garden may have included the addition of fertilisers and pest control agents to the soil.

The CoPCs include metals and metalloids, nutrients, OCPs, OPPs and PAAHs.

8.1.4 Reclaimed Land

The Cooks River has been extensively altered over the past century. River training works may have utilised dredged sediments or imported fill material. Therefore, an investigation is required in order to assess the type of material used in the reclamation.

The CoPC includes metals and metalloids, nutrients, TPH, BTEX, PAHs, VOCs, phenols and ACMs.

8.1.5 Landfill Activities

Former municipal waste disposal landfills located to the south of the site are known not to have had leachate and landfill gas management systems installed and there is the potential for landfill gas and leachate to have migrated on the site. Although the site was not an official landfill, anecdotal evidence from members of the KGC indicated that waste material had been exposed during on-site excavations.

The CoPC includes metals and metalloids, nutrients, TPH, BTEX, PAHs, OCPs, OPPs, PAAHs, VOCs, phenols, ACMs and landfill gas.

8.1.6 Golf Course Activities

The sites historical and current use as a golf course may have resulted in the application of fertilisers and pest control agents. In addition past development activities on the golf course including the importation of fill for landscaping and the construction and maintenance of tracks and the construction of out buildings and renovation of the clubhouse has the potential for placement of fill material containing building demolition materials, including asbestos containing materials.

The CoPCs include metals and metalloids, nutrients, asbestos, OCPs and OPPs.

8.1.7 Presence of Unlined Landfills on Adjacent Blocks

The presence of an unlined landfill on the lands offsite to the south of the site indicate that leachate-impacted groundwater or landfill gas has the potential to migrate onto the site.

The CoPC include metals and metalloids, nutrients (including ammonia), TPH, BTEX, PAHs, OCPs, OPPs, PAAHs, VOCs, phenols and landfill gas (including methane).

8.1.8 Summary of Chemicals of Potential Concern

Based on the above, the following CoPC have been identified for the entire site:

- Metals and metalloids;
- Nutrients, including ammonia, nitrate, nitrite, total Kjeldahl nitrogen and total phosphorus;
- Total Petroleum Hydrocarbons (TPH), monocyclic aromatic hydrocarbons (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);

- Organochlorine Pesticides (OCPs);
- Organophosphate Pesticides (OPPs);
- Polychlorinated Biphenyls (PCBs);
- Volatile Organic Compounds (VOCs);
- Phenols;
- Phenoxyacetic Acid Herbicides (PAAHs);
- Asbestos Containing Materials (ACMs); and
- Landfill Gas.

As the land-use of the site has not significantly changed since the 2008 environmental investigations, there are no additional CoPC at the site. It is anticipated that the contamination around the UST's has not migrated.

8.2 CHARACTERISTICS OF CHEMICALS OF POTENTIAL CONCERN

8.2.1 Metals and Metalloids

The metals and metalloids analytical suite generally consists of arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury. They all tend to bind strongly to soil particles and will dissolve in water. Both mercury and zinc accumulate in animal tissue while the others will not. The mobility of all metals increases with increasing acidity.

Additional considerations include testing for the presence for hexavalent chromium and methyl mercury where land use indicates that this is prudent. These two forms of the metals have a much greater toxicity than that analysed for in a standard metals and metalloids analysis.

8.2.2 Nutrients

Nitrogen and phosphorus species are the main nutrients of concern, with ammonia (a nitrogen compound) the most likely to be present as a result of the former landscaping and filling activities both on the site and on adjacent sites.

The concentrations of the nitrogen species will vary depending on site conditions, especially the oxidative environment. For example, ammonia is a main indicator of landfill leachate which is a low oxygen or reducing environment. Nitrate is highly mobile in water and will rarely adsorb to particular matter.

Phosphorus is readily adsorbed to soil particles and as such is often not detected in groundwater.

8.2.3 Total Petroleum Hydrocarbons (TPHs) and BTEX Compounds

TPH and BTEX compounds are mostly associated with petroleum products. TPHs are divided into the C_6-C_9, C_{10}-C_{14}, C_{15}-C_{28} and C_{29}-C_{36} fractions based upon the number of carbon atoms within the compound. The C_6-C_9 fraction is considered to be the volatile fraction, with volatility decreasing and density increasing with increasing number of carbon atoms. The BTEX compounds and TPH are less dense than water and will be present within the upper component of the aquifer.

The BTEX compounds are volatile and less dense than water and as such will behave in a similar fashion to the TPH C_6-C_9 fraction.

8.2.4 Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs are essentially a by-product of incomplete combustion, either by natural or anthropogenic sources. Common sources are coal, soot, charcoal and bitumen. The PAH analytical suite consists of the 16 USEPA priority PAHs which are listed in order of decreasing volatility, with naphthalene being the most volatile. There are hundreds of PAHs in existence.

PAHs are very stable and persistent in the environment as well as being carcinogenic. Most PAHs adsorb strongly to soil particles, although some are capable of migrating into groundwater. They do not dissolve easily in water and are most likely to be associated with particulate matter.

8.2.5 Organochlorine Pesticides (OCPs) and Organophosphate Pesticides (OPPs)

OCPs are chlorine-based pesticides which are now generally banned from use in most parts of the world due to their environmental impact and bioaccumulative potential within fatty tissue. Only minor concentrations of OCPs would be expected to be detected in groundwater as they do not dissolve easily.

The OPPs are phosphate-based pesticides used widely in agricultural activities. They tend to dissolve easily in water and are degraded rapidly in the environment into harmless breakdown products. They do not tend to accumulate within animal or plant foods.

8.2.6 Polychlorinated Biphenyls (PCBs)

PCBs are chlorine-based, manmade compounds which are chemically stable, unreactive and have high electrical resistivity. They are commonly used in capacitors and transformers, hydraulic fluids, adhesives, plasticizers, heat transfer fluids, wax extenders, lubricants, cutting oils and flame retardants.

PCBs are fat soluble and bio-accumulate in the fatty tissue of aquatic and terrestrial organisms and are biomagnified through the food chain. PCBs are transported through water and soil and occasionally through the air when waste materials containing PCBs are burned.

8.2.7 Volatile Organic Compounds (VOCs)

VOCs is the general term provided to a suite of organic compounds that are volatile in nature and frequently toxic. They include products used as solvents and fumigants. Many VOCs have a density greater than 1 and thus are termed Dense Non-Aqueous Phase Liquids (DNAPLs). Due to their greater density they are expected to accumulate at the bottom of the aquifer or in areas of lower permeability. Thus it becomes important to understand the location and extent of layers of differential permeability (*eg.* peat and clay) across the site.

VOCs may be degraded under certain conditions, therefore, if present, breakdown products of the original contaminants may also be present.

VOCs are generally not adsorbed onto the soil matrix so it is unlikely that they will be present within soil samples.

8.2.8 Phenoxyacetic Acid Herbicides

The Phenoxyacetic Acid Herbicide (PAAHs) group is mostly used in agriculture and horticulture for their selective action against broad-leaved weeds. It includes herbicides such as 2,4-D, Dicamba and MCPA.

They will degrade in soil through microbial action and will adsorb to soils with higher organic content. Residence time in soils is generally short-lived and in the order of weeks to months. Leaching into groundwater may occur in coarse sandy environments although the residence time is generally similar to that of soils.

8.2.9 Phenols

Phenols are produced during a number of industrial processes (*eg* coke processing, wood and iron/steel industry), in cigarette smoke and in smoked food products. Phenols have an objectionable smell and taste so human exposure is often limited by these early warning symptoms.

Phenols are highly mobile in soil and are not likely to persist in the environment or bio-accumulate.

8.2.10 Asbestos Containing Materials (ACMs)

ACMs are man-made materials that contain asbestos. They include fibrous cement sheeting, fire retardants and lagging of piping and other structures.

Degradation of ACMs may result in the release of microscopic asbestos fibres which can be harmful to human health and potentially result in lung diseases. Asbestos can be present either as fibres within soil or in pieces of ACM.

8.3 SITE CONDITIONS

Based on a site inspection, preliminary site works and knowledge of regional geology and hydrogeology, the following is understood about the site conditions likely to be encountered:

- Dredged material has the potential to cover the majority of the site;
- Results of previous investigations suggest that the dredged material comprises sand and silt and includes shell material; and
- Groundwater is likely to be encountered at less than 3 m below ground level.

The site conditions described above indicate that any contamination on the site could easily migrate both vertically downwards and horizontally. It is possible that peat layers may be present in underlying natural soils, which would impede contaminant migration. The presence of surface water receptors along the eastern boundary indicates that horizontal migration of contamination would be likely to cause off-site impacts.

8.4 APPROACH OF INVESTIGATION

The investigation outlined in the SAQP is designed to broadly characterise soil and groundwater conditions of the site, provide a preliminary characterisation of the fill (dredged) material at the southern portion to delineate the lateral and vertical extent of impacted soil and groundwater across the site, if any, as a result of past site activities, as well as providing an assessment of whether landfill gas and/or leachate is migrating onto the site from landfills located offsite to the south.

9 SAMPLING, ANALYSIS AND QUALITY PLAN

Detailed Sampling, Analysis and Quality Plans (SAQPs) were prepared for the investigations reported herein (CES, 2006). The SAQPs are provided in Appendix 1 and the scope of works undertaken is summarised in Section 2 above. The sampling and monitoring activities of the site were undertaken as two separate programmes, Area A and Area B.

Area A

Soil sampling and the installation of the monitoring wells for Area A were undertaken from the 5 to 21 May 2008, and groundwater sampling was carried out on the 29 and 30 May 2008. Sub-surface landfill gas monitoring for Area A was conducted on 10 June 2008 with sub-surface landfill gas analysis for VOCs undertaken on 17 June 2008.

Area B

Soil sampling and the installation of the monitoring wells in Area B were undertaken on the 28 May to 2 June 2008, and groundwater sampling was carried out on the 17 and 18 June 2008. Sub-surface landfill gas monitoring in Area B was conducted on 10 June 2008.

Fieldwork was undertaken by experienced CES personnel in accordance with documented Quality Work Procedures (QWPs).

The investigation of Area A followed the SAQP with the following exceptions:

- PID screening of soil samples could only be undertaken at a limited number of locations due to the small volume of sample recovered;
- In addition to the programmed sample locations, fourteen additional boreholes were drilled in the vicinity Underground Storage Tanks (UST) in the Club House car park which were brought to field scientist attention once field operations had commenced, four of which were converted into groundwater monitoring wells;
- Due to piping associated with the USTs, underground electrical and water services surrounding the maintenance shed, boreholes in the vicinity of the USTs were extended to 1.2mBGL using vacuum excavation techniques with samples collected from a hand auger. ABH2107, located within the refuelling section of the maintenance shed, was bored using a hand auger and was unable to be extended to below the USTs using a drill rig due to access restrictions;
- Due to insufficient groundwater recovery from monitoring well ABH2100, laboratory analysis was only undertaken for determination of TPH C_6-C_9 and BTEX;
- Groundwater monitoring wells encompassing the USTs (ABH2105, ABH202 and ABH210) were analysed for lead, TPH and BTEX rather than the entire analytical suite;

- Due to insufficient groundwater recovery from monitoring well ABH2110, field measurements were unable to be taken; and
- ABH292 was unable to reach natural soil due to drill rig refusal on sandstone fill at 1.90mBGL.

The investigation of Area B followed the SAQP with the following exceptions:

- The SAQP required that existing groundwater wells be sampled. However, the only existing groundwater well able to be located was BBH304;
- BBH402 and BBH405 were unable to reach natural soil due to drill rig or hand auger refusal on sandstone fill at 2.6 mBGL and 0.5 mBGL respectively;
- In comments on the draft SAQP, the auditor noted that *it appears that an additional groundwater well is required on the eastern boundary in the north-eastern corner of the site.* CES note that sampling of BBH304 was considered sufficient to assess groundwater at the eastern boundary. It is noted however that as part of the ESA on Area A, a groundwater well was located in the south-western corner of Area A and this data, while not reported here within, may be reviewed if required; and
- The SAQP included eighteen borehole sampling locations along the southern boundary adjacent to the SWSOOS, of which three were converted into groundwater monitoring wells and four were converted into subsurface gas monitoring wells. As a result of a subsequent boundary adjustment by the client post field investigations, this area is no longer part of the site. Locations no longer part of the site are BBH416, BBH424, BBH437, BBH444, BBH449, BBH454, BBH459, BMW403, BLG401, BLG402 and BLG403. Soil samples from boreholes outside the updated boundary will be excluded from this report, however, groundwater well BMW403, and ground gas wells BLG401, BLG402 and BLG403 will be retained as the information from sampling of groundwater and gas is relevant to the revised subject site.

9.1 SOIL SAMPLING PROGRAMME

Fieldwork comprised drilling 182 soil boreholes, of which fifteen were converted to groundwater wells and ten converted to sub-surface gas monitoring wells across the site (Figure 2 and 3a). Soil sampling boreholes were drilled with a Mac 2000 direct-push drilling rig supplied and operated by Macquarie Drilling, using a push tube. Bores into which groundwater wells and sub-surface landfill gas wells were installed were drilled using an Intertech i350 drilling rig utilising 125 mm diameter solid flight and 150 mm hollow flight augers.

Soil sampling and logging were carried out by Mr Luke Jenkins and Ms Kelly Weir, experienced Environmental Scientists, who also supervised installation of the groundwater and landfill gas monitoring wells. Mr Jenkins or Ms Weir logged the encountered sub-surface lithology and nominated the samples for laboratory chemical analysis. Mr Jenkins carried out the groundwater sampling and gas sampling was carried out by Mr Alex Greenwell under the supervision of Mr Jenkins.

A summary of borehole purpose, depths and screen details is provided in Table 1. Borehole locations are shown on Figure 2 and 3a and borehole logs are provided in Appendix 5.

9.1.1 Sampling numbers, pattern and location

In accordance with the SAQPs sampling locations were arranged on a triangular grid pattern on centres of approximately 45 metres (Figure 2). The site area is approximately 36 hectares. A total of 182 boreholes were drilled, which equates with a probability of 95% that a circular hotspot of approximately 53 m diameter could be identified during the sampling programme (NSW EPA 1995, Procedure F).

In addition to the programmed sample locations, fourteen additional boreholes were drilled in the vicinity of USTs uncovered in the car park of the Club House during field investigations.

A summary of samples collected, is provided in Table 2.

9.1.2 Sampling Depths

The majority of boreholes were extended to at least 0.5m metre into natural soil, as this depth was expected to be the lower limit of the inferred vertical migration zone of contaminants associated with fill material, or drill rig refusal.

Encompassing the USTs in the north eastern corner, five boreholes were extended below the USTs to 4.0mBGL or greater. Three of which were converted to groundwater wells.

The final depth and screened interval of groundwater and subsurface gas monitoring wells was determined by the depth to groundwater. Groundwater wells were extended to 1m below Standing Water Level (SWL) and were screened to 0.5m above SWL. While subsurface gas wells were extended to or just below the SWL and screened to within 0.3mBGL.

In accordance with Schedule B2 *Site Characterisation* (NEPM, 2013), samples were collected from the near surface between 0-150 mm unless there was evidence of a thin superficial layer of impacted material. At greater depths, samples were collected at 0.5-1.0 m intervals or at changes in fill or soil type and so that soil is also collected at depths where the presence of contamination is indicated (*eg*. based on odour indicating contamination, colour, substances, liquids etc).

9.1.3 Sampling Methodology

Representative samples were collected in general accordance with the SAQPs. Samples were collected by hand directly from the push tubes, solid flight auger or hand auger, placed into laboratory supplied wide-mouth glass sample jars from recently opened polyethylene direct push liners wearing a fresh pair of disposable latex gloves for each sample. Sample collection, handling and preservation were undertaken in accordance with documented CES procedures by appropriately trained personnel. When collecting duplicate samples, samples were not homogenised, rather they were placed directly into sample jars to maintain the concentration of volatile compounds.

Sampling procedures for soil are summarised below:

1. Label sample containers with a unique sample identification, project details, date and initials of sampling personnel;
2. Collect samples in pre-washed glass jars with Teflon™ lined screw lids in accordance with USEPA methods SW846;
3. Ensure minimal head space within the sample jar and seal jar with lid;
4. Complete Chain-of-Custody (COC) form;
5. Place samples in coolers containing ice;
6. Seal coolers with custody seal at the conclusion of sampling; and
7. Transport samples to the analytical laboratory under CES COC.

Samples collected from the vicinity of the USTs were generally taken directly from push tube sample liners. However, samples collected from below 3.0 mBGL encompassing the USTs were taken directly from solid flight augers due to no sample recovery within the push tube sample liner as the material was too soft and wet. Location ABH2107 (within the maintenance shed) was extended to only 1.6mBGL due to access restrictions, with samples taken directly from a decontaminated hand auger.

Where there was sufficient sample volume, part of the sample was placed in a re-sealable polyethylene bag for measurement of volatile soil gases using the closed headspace PhotoIonisation Detector (PID) method. The PID is a non-specific detector, as such, the instrument provides a measure of concentrations of total ionisable compounds reported as equivalents of a calibration span gas. Therefore, the data are used to compare Volatile Organic Compounds (VOC) concentrations between samples without an understanding of the specific compounds present.

VOC concentrations detected by PIDs are dependent on a number of factors including:

- The concentration and type of VOCs present in soil samples;

- Soil texture and compaction largely influence the potential for VOCs to be released from samples;
- Time since sample collection; and
- Temperature strongly affects the level of volatilisation of VOCs from soil and fill samples. In fact, temperature changes may result in differences of up to one order of magnitude in levels of VOCs detected using PIDs. Consequently, field screening for VOCs should be undertaken at the same time for all samples in order to produce representative results.

The procedure for soil screening using a PID is summarised as follows:

1. A corresponding sample to that selected for possible laboratory analysis was placed into a "snap-lock" or re-sealable plastic bag until half filled, then sealed. As recommended, samples were stored on ice and returned to base.
2. Upon returning to base, samples were left to equilibrate to ambient room temperature with occasional agitation to maximise the release of Volatile Organic Compounds (VOC) into the headspace. All samples were screened at the same time.
3. The PID instrument was calibrated to ambient air and a span gas comprising 97.5 ppm ± 10 Isobutylene.
4. Background VOC concentrations in ambient air were measured prior to each reading in order to account for sensor drift. Concentrations were recorded on field data sheets along with date, location details, depth and method (HS for headspace method).
5. The point of the PID or a knife was used to punch a small hole in the top of the plastic bag. The tip of the PID was pushed into the hole in the bag. the readout monitored and the maximum and minimum concentration during the measurement period were noted.
6. The concentrations were noted in field data sheets.
7. The process outlined above was repeated for each sample (i.e., background reading followed by sample reading).
8. A calibration check was undertaken after every 20 samples and at the completion of field screening. If results of the calibration check varied by more than 10 % from the known concentration of the span gas, the instrument was recalibrated. Calibration checks and recalibrations were recorded on field data sheets.
9. Samples with high concentrations of VOCs in headspace gases were included for TPH testing at the laboratory.

9.1.4 Decontamination Procedures

With the exception of samples collected from the hand auger at BBH405, each soil sample was collected directly into the sample jar by hand from the disposable push-tube liner. The method used minimises sample disturbance and no decontamination of sampling equipment is required. The hand auger was decontaminated only used at one location and thus decontamination between sampling locations was not required.

In cases where remaining samples were obtained using augers, the hand auger and auger flights were washed between sampling locations with Decon90 and hire pressure washers. A rinsate water sample was collected from the hand auger.

9.1.5 Sample Containers, Method of Sample Storage and Handling

The soil sample jars were glass with Teflon^{TM}-lined lids and were supplied by the primary laboratory. The jars were completely filled with soil, labelled with unique sample identification, project details, date and initials of sampling personnel.

The soil jars, once filled with sample and sealed, were immediately placed in an esky / cool box in which ice had been added. At the end of the day the samples were transported, in the cool box, to the CES office where they were kept on ice until delivered to the laboratory in a cool box to which ice had been added.

Sample holding times, container and preservation requirements in accordance with NEPM (2013) are shown on Table 3.

9.1.6 Documentation

While on site, the supervising scientist noted:

- Time on site;
- Weather;
- Sample details;
- Relevant calibration details for field equipment; and
- Work progress.

All samples were classified in the field based on soil/fill characteristics. Obvious signs of contamination such as discolouration and/or odour were noted during the field work.

All samples, including QC samples, were transported to the laboratory under Chain-of-Custody (COC) procedures and maintained in an esky/cool box containing ice. The following information was recorded on a COC form:

- Site identification;

- The sampler;
- Nature of the sample;
- Collection date;
- Analyses to be performed; and
- Sample preservation method.

9.1.7 Sample Logging

A qualified environmental scientist completed soil borehole logs during drilling operations. The logs recorded the following data:

- Sample number and depth;
- Soil classification, colour, consistency or density, moisture content and obvious indications of contamination;
- Depth of drilling;
- Reason for terminating drilling (eg refusal, programme depth, etc);
- Method of drilling;
- The depth of first encountered free water; and
- If appropriate, well construction details.

9.2 GROUNDWATER SAMPLING PROGRAMME

Fieldwork comprised drilling fifteen groundwater wells across the site in order to ensure adequate site coverage. The location of the groundwater monitoring wells is provided in Figure 2 and 2a.

9.2.1 Well Construction

In accordance with the SAQPs, groundwater wells were constructed using factory-decontaminated, 40 mm internal diameter Schedule 40 PVC Geoprobe® slotted pre-packed screen sections, 1 mm sand pack, bentonite seal, steel monument set in concrete block at the surface. The use of pre-packed wells allowed gravel packs to be reliably installed around screens in the potentially collapsing formations.

The final depth and screened interval of groundwater monitoring wells was determined by the depth to groundwater. Groundwater wells were extended to 1m below Standing Water Level (SWL) and were screened to 0.5m above SWL. The depth of each well and screened interval is shown on Borehole Logs in Appendix 5.

A layer of granular bentonite was placed on top of the gravel pack and hydrated with potable water to provide a seal. This seal extended to generally 0.15mBGL with concrete overlying the bentonite.

The wells were completed with a lockable cap, and flush mounted steel gatic cover installed in a concrete pad.

9.2.2 Locations and Number of Sampling Points

The groundwater well installation details are shown on the borehole logs in Appendix 5. A groundwater sample was collected from each well with all samples submitted for laboratory analysis. In addition, a previously installed well was located and sampled (BBH304). The locations of the sampled groundwater wells are shown on Figure 2 and 2a.

An additional sampling event was conducted in February 2017 in accordance with the Auditor request to assess the current status of the groundwater. CES surveyed the existing groundwater monitoring wells across Area A and Area B and identified nine accessible groundwater monitoring wells, eight of which were operational.

9.2.3 Sampling Methodology

The wells were developed on 21 May 2008 and again on 12 June 2008 using Waterra D25 foot valves fitted to new, dedicated polyethylene tubing. The wells sampled during the 2017 sampling event were developed on 16 February 2017 using Waterra D25 foot valves fitted to new, dedicated polyethylene tubing.

The groundwater wells located in the northern portion of the site were sampled on 29 and 30 May 2008, and the wells of the southern portion of the site were sampled on 17 and 18 June 2008 using a peristaltic pump. The wells sampled during the 2017 sampling event were sampled on the 17 February 2017 using a portable micropurge pump and controller. Both sampling methods used flow control operated in a manner that minimised drawdown in accordance with micropurging procedures. A calibrated water-quality meter was used to measure pH, redox potential (Eh), electrical conductivity, dissolved oxygen and temperature during purging of each event. Samples were collected once values of field parameters had stabilised. The sampling techniques adopted minimise the potential for volatile losses during sampling.

Water samples were collected from the pump tubing directly into the appropriate sampling bottles. The calibration record for the water quality meter is provided in Appendix 4.

Field data sheets are included in Appendix 4.

9.2.4 Decontamination Procedures

Wells were purged and sampled with new dedicated tubing, therefore, decontamination of groundwater sampling equipment was not required.

9.2.5 Method of Sample Storage and Handling

All sample containers were labelled with the sample number, project number, date sampled and initials of sampler. This information was also recorded on the Chain-of-Custody (COC) form.

Once containers were filled, the caps were checked to ensure that they were secure (and that there were no air bubbles/head space) then placed within an esky / cool box in which a cooling medium has been added to keep the samples below a temperature of approximately 4ºC. At the end of the day, the cool box was transported to the primary laboratory (ALS).

Sample holding times, container and preservation requirements in accordance with NEPM (2013) are shown in Table 4.

9.2.6 Documentation

While on site, the supervising engineer/scientist filled out a copy of CES 'Groundwater Sampling Field Data Sheet', which documents:

- Time of sample collection;
- Unique sample identification number;
- Sample location and depth;
- Static Water Level;
- Water quality screening results (DO, Temperature, Redox potential, pH and conductivity);
- Presence or absence of odour (nature and intensity);
- Colour of the water;
- Presence or absence of sediment in the well; and
- Well condition and purging volumes.

All samples, including QC samples, were transported to the laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COCs detailed the following information and a copy is attached to the laboratory reports (Appendix 3):

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date; and
- Analyses to be performed.

9.3 SUB-SURFACE GAS MONITORING

Ten sub-surface gas monitoring wells were installed at the site to assess whether landfill gas may be migrating onto the site. The locations of the sub-surface gas monitoring wells are provided in Figure 2.

9.3.1 Well Construction

Gas monitoring wells were installed in accordance with the SAQPs utilising solid and hollow flight augers and were constructed of class 18 factory washed 50 mm uPVC pipe. Wells were installed to allow monitoring of soil-vapour quality in the vadose zone. Machine-slotted screen was installed from below 0.3 m below ground surface in each gas well. Typically 1-2 mm diameter gravel was used to backfill the borehole annulus to approximately 0.2 m above the ground surface. A layer of bentonite chips was placed on top of the gravel and hydrated with potable water to provide a seal. The wells were completed with a lockable, gas-tight cap with snap-lock monitoring port, and flush mounted steel gatic cover installed in a concrete pad.

9.3.2 Locations and Number of Sampling Points

Gas monitoring wells were installed in ten of the boreholes drilled along the southern boundary of the investigation area previously identified as Area A (ALG201 – ALG206) and the southern boundary of the site (BLG401 – BLG404). The gas well installation details are shown on the borehole logs in Appendix 3. The well locations are shown on Figure 2.

9.3.3 Sampling Methodology

9.3.3.1 *Gas pressure, flow and landfill gas concentrations*

Gas wells were sealed with gas-tight caps after installation and left for at least seven days to allow concentrations in the well to equilibrate with the formation. Sub-surface gas monitoring was conducted on 10 June 2008. Monitoring was undertaken in accordance with procedures developed by CES based on techniques for soil-gas studies and landfill surface gas surveys. The procedure for monitoring landfill gas wells involves the following stages:

- Initial measurements and observations;
- Purge well by the application of a vacuum (if required); and
- Gas measurements in the well.

The following initial measurements and observations were made upon arrival at each gas well:

1. The concentrations of combustible gases in the ambient air in the vicinity of the well were measured using a calibrated landfill gas analyser. Any detections of methane were recorded;

2. The well was inspected;

3. The air volume in the gas monitoring well was estimated;

4. The formation pressure (gas pressure in well before venting) was measured using a series of pressure gauges connected to the gas-tight well cap using the snap-lock fitting;

5. The initial concentrations in the well were measured with a calibrated GA45 Landfill Gas Analyser. The instrument was calibrated using methane (0%, 2.5% and 50%), oxygen (0% and 17%) and carbon dioxide (10%) in accordance with manufacturers instructions by CES personnel;

6. The gas was vented from the well. The response of the well to venting was noted (*eg*, no response; brief initial pulse (typically 1-2 s), long pulse (>5 s) or continuous gas emission);

7. The flow rate of gas exiting the well was measured with a flow rate meter (where required); and

8. When the flow rate was observed to be continuous, flow rates and methane concentrations were measured at regular intervals.

The procedure for purging gas wells is summarised as follows:

1. Generate a vacuum in a pressure vessel fitted with a compressor motor;
2. Open the vacuum to the well while noting the initial vacuum applied;
3. Measure recovery time, defined as the time required for the well to return to atmospheric pressure after vacuum has been applied;
4. Measure gas concentrations in the well upon return to atmospheric pressure; and
5. Repeat purging and measurement cycle until concentrations stabilise to within +/-10% or three well volumes have been purged.

It should be noted that recovery times of greater than 10 minutes are considered to be suspect, as the effect of sample train leakages is increased with long recovery times. If recovery times of greater than 10 minutes occur, it is concluded that the formation has a low permeability to gas, the final vacuum is recorded and no further action taken.

9.3.3.2 *Sampling for VOC analysis*

One gas well (BLG402) was sampled for the analysis of Volatile Organic Compounds (VOC). Subsurface gas samples analysed for VOCs were collected directly via the monitoring port into a Tedlar bag contained in an airtight compartment, which had been evacuated to generate negative pressure. The sample tubing connecting the gas wells to the bag inlet valve was purged with gas from the wellbeing sampled prior to carrying out the sampling.

9.4 ANALYTICAL PROGRAMME

9.4.1 Soil

The analytes selected for soil testing were determined based on the results of preliminary investigation (CES, 2006b) and comprised:

- Metals and metalloids (arsenic, cadmium, chromium, copper, nickel, lead, mercury and zinc);
- Total Petroleum Hydrocarbons (TPH);
- Monocyclic Aromatic Hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Volatile Organic Compounds (VOCs);
- Organochlorine Pesticides (OCPs);
- Organophosphate Pesticides (OPPs);
- Polychlorinated Biphenyls (PCBs);
- Phenoxyacetic Acid Herbicides (PAAHs);
- Nutrients, including ammonia, nitrate, nitrite, total kjeldahl nitrogen and total phosphorus;
- Phenols;
- Potential Asbestos Containing Materials (ACMs), as required;
- SPOCAS; and
- Salinity indicators such as pH, electrical conductivity, salinity, resistivity, texture, soluble sulfate and chloride

Soil samples were collected for analysis to provide coverage across the site and across a range of depths across the site. Samples were targeted for analysis of specific analytes where indications of contamination were present (e.g. samples with a hydrocarbon odour were submitted for analysis of THP/BTEX and samples which contained ash were submitted for analysis of PAH). Samples to be analysed for OCP, OPP, PCB and PAAH were selected for analysis from surface soils as this depth was considered to be most likely to be impacted by herbicides and pesticides. Samples targeted for analysis of asbestos were targeted in the depths of 0-0.5 m.

9.4.2 Groundwater

9.4.2.1 *Field Parameters*

Standard field measurements were taken during purging, to ascertain when equilibrium was reached, prior to the collection of groundwater samples. Field measurements included:

- Dissolved oxygen;
- Electrical conductivity;
- Temperature;
- Redox potential; and
- pH.

Field measurements were taken using a calibrated water-quality meter. Calibration was checked by measuring known standard solutions at the end of each day.

9.4.2.2 *Laboratory Testing*

The analytes selected for testing were determined based on the results of the CES (2005) investigation and in general accordance with the SAQPs. Due to insufficient groundwater recovery from monitoring well ABH2100, laboratory analysis was only undertaken for determination of TPH C_6-C_9 and BTEX. Groundwater monitoring wells encompassing the USTs (ABH2105, ABH202 and ABH210) were analysed for lead, TPH and BTEX rather than the entire analytical suite. Due to insufficient groundwater recovery from monitoring well ABH2110, field measurements were unable to be taken. With exceptions mentioned, CES analysed all groundwater samples for:

- Dissolved metals and metalloids (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury);
- Total Petroleum Hydrocarbon (TPH);
- Monocyclic Aromatic Hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Organochlorine Pesticides (OCPs) ;
- Organophosphate Pesticides (OPPs);
- VOCs;
- PAAHs;
- Polychlorinated Biphenyls (PCBs);

- Phenols (AMW203 only);
- Major anions (chloride, sulfate and alkalinity) and cations (sodium, potassium, calcium and magnesium);
- Salinity indicators such as salinity, total dissolved solids, alkalinity, sulfate and chloride; and
- Nutrients, including ammonia, nitrate, nitrite, total Kjeldahl nitrogen and total phosphorus.

Despite the potential for landfill gas to be present at the site, analysis for dissolved methane was not considered necessary. Methane has a high Henry's Constant of 30, which indicates that it has a strong preference for the gaseous phase. Further, the gas monitoring programme provided sufficient assessment as to whether landfill gas is present in the sub-surface.

9.4.3 Landfill Gas

In accordance with the SAQPs, CES monitored sub-surface gas wells for:

- Methane, carbon dioxide and oxygen concentrations;
- Formation pressures; and
- Flow rates.

Methane, carbon dioxide and oxygen concentrations were measured using a Landfill Gas Analyser (LGA).

9.5 ANALYTICAL METHODS

9.5.1 Soil

Soil samples were analysed in accordance with ANZECC (1996) Guidelines for the Laboratory Analysis of Contaminated Soils using USEPA and APHA approved analytical methods as summarised in Table 6. The laboratory Practical Quantitation Limits (PQLs) were also summarised in Table 6.

9.5.2 Groundwater

The water samples were analysed using analytical methods based on USEPA and APHA methods as summarised in Table 7. The corresponding laboratory PQLs were also provided in the Table 7. It is noted that the PQLs for anthracene and benzo(a)pyrene slightly exceed the assessment criteria for these compounds.

10 SITE ASSESSMENT CRITERIA

Site Assessment Criteria (SAC) are presented below. Evaluation against the contaminated site assessment criteria is used to identify levels of contamination that may pose health risks to future users of the site. It is understood that the site will be re-developed for commercial/industrial land use.

10.1 SOIL CONTAMINATION

When determining the significance of any contaminants detected in the soil, it is important to define site assessment criteria that are appropriate for the proposed land use. For recreational open space land use this should include aesthetics (including soil colour and odour), ecological and potential human health issues. For residential/ commercial land use this should include aesthetics and potential human health issues. That is, the site assessment criteria should be set at a level that provides confidence that contaminant concentrations below the criteria will not adversely impact human health or be aesthetically adverse.

10.1.1 Aesthetics

Aesthetics on a site to be used for commercial/industrial purposes relate to the generation of odours from soil as a result of contamination. Aesthetic issues were continually addressed during the investigation and are reported on the borehole logs.

10.1.2 Ecologically based Soil Site Assessment Criteria

Potential ecological impacts have to be assessed for soils to be retained on site, which are not underneath buildings or slabs. To address potential ecological impacts of soils, CES compared the analytical testing results against a set of Ecologically-based Investigation Levels (EILs) and Ecological Screening Levels (ESLs), as published in NEPM (2013), that provide confidence that contaminant concentrations below those levels will not adversely impact specific flora proposed for the site. Soil properties for the derivation of Added Contaminant Limits (ACLs) were estimated using the most conservative values for Cation Exchange Capacity (CEC) (5 $cmol_c$/kg) and percentage of clay in soil (1%), and an average value for pH (6.5 pH). The Ambient Background Concentration (ABC) used was adopted from the ambient background concentration (ABC) (25^{th} percentile) outlined in Olszowry et.al (1995) as recommended by NEPM Schedule B5b: *Guideline on Methodology to Derive Ecological Investigation Levels in Contaminated Soils*.

A summary of the adopted ecologically-based SAC is provided in Table 8.

10.1.3 Health-based Soil Site Assessment Criteria

To address potential health impacts at the site, CES compared the analytical testing results against a set of Health-based Soil Investigation Levels (HILs) and Health-based Soil Screening Level (HSL), as published in NEPM (2013), appropriate for the proposed land-use. That is, the HIL and HSL were set at a level that provides confidence that contaminant concentrations below the HIL and HSL will not adversely affect human or ecological health.

CES adopted the following HIL criteria:

- NEPM (2013) Health-based Investigation Levels (HIL) recommended for exposure setting ‘C’ which includes recreational land use; and
- NEPM (2013) Health-based Investigation Levels (HIL) recommended for exposure setting ‘D’ which includes commercial/industrial land use.

Additionally, CES adopted the following HSL criteria:

- Health-based Screening Levels (HSLs) for vapour intrusion for exposure setting ‘C’, which includes recreational / open space land use for sand at 0m to <1m; and
- Health-based Screening Levels (HSLs) for vapour intrusion for exposure setting ‘D’, which includes commercial / industrial land use for sand at 0m to <1m.

A summary of the health-based SAC is provided in Table 8.

10.1.4 Asbestos in Soil Site Assessment Criteria

Investigation criteria for asbestos in soil will be adopted from Table 7 of the NEPM (2013) Schedule B1- *Guideline on Investigation Levels for Soil and Groundwater*. The health screening levels used include the fixed Fibrous Asbestos (FA) and Asbestos Fines (AF) criteria of 0.001% w/w and the bonded ACM criteria for Recreational C and Commercial/ Industrial D, as dependant on the area of the proposed mixed development.

10.1.5 Acid Sulfate Soils

ASSMAC (1998) criteria were selected to identify the presence of Acid Sulfate Soils (ASS) on the site. These guidelines provide a series of trigger levels or action criteria, above which an ASS management plan should be prepared and development consent obtained prior to excavation works (Table 9). The trigger levels are based on the percentage of oxidisable sulphur (or equivalent TPA, TAA) for broad categories of soil types. For projects that disturb more than 1000 tonnes of soil with ≥0.03% oxidisable sulphur or equivalent existing acidity, a detailed management plan and development consent will be required (Ahern *et al*., 1998).

10.1.6 Soil Salinity

In order to establish the soil salinity class as per *Site Investigations for Urban Salinity* published by the Land and Water Conservation (2002), the electrical conductivity results were converted into extract electrical conductivity (EC_E) reported in dS m^{-1}. The EC_E was calculated using a multiplication factor based on the soil texture. The relevant multiplication factors are 14 for sandy loam, 17 for sand, 10 for loam and 8.5 for light clay. Soil is classified as non-saline if the EC_E is less than 2 dS m^{-1} and highly-saline if the EC_E is greater than 16 dS m^{-1}. The relevant guidelines are presented in Appendix 7.

To determine the aggressiveness of the soil and water environment on concrete or steel piles, the chemical test results are compared to Table6.4.2 (C) from Section 6 of the Australian Standard AS 2159 (2009) *Piling Design and Installation*. Guidelines are presented in Appendix 7. This section provides assessment criteria to assess the 'exposure classification' for a concrete or steel pile. The Standard has two classes of soil conditions:

(A) – high permeability soils below groundwater; and

(B) – low permeability soils and all soils above groundwater.

For this site, condition 'B' is relevant. The corrosion potential of an environment on concrete is dependent on the level of sulphate (of the soil and water), pH (of the soil), and chloride (of the water). It is also noted that the presence of magnesium and ammonium ions can increase the aggressiveness of sulphate on concrete, and the presence of chlorides is only relevant to any steel reinforcement. The corrosion potential on steel is dependent on soil pH, chloride (of the soil and water), and resistivity (of the soil).

Based on this soil condition and the chemical testing results, the standard provides the following range of 'exposure classifications':

- Non-Aggressive;
- Mild;
- Moderate:
- Severe; and
- Very Severe.

For the range of chemical conditions in the soil surrounding the structure, the condition leading to the most severe aggressive conditions is adopted.

10.2 GROUNDWATER

Assessment criteria for groundwater were derived from the NEPM (2011) Schedule B1 Groundwater Investigation Levels (GILs) which encompass the ANZECC (2000) Australian Water Quality Guidelines, NHMRC (2011) Australian Drinking Water Guidelines, and the NHMRC (2008) Guidelines for Managing Risks in Recreational Waters.

Trigger values for marine water were adopted for this study rather than freshwater guidelines, on the basis that the ultimate receiving system for groundwater at the site is the estuarine section of the Cooks River and ultimately Botany Bay. The Cooks River ultimately flows into Botany Bay approximately 2.5 km from the site. Given the distance from the site, CES consider the comparison of groundwater results against recreational water guidelines to not be suitable. Furthermore, given the fact that the Cooks River is free flowing, is not a stagnant water body and that it is highly degraded due to industrial pollution and stormwater run-off, it is therefore not a sensitive receptor.

Groundwater assessment criteria for relevant parameters are summarised in Table 9.

It is noted that ANZECC (2000) Australian Water Quality Guidelines and NHMRC (2011) Australian Drinking Water Guidelines, have been superseded by the Water Quality Guidelines, ANZG 2018, Australian Drinking Water Guidelines 6, 2011 Version 3.8 Updated September 2022, respectively.

A review of current Default Guideline Values (GDVs) reported in the Water Quality Guidelines, ANZG 2018 indicated that there were no changes to those values with the following exceptions:

- zinc (changed from 15 µg/L to 8 µg/L),
- nitrate (which was erroneous and in the absence of an ANZG (2018) default guideline value, refer to the "Grading" guideline values published in the report Updating nitrate toxicity effects on freshwater aquatic species, which were used to inform the current New Zealand nitrate toxicity attribute. Changed from 10,000 µg/L to 2,400 µg/L, which is the grading value reported in the guidelines for 95% protection)
- TRH (C6-C36) (not reported in the guideline)
- Ethylbenzene (changed from 5 µg/L to 80 µg/L)
- Total Xylenes (not reported in the guideline).

10.3 GROUND GAS

The assessment of ground gas at the site was made in accordance with NSW EPA (2012) Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases. The multi-level risk assessment approach, as adopted from the DOP (2011) Assessment Guideline – Multi-level Risk Assessment, was used to determine the potential of risk of ground gas at the site.

It is noted that the NSW EPA (2012) *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases* have been superseded by the NSW EPA 2020 *Contaminated Land Guidelines Assessment and management of hazardous ground gases*. Overall, risk assessment process remains unchanged, and section referenced has been updated where required.

The first level of assessment, the preliminary screening process, as displayed in section 4.3.1 of NSW EPA (2020), is applied to identify potential sources of ground gas, potential receptors, and possible pathways of gas migration. If a risk is identified, the second level of the assessment is applied with the risk being classified and assessed using the modified Wilson and Card classification (Table 7, NSW EPA (2022)). If required, a third level of assessment is assessed and the risk analysed and management options are considered.

10.4 VOLATILE ORGANIC COMPOUNDS IN LANDFILL GAS

The NSW Department of Environment and Conservation (DEC, now Department of Environment and Climate Change) Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (DEC, 2005) only provides impact assessment criteria for VOCs for a one hour averaging period. Therefore, analysis results of VOCs in gas have been used only for screening purposes.

11 QA/QC DATA EVALUATION

All soil samples were collected by experienced environmental scientists/engineers, under established CES protocols. CES personnel have been trained in sample collection and handling techniques.

For the purpose of assessing the quality of data presented in this report, CES collected and analysed various Quality Control (QC) samples (field QC samples), while the laboratory completed their own QC. The current section of this report is focused on the presentation of results of these QC samples and discussion of deviations from the Data Acceptance Criteria (DAC). A description of the DAC, types of QC samples and their purpose is provided in Appendix 2. Tabulated QC data are also presented in Appendix 2.

11.1 SOIL QA/QC ASSESSMENT

11.1.1 Sample Preservation and Sample Holding Times

All samples were delivered to the laboratory with appropriate preservation and analysed within appropriate holding times (Appendix 3).

11.1.2 Field QA/QC Assessment

Field QA/QC data outside the acceptance criteria are presented and discussed below.

11.1.2.1 *Blind Replicates*

Table A2-1 summarises the number of blind replicate samples collected for each of the substances analysed and their ratio with the number of environmental samples analysed. Ratios of soil replicate sets conformed to or exceeded the QA/QC requirements (≥10%) outlined in Appendix 2.

With nine exceptions, Relative Percent Differences (RPDs) calculated for the blind replicate pairs conformed to the Data Acceptance Criteria. The exceptions were:

- RPD of 56 % for copper in sample pair 090508-194/195-KW, however both results were below the SAC of 17000 mg kg^{-1};
- RPD of 100 % for nickel in sample pair 090508-194/195-KW, however both results were below the SAC of 2100 mg kg^{-1};
- RPD of 74 % for zinc in sample pair 120508-239/240-KW, however both results were below the SAC of 60 000 mg kg^{-1};
- RPD of 108 % for zinc in sample pair 070508-55/56-KW, however both results were below the SAC of 60 000 mg kg^{-1};
- RPD of 75 % for lead in sample pair 150508-352/353-KW, however both results were below the SAC of 1500 mg kg^{-1}; and

- RPD of 69 % for Arsenic in blind replicate sample pair 290805-39/40-KW, however both results were below the SAC of 300 mg kg^{-1};
- RPD of 126 % for lead in blind replicate sample pair 010508-122/123-KW, however both results were below the SAC of 1500 mg kg^{-1};
- RPD of 120 % for zinc in blind replicate sample pair 300408-89/90-KW, however both results were below the SAC of 30000 mg kg^{-1}; and
- RPD of 73% for copper in blind replicate sample pair 300408-101-102-KW, however both results were below the SAC of 17000 mg kg^{-1}.

In each instance the RPD is expected to be a result of the inhomogeneous nature of the fill material at each sample location and as such is not expected to compromise the integrity of the data.

11.1.2.2 *Split Samples*

Table A2-1 summarises the number of split samples collected for each of the substances analysed and their ratio with the number of environmental samples analysed. With the exception of three substances, ratios of split sample sets conformed to or exceeded the OA/QC requirements (≥5%) outlined in Appendix 2. The exceptions were as follows:

- PAAH 4.8%; and
- Nutrients 3.8%.

These minor non-conformances are considered not to significantly affect the quality of the data.

With seven exceptions, Relative Percent Differences (RPDs) calculated for the split sample pair conformed to the Data Acceptance Criteria. The exceptions were:

- RPD of 112 % for copper in sample pair 150508-385/387-KW, however both results were below the SAC of 17000 mg kg^{-1};
- RPD of 144 % for nickel in sample pair 150508-385/387-KW, however both results were below the SAC of 2100 mg kg^{-1};
- RPD of 108 % for lead in sample pair 150508-385/387-KW, however both results were below the SAC of 1500 mg kg^{-1};
- RPD of 156 % for lead in split sample pair 010508-122/124-KW, however both results were below the SAC of 1500 mg kg^{-1};
- RPD of 104% for copper in split sample pair 010508-136/138-KW, however both results were below the SAC of 17000 mg kg^{-1};
- RPD of 143% for lead in split sample pair 010508-136/138-KW, however both results were below the SAC of 1500 mg kg^{-1};

- RPD of 89% for zinc in split sample pair 010508-136/138-KW, however both results were below the SAC of 30000 mg kg^{-1};and

The slightly elevated RPD is considered to be a result of the inhomogeneous nature of the fill material at this sample location and is not considered to compromise the integrity of the data.

11.1.2.3 *Rinsate Blank*

One rinsate blank was collected during the soil investigation. The rinsate blank was collected from running laboratory prepared rinsate water directly over a decontaminated hand auger used on 9 June 2008.

With the exception of zinc (5.5 µg L^{-1}) all results were below the laboratory detection limits. As no other analytes were detected within the blank, the detected zinc concentration is likely to be associated with zinc plating of the hand auger, rather than cross contamination. This elevated result is not considered to compromise the integrity of the data.

11.1.2.4 *Trip Blank*

In accordance with the QA/QC plan outlined in Appendix 2, one trip blank was included in each sample batch.

All trip blanks conformed to the Data Acceptance Criteria.

11.1.2.5 *Laboratory-Prepared Trip Spike*

In accordance with the QA/QC plan outlined in Appendix 2, one trip spike was included in each sample batch.

Nine soil trip spikes were submitted to the primary laboratory on 30 April 2008 and 2, 5, 8, 9, 12, 13, 14 and 16 May 2008. With three exceptions, all trip spikes conformed to the Data Acceptance Criteria. The exceptions were:

Envirolab report 19177

- RPD of 69% for benzene;
- RPD of 64% for toluene;
- RPD of 64% for ethylbenzene;
- RPD of 65% for meta- & para xylene; and
- RPD of 63% for prtho-xylene

Envirolab report 19257

- RPD of 133% for meta- & para xylene.

Envirolab report 19325
- RPD of 65% for ethylbenzene;
- RPD of 65% for meta- & para xylene; and
- RPD of 60% for ortho-xylene

All BTEX compound exceedences were marginally outside the DAC of 70-130% and are considered not to compromise the integrity of the data as all BTEX compound soil results within Envirolab reports 19177, 19257 and 19325 were below the laboratory reporting limits.

11.1.2.6 *Field Instrument Calibration*

The Photoionisation Detector (PID) was the only instrument used during the soil investigation. The PID was calibrated in accordance with manufacturer's instructions by CES personnel and the calibration check at the completion of use was within 10 % of the calibration standard. Calibration records were noted on the PID Field Data Sheets. Therefore, field instrument calibration was considered to be satisfactory and no significant drift was encountered during use that would compromise the integrity of the results.

11.1.3 Laboratory QA/QC Assessment

All analysis was undertaken in accordance with the SAQP by NATA accredited laboratories using NATA accredited analytical methods. The following laboratory batches were analysed during the ESA.

ALS Laboratory Reports
ES0805939
ES0806132
ES0806167
ES0807086
ES0807714
ES0806641
ES0806463
ES0806723

ES0806313
ES0806519
ES0806928
ES808708
ES1703949

Envirolab Laboratory Reports
E19177
E18941
E18941-A
E19035
E19035-A
E19069
E19072
E19222
E19257
E19282
E19325
E19429
E19432
E19432-A
E19834
E20315
E162123

Appendix 2 summarises the results of the QA/QC programme completed by the laboratories.

11.1.3.1 *Laboratory Duplicates*

With the exceptions shown in Appendix 2 laboratory duplicates conformed to the Data Acceptance Criteria in all sample batches. In summary, the RPDs that did not conform to the DAC generally conformed to the laboratory DAC and as such are considered not to significantly compromise the integrity of the data.

11.1.3.2 *Laboratory Control Samples*

With the exceptions shown in Appendix 2 laboratory control samples conformed to the Data Acceptance Criteria in all sample batches. Considering that recoveries conformed to the laboratory acceptance criteria and that the majority of these chemicals were absent within samples analysed from the site, reported exceedances of the DAC for laboratory control samples would not compromise the integrity of the data.

11.1.3.3 *Surrogates*

With the exceptions shown in Appendix 2 surrogates conformed to the Data Acceptance Criteria. Considering that the majority of recoveries conformed to the laboratory acceptance criteria, reported exceedances of the DAC for laboratory surrogates do not compromise the integrity of the data.

11.1.3.4 *Matrix Spikes*

With the exceptions shown in Appendix 2 matrix spike data conformed to the Data Acceptance Criteria. The recoveries of the matrix samples exceeding the DAC generally conformed to the laboratory acceptance criteria (ie. acceptable limits set to measure conformance with QC systems as required by NATA accreditation). Considering that the recoveries conformed to the laboratory acceptance criteria, reported exceedances of the DAC for laboratory surrogates do not compromise the integrity of the data.

11.1.3.5 *Method Blanks*

With the exceptions in shown in Appendix 2 concentrations of all parameters in method blanks were below the laboratory reporting limits.

11.2 GROUNDWATER QA/QC ASSESSMENT

11.2.1 Sample Preservation and Sample Holding Times

All samples were delivered to the laboratory with appropriate preservation and analysed within appropriate holding times.

11.2.2 Field QA/QC Assessment

Field QA/QC data outside the acceptance criteria are presented and discussed below. Tabulated RPD data is provided in Appendix 2.

11.2.2.1 *Blind Replicate*

Table A2-1 summarises the number of blind replicate samples collected for each of the substances analysed and their ratio with the number of environmental samples analysed. Four blind replicate samples were collected, providing a ratio of one blind replicate for every 7.5 environmental samples, which exceeds the requirements outlined in Appendix 2 of one blind replicate for every ten environmental samples. All blind Relative Percent Differences (RPDs) calculated for the blind sample pair conformed to the Data Acceptance Criteria.

With one exception, Relative Percent Differences (RPDs) calculated for the blind replicate sample pair conformed to the Data Acceptance Criteria. The exception were:

- RPD of 167 % for Magnesium (II) Ion in sample pair 170608-03/04-KW. There is currently no SAC for Magnesium.

11.2.2.2 *Split Sample*

Table A2-1 summarises the number of split samples collected for each of the substances analysed and their ratio with the number of environmental samples analysed. Two split sample were collected, providing a ratio of one split sample for every 12 environmental samples, which exceeds the requirements outlined in Appendix 2 of one blind replicate for every twenty environmental samples.

With two exceptions, Relative Percent Differences (RPDs) calculated for the split sample pair conformed to the Data Acceptance Criteria. The exceptions were:

- RPD of 69 % for ammonia in sample pair 290508-05/07-KW, both results were above the SAC of 0.91 mg L^{-1}; and
- RPD of 70 % for total phosphorus in sample pair 290508-05/07-KW. There is currently no SAC for total phosphorus.

11.2.2.3 *Trip Blanks*

In accordance with the QA/QC plan outlined in Appendix 2, one trip blank was included in each sample batch.

Two trip blanks were submitted to the laboratory for analysis. The trip blank samples conformed to the nominated Data Acceptance Criteria.

11.2.2.4 *Laboratory-Prepared Trip Spike*

In accordance with the QA/QC plan outlined in Appendix 2, one trip spike was included in each sample batch.

Three laboratory prepared trip spikes were submitted to the laboratory for analysis. The trip spike sample submitted for each of the sampling events conformed to the nominated Data Acceptance Criteria.

11.2.2.5 *Field Instrument Calibration*

The Water Quality Meter (WQM) was the only instrument used during the groundwater investigation. The WQM was calibrated in accordance with manufacturer’s instructions by CES personnel and the calibration check at the completion of use, was within 10 % of the calibration standards. Calibration records are maintained in the CES office with the WQM.

Therefore, field instrument calibration was considered to be satisfactory and no significant drift was encountered during use that would compromise the integrity of the results.

11.3 LABORATORY QA/QC ASSESSMENT

All analysis was undertaken in accordance with the SAQP by NATA accredited laboratories using NATA accredited analytical methods. The following laboratory batches were analysed during the ESA.

ALS Laboratory Reports

- ES0807714; and
- ES1703949

Envirolab Laboratory Reports

- 19257;
- 19834;
- 20315; and
- 162123.

11.3.1 Laboratory Duplicates

Where analysed, RPDs for laboratory duplicate samples conformed to the DAC in the following batches.

- 19834;
- ES0807714;
- ES1703949;
- 20315; and
- 162123.

Table 5 summarises the analytes in each batch that did not meet the DAC for laboratory duplicate RPDs. In summary, the RPDs that did not conform to the DAC generally conformed to the laboratory DAC and as such are considered not to significantly compromise the integrity of the data.

11.3.2 Laboratory Control Samples

Recoveries for laboratory control samples conformed to the DAC in the following batches:

- 19834;
- ES0807714; and
- 162123.

The recoveries of the laboratory control samples outside the DAC conformed to the laboratory acceptance criteria (i.e. acceptable limits set to measure conformance with QC systems as required by NATA accreditation). Considering that recoveries conformed to the laboratory acceptance criteria and that the majority of these chemicals were absent within samples analysed from the site, reported exceedances of the DAC for laboratory control samples would not compromise the integrity of the data.

11.3.3 Surrogates

Recoveries for laboratory surrogate samples conformed to the DAC in the following batches:

- 19257;
- 20315;
- ES1703949; and
- 162123.

The recoveries of the laboratory surrogates exceeding the DAC conformed to the laboratory acceptance criteria (i.e. acceptable limits set to measure conformance with QC systems as required by NATA accreditation). Considering that recoveries conformed to the laboratory acceptance criteria, reported exceedances of the DAC for laboratory surrogates do not compromise the integrity of the data.

11.3.4 Matrix Spikes

Results of matrix spike analyses conformed to DAC in the laboratory batch 19257, 20315 and 162123.

The recoveries of the matrix samples exceeding the DAC generally conformed to the laboratory acceptance criteria (i.e. acceptable limits set to measure conformance with QC systems as required by NATA accreditation). Considering that the recoveries conformed to the laboratory acceptance criteria, reported exceedances of the DAC for laboratory surrogates do not compromise the integrity of the data.

11.3.5 Method Blanks

Method blanks reported analyte concentration below the laboratory LOR and therefore conformed to the DAC.

11.3.6 Sample Holding Times

All samples were extracted and analysed within the specified holding.

11.3.7 Sample Condition

All samples were received by the analytical laboratories in correctly preserved and chilled containers with no reported breakages. Sample receipt advices are presented with the laboratory reports in Appendix 5.

11.4 LANDFILL GAS QA/QC ASSESSMENT

11.4.1 Field Instrument Calibration

The GA45 Landfill Gas Analyser was calibrated prior to field work using methane (0%, 2.5% and 50%), oxygen (0% and 17%) and carbon dioxide (10%) in accordance with manufacturer's instructions by CES personnel. A calibration check was also conducted at the conclusion of monitoring. The calibration sheet is attached in Appendix 4.

11.5 LABORATORY QA/QC ASSESSMENT

Laboratory QA/QC data for laboratory analyses are provided in the laboratory reports (Appendix 3). Those outside the acceptance criteria are presented and discussed below.

11.5.1 Laboratory Control Samples

All laboratory control samples conformed to the Data Acceptance Criteria.

11.5.2 Surrogates

All laboratory surrogates conformed to the Data Acceptance Criteria.

11.5.3 Matrix Spikes

All matrix spike data conformed to the Data Acceptance Criteria.

11.5.4 Method Blanks

Concentrations of all parameters in method blanks were below the laboratory reporting limits.

11.6 DATA USEABILITY ASSESSMENT

11.6.1 Assessment of Field QA/QC Data

The field QA/QC data shows the integrity of the analytical data to be acceptable for use in this assessment.

11.6.2 Assessment of Laboratory QA/QC Data

Envirolab and ALS are NATA accredited for the analytical tests carried out and CES consider all laboratories to be proficient in all tests conducted. A number of test results including reference check sample, daily check sample, laboratory standard charts, standard solution results; method and instrument detection limits are not reported in standard analytical reports. Due to the rigorous NATA accreditation process and in consideration of the laboratory quality sample results reviewed, CES consider the integrity of the analytical data to be suitable for use in the investigation.

11.6.3 Overall Data Assessment

The QA/QC assessment of the field and laboratory data indicated that for the purpose of the assessment, the results of the field and laboratory QA/QC programme were considered acceptable for use as outlined in the data assessment below.

11.6.3.1 *Precision*

The RPD's of the laboratory duplicates were within the DAC, which indicates the sampling and laboratory precision was within acceptable limits.

11.6.3.2 *Accuracy*

Laboratory accuracy was assessed by analysis of laboratory control samples and a method blank and percent recoveries of matrix spikes and surrogates.

With the exceptions noted in Sections 11.1.2 and 11.1.3, these results indicate the accuracy of the analytical results is within acceptable limits.

11.6.3.3 *Representativeness*

CES consider the samples collected from fill material and natural soil to be representative of the materials present at each of the sampling locations. To this end, CES staff ensured that samples collected were representative of the material observed in each borehole.

11.6.3.4 *Completeness*

All QAQ/QC documentation, including Chain of Custody forms, Sample Receipt Notices and laboratory quality reports were provided and complete. Required QA/QC data, including both field and laboratory data is also provided and complete.

11.6.3.5 *Comparability*

Soil samples were collected by Luke Jenkins and Kelly Weir of CES using appropriate CES protocols. With the exception of some samples adjacent to the USTs obtained with a hand auger, all samples were obtained from a direct push drill rig. The use of different personnel and sampling techniques may impact upon data comparability. However, a hand auger was required for OH&S reasons and as both personnel are experienced Environmental Scientists and adopted appropriate CES sampling protocols, the potential for variation has been minimised. It is not possible within the confines of this project to undertake a quantitative comparability assessment of the use of different sampling personnel.

Groundwater samples were collected by Luke Jenkins of CES using a peristaltic pump and flow cell. The flow cell was not used for sampling groundwater from ABH2110 due to the low recharge of this well. Groundwater was pumped directly into two laboratory sample vials. The requirement to place the probe of the water quality meter in a non-flowing groundwater sample may have resulted in no analytical analysis of the groundwater from ABH2110. Groundwater samples were collected by Mitchell Read of CES using low flow sampling techniques during the February 2017 sampling event. CES conclude that data are of acceptable quality for this assessment.

12 RESULTS

Results from the assessment of the site are presented below. Field Data Sheets (FDS) used during the investigation are presented in Appendix 4.

12.1 SITE STRATIGRAPHY AND AESTHETICS

Borehole logs are presented in Appendix 5. In summary, the stratigraphy encountered in the boreholes comprised silty sand fill overlying natural sand and silty or clayey sand.

Fill ranged from topsoil with grass and rootlets to sand, which ranged in colour from white to light to dark grey and/or brown. Clayey sand was also encountered as fill as well as silty clay and clay. In addition crushed sandstone fill was encountered in a limited number of locations. Suspected Asbestos Containing Materials (ACM) were noted at the surface in a number of locations of the southern portion of the site, typically in fill materials used to surface unsealed pathways, and a fragment of ACM was collected from fill at a depth of 0.6 – 0.7 in BMW401. Isolated metal shavings were noted at AMW207.

During the drilling of boreholes surrounding the USTs within the car park, a hydrocarbon odour was noted from sand fill to a depth of approximately 2.0mBGL within boreholes ABH2107, ABH2108 and ABH2105. A sheen could also be observed on the wet sands from these wells. The hydrocarbon odour was also noted within the groundwater of ABH2105 and ABH202.

A slight to strong hydrogen sulfide odour was also generally noted within the natural sands within the northern portion of the site at depths greater than 2 mBGL.

Natural soil comprised sand and silty or clayey sand ranging in colour from pale to dark grey and brown with shells. Silty clay lenses, clayey sand and clay were encountered in places and were typically dark brown, dense and moist.

12.2 SOIL PID ANALYSIS

PID field data sheets are presented in Appendix 4 and the results are also presented on the borehole logs in Appendix 5.

With the exception of those samples from encompassing the USTs, all samples recorded low PID results (<50 ppm) indicating that soil impacted with volatile compounds were not encountered. It should be noted that the PID is not capable of detecting methane and that its use in this instance was to assess for volatile hydrocarbons, not the presence of methane.

12.3 SOIL ANALYTICAL RESULTS

The analytical results for the soil samples collected across the site are discussed in the following sections. Copies of the laboratory certificates of analysis are presented in Appendix 3. Exceedances of the SAC are shown on Figure 3.

12.3.1 Metals and Metalloids

The concentrations of metals and metalloids in samples of, fill and soil are presented in Table 11.

A total of 223 samples, including QC samples, were analysed for metals and metalloids. Concentrations were generally low and less than the PQL of the analytical method used. With the exception of lead concentrations in two samples, concentrations were less than the human health-based SAC. Eleven samples contained one of more metals or metalloids that exceeded the ecological-based SAC.

Fill Material

The SAC were exceeded in eleven samples collected. The ecologically-based SAC are more sensitive than the health-based SAC and as such are exceeded in each instance where the health-based SAC was exceeded.

The health-based SAC for lead of 1,500 mg kg^{-1} (HIL-D, commercial/industrial) was exceeded in the following samples of fill:

- 300408-107-KW, lead 2,100 mg kg^{-1} at a depth of 2.4-2.6m in BBH430; and
- 010508-159-KW, lead 4,400 mg kg^{-1} at a depth of 2.4-2.5m in BBH433.

In addition to those listed above, the ecologically based SAC were also exceeded in the following samples of fill:

- 080508-161-K, Cu 240 mg kg-1 at a depth of 0.35-0.45 in ABH212
- 120508-219-KW, Cu 7,500 mg kg-1, Ni 59 mg kg-1 , 540 Zn mg kg-1 at a depth of 0.5-0.7 m in AMW207.
- 020508-188-KW, Cu 110 mg kg-1 at a depth 1.3-1.4 m in BMW401;
- 290408-39-KW, Cu 160 mg kg-1 at a depth 0.2-0.5 m in BBH409;
- 290408-40-KW, Cu 150 mg kg-1 at a depth 0.2-0.5 m in BBH409;
- 290408-41-KW, Cu 133 mg kg-1 at a depth 0.2-0.5 m in BBH409;
- 300408-107-KW, Cu 260 mg kg-1, Ni 59 mg kg-1 , Pb 2,100 mg kg-1, Zn 1,100 mg kg-1 at a depth of 2.4-2.6 m in BBH430;

- 010508-159-KW, Cu 180 mg kg-1, Zn 7800 mg kg-1 Pb 4,400 mg kg-1 at a depth of 2.4-2.5m in BBH433;
- 010508-155-KW, Zn 420 mg kg-1 at a depth of 2.4-2.5m in BBH429.
- 280408-15-KW, Ni 42 mg kg-1 at a depth 0.0-0.1 m in BBH404; and
- 290408-37-KW, Ni 49 mg kg^{-1} at a depth 0.8-0.9 m in BBH411.

Natural Soil

The SAC was not exceeded in any of the natural soils.

12.3.2 TPH and BTEX

The concentrations of TPH and BTEX in samples of fill and soil are presented in Table 12.

A total of 125 samples were submitted for TPH/BTEX analysis including QC samples.

Fill Material

Concentrations of benzene, toluene, and xylenes were not detected in any of the samples at concentrations greater than the laboratory reporting limit with the exception of the following samples of fill.

The health-based SAC for benzene of 3 mg kg^{-1} for commercial / industrial land-use was exceeded in the following samples:

- 150508-333-KW, benzene, 8.9 mg/kg^{-1} at a depth of 1.4-1.5mBGL in ABH2105;
- 150508-341-KW, benzene, 51 mg/kg^{-1} at a depth of 1.0-1.1mBGL in ABH2107;
- 150508-342-KW, benzene, 96 mg/kg^{-1} at a depth of 1.5-1.6mBGL in ABH2107; and
- 150508-345-KW, benzene, 28 mg/kg^{-1} at a depth of 1.1-1.2.mBGL in ABH2108.

The health-based SAC for xylenes of 230 mg kg^{-1} for commercial / industrial land-use was exceeded in the following samples:

- 150508-341-KW, xylenes, 630 mg/kg^{-1} at a depth of 1.0-1.1mBGL in ABH2107;
- 150508-342-KW, xylenes, 470 mg/kg^{-1} at a depth of 1.5-1.6mBGL in ABH2107; and
- 150508-345-KW, xylenes, 338 mg/kg^{-1} at a depth of 1.1-1.2.mBGL in ABH2108.

The ecological-based SAC for toluene of 135 mg kg^{-1} for commercial / industrial land-use was exceeded in the following samples:

- 150508-341-KW, toluene, 390 mg/kg^{-1} at a depth of 1.0-1.1mBGL in ABH2107;

- 150508-342-KW, toluene, 470 mg/kg-1 at a depth of 1.5-1.6mBGL in ABH2107; and
- 150508-345-KW, toluene, 150 mg/kg-1 at a depth of 1.1-1.2.mBGL in ABH2108.

Natural Soil
Concentrations of TPH C_6-C_9 and C_{10}-C_{36} and BTEX compounds were not detected at levels greater than the laboratory reporting limit in the samples of natural soil.

12.3.3 Polycyclic Aromatic Hydrocarbons (PAHs)

The concentrations of PAHs in samples of fill and soil are presented in Table 13.
A total of 118 samples were submitted for PAH analysis including QC samples.

Fill Material
PAHs were detected at concentrations greater than the laboratory reporting limit in the vast majority of the samples submitted for analysis.

Benzo(a)Pyrene concentrations were detected at levels greater than the assessment criterion in seven samples collected.

The health-based SAC for Benzo(a)Pyrene TEQ of 3 mg kg^{-1} for HIL Recreational/Open Space C land-use was exceeded in in the following samples:

- 010508-152-KW, 3.846 mg/kg^{-1} at a depth of 0.0-0.1 mBGL in BBH429; and
- 300408-92-KW, 29.47 mg/kg^{-1} at a depth of 0.2-0.3 mBGL in BBH453.

The ecological-based SAC for Benzo(a)Pyrene of 0.7 mg kg^{-1} for ESL commercial / industrial land-use was exceeded in the following samples:

- 150508-345-KW, 0.8 mg/kg^{-1} at a depth of 1.1-1.2 mBGL in ABH2108.

The ecological-based SAC for Benzo(a)Pyrene of 0.7 mg kg^{-1} for ESL Urban Residential and Public Open Space land-use was exceeded in the following samples:

- 280408-06-KW, 2.7 mg/kg^{-1} at a depth of 0.5-0.6 mBGL in BBH402;
- 130508-283-KW, 2.5 mg/kg^{-1} at a depth of 0.8-1 mBGL in ABH276;
- 290408-49-KW, 2.3 mg/kg^{-1} at a depth of 0.4-0.5 mBGL in BBH405;
- 290408-37-KW, 0.9 mg/kg^{-1} at a depth of 0.8-09 mBGL in BBH411;
- 020508-187-KW, 1 mg/kg^{-1} at a depth of 0.15-0.5 mBGL in BMW401;
- 020508-188-KW, 1.3 mg/kg^{-1} at a depth of 1.3-1,4 mBGL in BMW401;
- 010508-152-KW, 1.4 mg/kg^{-1} at a depth of 0.0-0.1 mBGL in BBH429; and

- 300408-92-KW, 8.8 mg/kg^{-1} at a depth of 0.2-0.3 mBGL in BBH453.

Natural Soil
PAHs were not detected at concentrations greater than the laboratory reporting limit in all samples submitted for analysis, with the exception of sample 130508-330-KW at depth 2.1-2.2 mBGL in ABH293.

12.3.4 Organochlorine Pesticides (OCPs)

The concentrations of OCPs in samples of fill and soil are presented in Table 14.
A total of 82 samples were submitted for OCP analysis including QC samples.

Fill Material
Concentrations of OCPs were not detected at concentrations greater than the laboratory reporting limit in the samples submitted for analysis and as such were less than the SAC.

Natural Soil
No samples of natural soil were submitted for OCP analysis.

12.3.5 Organophosphate Pesticides (OPPs)

The concentrations of OPPs in samples of fill and soil are presented in Table 15.
A total of 82 samples were submitted for OCP analysis including QC samples.

Fill Material
OPPs were not detected at concentrations greater than the laboratory reporting limit in the samples submitted for analysis and as such were less than the SAC.

Natural Soil
No samples of natural soil were submitted for OPP analysis.

12.3.6 Polychlorinated Biphenyls (PCBs)

The concentrations of PCBs in samples of fill and soil are presented in Table 16.
A total of 84 samples were submitted for PCB analysis including QC samples.
Fill Material
PCBs were not detected at concentrations greater than the laboratory reporting limit of 0.1 mg kg^{-1} in the samples submitted for analysis and as such were less than SAC.

Natural Soil
No samples of natural soil were submitted for PCB analysis.

12.3.7 Phenols

The concentrations of phenols in samples of fill and soil are presented in Table 17.
A total of 35 samples were submitted for phenol analysis including QC samples.

Fill Material

Phenols were not detected at concentrations greater than the laboratory reporting limit of 5 mg kg^{-1} in the samples submitted for analysis and as such were less than SAC.

Natural Soil

3 samples of natural soil were submitted for phenol analysis. Phenols were not detected at concentrations greater than the laboratory reporting limit of 5 mg kg^{-1} in the sample submitted for analysis and as such were less than SAC.

12.3.8 Nutrients and Salinity

The concentrations of nutrients and salinity in samples of fill and soil are presented in Table 18.
A total of 58 samples were submitted for analysis for nutrients and salinity including QC samples.

Concentrations of the nutrients tested were as follows:

- Ammonia concentrations ranged from below the laboratory detection limit in sample 090508-208-KW at 0.1-0.2mBGL in ABH206, in sample 130508-304-KW at 0.1-0.2mBGL in ABH272, in sample 300408-106-KW at 0.1-0.3 mBGL in BBH430, in sample 010508-122-KW at 0.1-0.4 mBGL in BBH458 to 19 mg/kg^{-1} in sample 070508-93-KW collected from a depth of 0-0.15 in ABH233;

- Total Nitrogen concentrations in those samples tested ranged from 140 mg/kg^{-1} in sample 060508-16-KW (Split Field Duplicate of 060508-14-KW) collected from a depth of 0.5-0.8 mBGL in ABH229 to 17 000 mg/kg^{-1} in sample 120508-261-KW collected from a depth of 0-0.2mBGL in ABH296;

- Nitrite concentrations were less than the detection limit of the analytical method used in thirty five of the samples but where detected ranged from 0.1 mg/kg^{-1} in samples 280408-01-KW collected from 0.2-0.4 mBGL in BBH401 and 290408-74-KW collected from 0.1-0.2 mBGL in BBH437 to 1.8 mg/kg^{-1} in sample 070508-93-KW collected at 0-0.15mBGL from ABH233;

- Nitrate concentrations were less than the detection limit of the analytical method used in eighteen of the samples but where detected ranged from 0.6 mg/kg^{-1} in sample 060508-14-KW collected from 0.5-0.8 mBGL in ABH229 and 020508-187-KW collected from 0.15-0.35

mBGL in BMW401 to 6.2 mg/kg^{-1} in sample 150508-384-KW collected at 0-0.15 mBGL in ABH284;

- Total Phosphorous concentrations ranged from 19 mg/kg^{-1} in sample 060508-15-KW collected from 0.5-0.8 mBGL in ABH229 to 2800 mg/kg^{-1} in sample 290408-46-KW collected from 0.1-0.2 mBGL in BBH406;

- pH concentrations ranged from 4.8 in sample 120508-261-KW collected from a depth of 0-0.2 mBGL in ABH296 to 9.1 in sample 290408-48-KW collected from 0.0-0.2 mBGL in BBH405;

- Electrical conductivity ranged from 51 us/cm in sample 300408-102-KW (Field Blind Replicate Sample of 300408-101-KW) collected from 0.1-0.4 mBGL in BBH442 and 010508-136-KW collected from 0.1-0.4 m BGL in BBH445 to 3100 us/cm in sample 300408-99-KW collected at 0.4-0.5 mBGL in BBH448;

- Salinity concentrations ranged from 3.2 mg/kg^{-1} in sample 300408-99-KW collected from 0.4-0.5 mBGL in BBH448 to 370 mg/kg^{-1} in sample 070508-76-KW collected at 0-0.1mBGL in ABH222;

- Resistivity ranged from 17 ohm m in sample 070508-76-KW collected at 0-0.1mBGL in ABH222 to 2000 ohm m in sample 300408-99-KW collected from 0.4-0.5 mBGL in BBH448;

- Chloride concentrations were less than the detection limit of the analytical method used in 21 of the samples but where detected ranged from 100 mg/kg^{-1} in samples 060508-16-KW (Split Field Duplicate of 060508-14-KW) collected from 0.5-0.8mBGL in ABH229 to 820 mg/kg^{-1} in sample 070508-76-KW collected at 0-0.1mBGL in ABH222; and

- Sulphate concentrations were less than the detection limit of the analytical method used in seventeen of the samples but where detected ranged from 29 mg/kg^{-1} in samples 080508-158-KW collected from 0.1-0.25mBGL in ABH221 to 6700 mg/kg^{-1} in sample 300408-99-KW collected at 0.4-0.5 mBGL in BBH448.

12.3.9 Volatile Organic Compounds (VOCs)

The concentrations of VOCs in samples of fill and soil are presented in Table 19.
A total of 68 samples were submitted for VOC analysis including QC samples.
Although concentrations were detected in ABH2105 (150508-333-KW, 1.4-1.5mBGL) and ABH2107 (150508-341-KW, 1.0-1.1mBGL), all VOC concentrations were below the SAC.

Fill Material

VOCs were not detected at concentrations greater than the laboratory reporting limit in any of the samples submitted for analysis, with the exception of the two samples mentioned in the above paragraphs.

Natural Soil

VOCs were not detected at concentrations greater than the laboratory reporting limit in any of the samples submitted for analysis.

12.3.10 Phenoxyacetic Acid Herbicides (PAAH)

The concentrations of PAAHs in samples of fill are presented in Table 20.

36 samples of fill material were submitted for PAAH analysis. PAAH were not detected at concentrations greater than the laboratory reporting limit in any of the samples submitted for analysis.

12.3.11 Asbestos

Fifty-four fill samples were submitted for screening of potential asbestos fibres (Table 21).

Asbestos fibres were not observed in any of the fill samples submitted, with the exception of two samples, 010508-A1-KW at depth 0.0-0.1 mBGL in BBH451 and 020508-A2-KW at depth 0.6-0.7 mBGL in BMW401 in which Chrysotile asbestos were detected in fibre cement sheet.

Four samples of materials located on the surface of un-grassed areas suspected of containing asbestos (fibrous cement sheet fragments) were submitted for determination of asbestos. Three samples (130508-A1-KW, 120508-A2-KW and 120508-A3-KW) contained chrysotile asbestos fibres, while 120508-A1-KW contained chrysotile asbestos, amosite asbestos and crocidolite asbestos.

12.3.12 Acid Sulfate Soils (SPOCAS)

Samples of natural soil were collected for Acid Sulfate Soil (ASS) determinations (Table 22). All of the samples collected were subjected to field screening for ASS and based on the results of the screening seventeen samples were submitted for SPOCAS testing. All samples submitted for SPOCAS testing indicated that Acid Sulfate Soils were present in all locations sampled as follows:

- ABH203 at 1.9-2.0mBGL, sulfur trail 0.31%, acid trail 130 mol H^+/tonne;
- ABH210 at 2.6-2.8mBGL, sulfur trail 0.045%, acid trail 5 mol H^+/tonne;
- ABH228 at 1.9-2.2mBGL, sulfur trail 0.44%, acid trail 165 mol H^+/tonne;
- ABH255 at 1.6-1.7mBGL, sulfur trail 0.51%, acid trail 213 mol H^+/tonne;
- ABH273 at 2.5-2.7mBGL, sulfur trail 1%, acid trail 505 mol H^+/tonne;
- ABH274 at 2.5-2.7mBGL, sulfur trail 0.78%, acid trail 338 mol H^+/tonne;

- ABH276 at 2.6-2.8mBGL, sulfur trail 1.1%, acid trail 418 mol H^+/tonne;
- ABH278 at 2.6-2.8mBGL, sulfur trail 0.65%, acid trail 240 mol H^+/tonne;
- ABH286 at 2.0-2.2mBGL, sulfur trail 0.69%, acid trail 463 mol H^+/tonne;
- BBH403 at 2.0-2.2mBGL, sulfur trail 0.71%, acid trail 333 mol H^+/tonne;
- BBH406 at 1.8-1.9 mBGL, sulfur trail 0.21%, acid trail 108 mol H^+/tonne;
- BBH411 at 2.2-2.3 mBGL, sulfur trail 0.11%;
- BBH412 at 2.2-2.4 mBGL, sulfur trail 0.74%, acid trail 338 mol H^+/tonne
- BBH427 at 2.6-2.8 mBGL, sulfur trail 3.7%, acid trail 1010 mol H^+/tonne;
- BBH440 at 2.3-2.4 mBGL, sulfur trail 0.0.49%, acid trail 253 mol H^+/tonne;
- BBH453 at 2.5-2.6 mBGL, sulfur trail 0.0.52%, acid trail 195 mol H^+/tonne; and
- BBH458 at 3.8-4.0 mBGL, sulfur trail 2.4 %, acid trail 1185 mol H^+/tonne.

12.3.13 Hotspots

A hotspot is defined in as a sample containing 2.5 times or greater than the concentration adopted as an assessment criterion. Hotspots are assumed to require remediation or some form of management to ensure protection of human health and the environment and should not be included in data used to calculate 95 % Upper Confidence Limit (UCL). Soil contamination hotspots are displayed in Figure 3.

A benzene hotspot was present within fill in the following samples:

- 150508-333-KW, benzene, 8.9 mg/kg^{-1} at a depth of 1.4-1.5mBGL in ABH2105;
- 150508-341-KW, benzene, 51 mg/kg^{-1} at a depth of 1.0-1.1mBGL in ABH2107;
- 150508-342-KW, benzene, 96 mg/kg^{-1} at a depth of 1.5-1.6mBGL in ABH2107; and
- 150508-345-KW, benzene, 28 mg/kg^{-1} at a depth of 1.1-1.2.mBGL in ABH2108.

A toluene hotspot was present within the fill in the following samples:

- 150508-341-KW, toluene, 390 mg/kg-1 at a depth of 1.0-1.1mBGL in ABH2107; and
- 150508-342-KW, toluene, 470 mg/kg-1 at a depth of 1.5-1.6mBGL in ABH2107.

A xylene hotspot was present within the fill in the following sample:

- 150508-341-KW, xylenes, 630 mg/kg^{-1} at a depth of 1.0-1.1mBGL in ABH2107.

Lead hotspots were present within fill in the following samples:

- 300408-107-KW, lead 2100 mg kg^{-1} at a depth of 2.4-2.6m in BBH430; and
- 010508-159-KW, lead 4400 mg kg^{-1} at a depth of 2.4-2.5m in BBH433.

Copper hot spots were present within the fill material in the following samples:

- 120508-219-KW, copper 7500 mg/kg at a depth of 0.5-0.7 in AMW207.

Zinc hotspots were present within fill in the following samples:

- 010508-159-KW, Zn 7800 mg kg-1 at a depth of 2.4-2.5m in BBH433; and
- 00408-107-KW, Zn 1100 mg kg-1 at a depth of 2.4-2.6 m in BBH430.

Benzo(a)pyrene TEQ hotspot were present within the fill in the following sample:

- 300408-92-KW, 29.47 mg/kg-1 at a depth of 0.2-0.3 mBGL in BBH453.
- 280408-06-KW, 11.87 mg/kg at a depth of 0.5-0.6 mBGL in BBH402

12.3.14 95 % Upper Confidence Limit (UCL) Calculations

The 95 % UCL calculation is undertaken to determine the upper-bound estimate of the arithmetic average contaminant concentration of a sample population. NSW EPA (1995) states that 'a *site or a sampling area cannot be considered uncontaminated or successfully remediated if the 95 % UCL of the arithmetic average concentration exceeds the acceptable limit*'. In this instance, the acceptable limit is the SAC.

It is noted that the *Contaminated Sites Sampling Design Guidelines* (NSW EPA, 1995) have been superseded by the new *Contaminated Land Guidelines Sampling Design Part 1 – Application* (NSW EPA 2022) and *Contaminated Land Guidelines Sampling Design Part 2 – Interpretation* (NSW EPA 2022). NSW EPA (2022) states that "*For the purpose of this document and depending on the context, 'contaminated' can have slightly different meanings. If a site or a sampling area is evaluated as 'contaminated', it means that the site or the sampling area as a whole has not met the acceptance criteria (see definition of acceptance criteria). 'Contaminated' can also be used to describe a localised area or soil that has contaminant concentrations exceeding an acceptable limit (see definition of acceptable limit). Note: depending on what the acceptance criteria are, an entire site could be considered 'uncontaminated' even though a certain percentage of the site is expected to be 'contaminated'*". The acceptable limit is still the SAC.

All methods of estimating UCLs assume that the data are drawn from a single, but unknown, sample distribution. UCLs are invalid where the data consists of samples from multiple underlying populations. For this reason UCLs have been calculated for two sample populations – fill material and natural soil. Prior to calculating UCLs it is necessary to evaluate the adequacy of available data and to determine whether samples are drawn from a single underlying population. As a "rule of thumb", the EPA NSW (1995) sampling design guidelines propose that the above conditions are satisfied when the coefficient of variation (CV = SD/mean) is less than 1.2.

The new guidelines (NSW EPA 2022) have endorsed a software package produced by the USEPA (Pro UCL Version 5.1) and it was used to calculate the 95% UCL. The software evaluates distribution characteristics and selects the most statistically appropriate method of calculating the UCL.

Where an analyte is reported as less than laboratory reporting limit, the laboratory reporting limit has been adopted for the purposes of the statistical analysis.

Upper Confidence Limits (UCL) were calculated for soil analytes exceeding the assessment criteria, with the exception of hotspots. This included Benzo(a)pyrene, Benzo(a)pyrene TEQ, Lead, Copper, Nickel and Zinc concentrations in the fill material. The results of the 95% UCL calculations are provided in Appendix 6.

It is noted that all distributions did not follow a discernible distribution at 5% significance level. In the case of BaP and BaP TEQ, ProUCL recommended the use of the 95% Chebychev (Mean, Sd) UCL calculation. In the case of Lead and Zinc, ProUCL recommended the use of the KM H-UCL calculation. In the case of Copper and Nickel, ProUCL recommended the use of the 95% KM (Chebyshev) UCL calculation.

Given the suggested UCL calculations by ProUCL, the UCLs were as follows:

- The 95% UCL calculation for BaP in the fill material of 0.36 mg/kg was less than the most conservative ecological-based assessment criterion of 0.7 mg/kg;
- The 95% UCL calculation for BaP TEQ in the fill material of 1.1 mg/kg was less than the most conservative heath-based assessment criterion of 3 mg/kg;
- The 95% UCL calculation for lead in the fill material of 93.01 mg/kg was less than the most conservative heath-based assessment criterion of 600 mg/kg.
- The 95% UCL calculation for Copper in the fill material of 33.73 mg/kg was less than the adopted EILs (Urban Residential/public open space:103 mg/kg and Commercial Industrial 148 mg/kg);
- The 95% UCL calculation for Nickel in the fill material of 8.36 mg/kg was less than the most conservative ecological-bases assessment criterion of 35 mg/kg.
- The 95% UCL calculation for Zinc in the fill material of 77.44 mg/kg was less than the most conservative ecological-bases assessment criterion of 275 mg/kg.

Given the UCL calculation being less than the most conservative health-based criterion for BaP TEQ and Lead and less than the most conservative ecological-based criterion for BaP, Nickel, Copper and Zin,c it can be assumed that, with the exception of the hotspots identified in section 12.3.13, the fill materials will be suitable for the proposed land-uses.

12.4 GROUNDWATER

Groundwater results are summarised in Tables 23 to 31, groundwater field data sheets are provided in Appendix 4 and laboratory certificates of analysis provided in Appendix 3. A groundwater contour map and SAC exceedances are displayed in Figure 4.

12.4.1 Field Parameters

A summary table showing the results of the field parameters and observations is provided in Table 23.

Groundwater level monitoring of all sixteen wells was undertaken during sampling on 29 and 30 May 2008. A third round of groundwater sampling was undertaken on 17 February 2017 of wells that were able to be located and developed. Eight of the sixteen previously sampled wells were sampled. Groundwater levels across the site during the February 2017 monitoring event ranged from 0.41mBGL in AMW205 to 4.14 mBGL in BMW401.
Groundwater present in the wells was characterised by:

- pH ranged from 4.78 in AAMW203 (February 2017) to 7.12 in AMW203 (May 2008);
- EC ranged from 804 µS cm^{-1} in BMW401 (February 2017) to 25 134 µS cm^{-1} in AMW203 (February 2017);
- DO ranged from 0.01 mg L^{-1} in BMW403 (June 2008) to 2.13 mg L^{-1} in AMW207 (May 2008);
- Redox ranged from -313.9 mV in BMW404 (February 2017) to 220.1 mV in AMW205 (February 2017); and
- Temperature range of 17.6 ^{0}C in AMW205 (May 2008) to 25.5 ^{0}C in ABH2100 (February 2017).

The low DO and negative redox indicate that anoxic conditions were present in groundwater.

12.4.2 Analytical Data

12.4.2.1 *Major Ions*

A summary table showing the results of the major ion analysis is provided in Table 23.

With the exception of the sample collected from AMW206 the groundwater samples show a domination of sodium and chloride ions, which is to be expected given the proximity of the area to the marine (saline) environment of Cooks River. The major ion concentrations within AMW206 are potentially influenced by the concrete enclosed high pressure gas pipeline travelling to the east of the well, as sulphate, calcium and bicarbonate alkalinity concentrations were the highest recorded concentrations of any well.

Cations

Calcium concentrations ranged from 76 mg L^{-1} in groundwater sampled from AMW201 to 680 mg L^{-1} in groundwater sampled from BH304.

Magnesium concentrations ranged from 3 mg L^{-1} in groundwater sampled from BMW403 to 670 mg L^{-1} in groundwater sampled from AMW203.

Sodium concentrations ranged from 36 mg L^{-1} in groundwater sampled from BMW401 to 7300 mg L^{-1} in groundwater sampled from AMW203.
Potassium concentrations ranged from 8.8 mg L^{-1} in groundwater sampled from ABH2105 to 240 mg L^{-1} in groundwater sampled from AMW203.

The results of major cations from the February 2017 sampling event showed the results were generally the same as the previous 2008 sampling event, with the exception of a localised slight increase in cation concentrations in monitoring well AMW203.

Anions
All alkalinity was present as bicarbonate alkalinity with a range from 110 mg L^{-1} in groundwater sampled from AMW202 to 810 mg L^{-1} in groundwater sampled from AMW206. Chloride concentrations ranged from 27 mg L^{-1} in groundwater sampled from BMW401 to 10000 mg L^{-1} in groundwater sampled from AMW203, while sulphate concentrations ranged from 3 mg L^{-1} in groundwater sampled from BMW401 to 2400 mg L^{-1} in groundwater sampled from AMW206.

Total Dissolved Solids (TDS)
TDS ranged from 660 mg L^{-1} in the sample collected from BMW401 to 16 000 mg L^{-1} in the sample collected from AMW207.

12.4.2.2 *Dissolved Metals and Metalloids*

A summary table showing the results of the metals and metalloids analysis is provided in Table 24.

Elevated metal and metalloid concentrations were detected in eleven of the thirty samples submitted for analysis. These exceedances were:

- Copper concentrations exceeded the assessment criteria of 1.3 µg L^{-1} in samples collected from AMW203 (3.9 µg L^{-1}), AMW205 (2.1 µg L^{-1}), BBH304 (2.1 µg L^{-1}), BMW401 (1.8 µg L^{-1} and 3 µg L^{-1}), and BMW404 (6.6 µg L^{-1} and 2 µg L^{-1});
- Lead concentrations exceeded the assessment criteria of 4.4 µg L^{-1} in samples collected from ABH2100 (7 µg L^{-1});
- Nickel concentrations exceeded the assessment criterion of 7 µg L^{-1} in samples collected from AMW207 (64 µg L^{-1}), AMW206 (11 µg L^{-1}), ABH202 (83 µg L^{-1}), and ABH2100 (17 µg L^{-1}); and
- Zinc concentrations exceeded the assessment criteria of 8 µg L^{-1} in the sample collected from AMW207 (82 µg L^{-1}).

Analytes for all other samples were detected at less than either the laboratory reporting limit or their respective assessment criteria. The results of dissolved metals from the February 2017 sampling event showed the concentrations were similar those of the previous 2008 sampling event.

12.4.2.3 *TPH and BTEX*

A summary table showing the results of the TPH and BTEX analysis is provided in Table 25.

TPH concentrations were detected at concentrations greater than the laboratory reporting limit in the groundwater samples submitted for analysis from ABH2105 and ABH202.

BTEX compounds were detected at concentrations greater than the laboratory reporting limit in the groundwater samples submitted for analysis from ABH2105, ABH202, and BMW404. All samples were below the SAC.

The results of TRH and BTEX concentrations from the February 2017 sampling event showed the results were similar to those of the previous 2008 sampling event, with the exception of a localised decrease in BTEX and TRH C6-C9 concentrations in monitoring well ABH2105.

12.4.2.4 *Polycyclic Aromatic Hydrocarbons (PAHs)*

A summary table showing the results of the PAH analysis is provided in Table 26.

PAH concentrations were not detected at concentrations greater than the laboratory reporting limit in the groundwater samples submitted for analysis. The results of PAH concentrations from the February 2017 sampling event showed the results similar to those of the previous 2008 sampling event.

12.4.2.5 *Nutrients*

A summary table showing the results of the nutrient analysis is provided in Table 27.

Ammonia concentrations exceeded the assessment criterion of 0.9 mg L^{-1} in all groundwater samples collected, with the exception of samples collected from ABH202, ABH2100 and BMW401. Concentration ranged from 0.92 mg L^{-1} (BMW401) to 7.2 mg L^{-1} (AMW204).

Total phosphorus concentrations detected ranged from below laboratory detection limits in AMW202 to 2.7 mg L^{-1} in groundwater sampled from AMW201.

The results nutrients from the February 2017 sampling event showed the similar results to the previous 2008 sampling event.

12.4.2.6 *Volatile Organic Compounds (VOCs)*

A summary table showing the results of the VOC analysis is provided in Table 28.

With the exception of the BTEX analytes mentioned above, VOC concentrations were not detected at concentrations greater than the laboratory reporting limit in the groundwater samples submitted for analysis, with the exception of Isopropylbenzene, collected from ABH2105. The results from the February 2017 sampling event showed the similar results to the previous 2008 sampling event.

12.4.2.7 *Organochlorine Pesticides (OCPs)*

A summary table showing the results of the OCP analysis is provided in Table 29.

OCP concentrations were not detected at concentrations greater than the laboratory reporting limit in the groundwater samples submitted for analysis. The results from the February 2017 sampling event showed the similar results to the previous 2008 sampling event.

12.4.2.8 *Organophosphate Pesticides (OPPs)*

A summary table showing the results of the OPP analysis is provided in Table 30.

OPP concentrations were not detected at concentrations greater than the laboratory reporting limit in the groundwater samples submitted for analysis. The results from the February 2017 sampling event showed the similar results to the previous 2008 sampling event.

12.4.2.9 *Polychlorinated Biphenyls (PCBs)*

A summary table showing the results of the PCB analysis is provided in Table 31.

PCB concentrations were not detected at concentrations greater than the laboratory reporting limit in the groundwater samples submitted for analysis. The results from the February 2017 sampling event showed the similar results to the previous 2008 sampling event.

12.4.3 Sub-Surface Gas Monitoring

Sub-surface gas monitoring was undertaken on 10 June 2008 by trained CES personnel. Results are provided in Table 32.

Methane concentrations were less than 0.3% in all of the landfill gas wells, both before and after purging. Concentrations of carbon dioxide were elevated in ALG204 (10.2%) compared to the other wells. The lowest oxygen levels were observed in ALG204 (4.0%), with reduced oxygen levels being present in ALG205. No gas formation pressure was observed in any of the wells.

12.5 VOLATILE ORGANIC COMPOUNDS

A sample of the gas evolving from BLG402 was collected into a Tedlar™ bag for analysis of VOCs. With the exception of toluene, concentrations of VOCs were less that the detection limit of the analytical method used. Toluene was present in the sample at a concentration of 120 parts per billion by volume.

13 DISCUSSION AND SITE CHARACTERISATION

On the basis of the results of sampling and analysis of soil and groundwater across the site, the findings of the investigation are presented below.

13.1 SOIL

With the exception of copper, nickel, zinc, lead, Benzo(a)pyrene, Benzo(a)pyrene TEQ and BTEX the SAC for soil were not exceeded in samples of natural soil and fill analysed. The elevated concentrations of copper, nickel, zinc and lead at sampling location AMW207 were potentially associated with isolated metal shaving uncovered within the fill material at a depth of 0.5-0.7 mBGL.

Two lead concentrations in the fill material exceeded the adopted heath-based SAC and these lie within proposed Block 3C – Logistics hub. These samples (located in BBH430 and BBH433 bores) were collected from fill material a depth of between 2.4 and 2.6 mBGL. Considering these are located at a depth of between 2.4 metres and 2.6 metres and will be capped during construction of proposed buildings (i.e. Block 3C), it is not considered likely to cause a risk to human health of the future receptors, and as such does not require remediation. However, a management strategy for lead contaminated soils will be included in the Remediation Action Plan (RAP).

Eight copper concentrations in the fill material exceeded the adopted ecological-based SAC and varied in depth ranging between 0.2 m BGL and 2.6 m BGL. As the copper concentrations did not exceed adopted health-based SAC, and the 95% UCL calculation for copper in the fill material of 33.73 mg/kg was less than the adopted EILs, it is not considered likely to cause a risk to human health of the future receptors and remediation is not considered necessary.

Four nickel concentrations in the fill material exceeded the adopted ecological-based SAC and varied in depth ranging between 0.5 m BGL and 2.6 m BGL. As the nickel concentrations did not exceed adopted health-based SAC, and the 95% UCL calculation for nickel in the fill material of 8.36 mg/kg was less than the adopted EILs, it is not considered likely to cause a risk to human health of the future receptors and remediation is not considered necessary.

Three zinc concentrations in the fill exceeded the adopted ecological-based SAC. These exceedances lie within proposed Block 3C – Logistics hub and were at a depth below the top 2 metres of soil. As the zinc concentrations did not exceed adopted health-based SAC and were identified below this depth remediation is not considered necessary.

The health-based SAC for Benzene and Xylenes was exceeded in four and three fill samples respectively. In addition, three and four exceedances of adopted ecological-based SAC for Toluene and Xylenes, respectively, were reported. The BTEX high concentrations were located around USTs and lie within proposed Fig Tree Grove pavilion.

As a result of the elevated concentrations of BTEX, remediation and/or management measures are required to ensure protection of the environment and human health. The removal of the bowsers, USTs, associated pipework and impacted soil will be required under a Remediation Action Plan (RAP) as part of the redevelopment of the site. BTEX concentrations were not detected shallower then 1.0mBGL and the contamination is likely to extend underneath the maintenance shed. Given the depth and limited extent of the contamination surrounding the USTs and presence of a sealed concrete and bitumen surface covering the area, the impacted material including soil vapours are considered to present a low risk to current users of the site. Due to the impending development, no immediate management of the site over and above current maintenance are recommended.

Two Benzo(a)pyrene TEQ exceeded the adopted health-based SAC and lie within the proposed Flora Street intersection upgrade and extension in the east side of the site. These samples (located in BBH453 and BBH402) were collected from fill material a depth of between 0.2-0.3 mBGL in BBH453 and 0.5-0.6 mBGL in BBH402. As a result of the elevated concentrations of Benzo(a)pyrene TEQ, remediation and/or management measures are required to ensure protection of the environment and human health. The removal of the impacted soil will be required under a Remediation Action Plan (RAP) as part of the redevelopment of the site. Benzo(a)pyrene TEQ concentrations were not detected at depths greater than 0.3 mBGL in BBH453 and 0.6 mBGL in BBH402 and consequently the contamination is unlikely to extend to greater depths.

Site observations indicated that the vegetation on the site was in generally good condition and that there were no areas of dead or stressed vegetation noted that may have been associated with soil contamination.

Potential Acid Sulfate Soils (PASS) are expected to be present in natural material below the water table. However, providing these materials are not disturbed they will not pose a risk to the local environment. It is expected that the planned development of the site may result in disturbance of the PASS. If disturbance of ASS is planned, a management plan will be required.

Asbestos fibres were not found in near-surface fill during drilling works, however fragments of fibrous cement sheeting were found in surface fill in a limited number of locations across the site within fill on unsealed surface areas. Remediation or management of the ACM fragments is required to ensure protection of human health. Given the lack of asbestos fibres in soil samples and the presence of only cement bonded fragments in limited areas of the site and the low impact traffic on the paths where cement sheet fragments may be present the presence of the fragments is considered to represent a low risk to the users of the site and no immediate remediation of the site is recommended. As a precaution, until the remediation of the fragments is addressed as part of the redevelopment of the site, management of the areas should be considered when asbestos fragments are found during ongoing use of the site by noting the location and either isolating area from traffic and/or covering it with a layer of clean fill. To ensure clean-up of the fragments is ultimately achieved a written record of the location of impacts should be maintained and provided to the remediation contractor or developer's contractor prior to development commencing.

13.2 GROUNDWATER

Sixteen groundwater wells were installed along the boundary of the site and within the site to assess whether contamination resulting from the presence of landfills to the south was migrating onto the site, with one well being placed in the centre. Four groundwater wells were installed surrounding USTs located in KGC Club House car park. Of the suite of substances analysed in the groundwater samples, copper, lead, nickel, zinc and ammonia were detected at concentrations that exceeded the SAC established for groundwater, while TPH C_6-C_{14} and ethylbenzene concentrations above the laboratory detection limit were detected around the USTs adjacent to the maintenance shed.

With respect to the concentrations of TPH and BTEX exceeding the laboratory reporting limit, as the concentrations of these substances was only detected within ABH202 and ABH2105, the potential for migration of contaminants appears to be limited. Given the limited extent of the contamination, off-site migration is not considered an issue and with the impending development, no immediate management of the area over and above current maintenance are recommended.

With respect to metal concentrations, given the nature of the fill materials identified, and that the concentrations identified are unlikely to occur naturally in the soil types in the area, it is considered likely that metals contamination in groundwater were possibly sourced from dredged sediments and pore water placed on the site during the realignment of Cooks River.

With respect to the low concentrations of ammonia detected in groundwater, it is considered likely that the potential source of ammonia is naturally occurring organic content in the dredged material placed on the site during the realignment of Cooks River and minor impact of fertilizers used during maintenance of the golf course.

Given the fact that the Cooks River is free flowing, is not a stagnant water body and that it is highly degraded due to industrial pollution and stormwater run-off, it is therefore not a sensitive receptor. Consequently, CES consider the elevated metal concentrations and ammonia to have low potential to adversely impact the receiving waters. CES consider the potential risk to human health and the environment to not be significant or warrant active remediation.

Results from the February 2017 sampling event showed no significant change when compared to the results of the 2008 sampling event. It is CES' opinion that the groundwater chemistry at the site has not significantly changed since the 2008 sampling event.

13.3 LANDFILL GAS

Concentrations of methane, carbon dioxide and oxygen in the gas extracted from six subsurface gas monitoring wells installed along the southern perimeter of the site were not indicative of the presence of landfill gas, as such, there was no evidence that the former landfills offsite to the south are impacting on soil gas in the site.

The ground gas risk assessment, as outlined in NSW EPA (2012), was undertaken. The preliminary screening process did identify the potential source of landfill gas from the adjacent site to the south however, there was insufficient evidence to suggest risk to receptors and potential pathways of gas migration. Further assessment was not deemed in consideration of the above findings.

It is noted that the NSW EPA (2012) guidelines have been superseded by NSW EPA (2020) *Contaminated Land Guidelines: Assessment and management of hazardous ground gases*. The risk assessment framework in the recent guidelines also recommends carrying out a preliminary screening based on the CSM and therefore the results of the risk assessment are still valid.

The elevated carbon dioxide concentrations with ALG204 can be attributed the natural degradation of organic matter.

There is no obvious source to associate with the detection of toluene in ALG402. However, this location is off site and it is not deemed necessary investigate further.

14 CONCLUSIONS AND RECOMMENDATIONS

14.1 CONCLUSIONS

The Cooks Cove Development Zone site consists of a filled area occupied by the Kogarah Golf Course.

CES understands that the Cooks Cove Master Plan will include a net development zone of approximately 15ha with up to 343,250m^2 Gross Floor Area (GFA) comprising

- 290,000m^2 of multi-level logistics and warehousing;
- 20,000m^2 for hotel and visitor accommodation uses;
- 22,350m^2 for commercial office uses;
- 10,900m^2 of retail uses.

With remaining areas of the site retained for public recreation and road related infrastructure.

With the exception of BTEX impact in fill material surrounding bowsers and USTs located within the Kogarah Golf Club House car park and benzo(a)pyrene, copper and lead identified hotspots, the soil across the site does not contain contamination such that extensive remediation would be necessary to make the site suitable for the proposed mixed land use. However, it will be necessary prior to redevelopment of the site to remediate the impacted areas by decommissioning and removing the USTs and associated infrastructure; removing/managing benzo(a)pyrene, copper, and lead impacted soils and to ensure that fragments of Asbestos Containing Materials present in mainly surface fill in limited areas across the site are managed and disposed safely and in accordance with regulations.

CES consider the elevated metal concentrations and ammonia in groundwater to have low potential to adversely impact the receiving waters. The groundwater condition is also found to not have significantly changed between the 2008 and 2017 sampling events. No remediation or active management is considered necessary with respect to groundwater impacted with metals and ammonia. Management activities should be reviewed at the time of redevelopment.

14.2 RECOMMENDATIONS

It is recommended that a Remediation Action Plan (RAP) be prepared to address hydrocarbon-impacted areas associated with refuelling infrastructure in the Kogarah Golf Club House car park, the areas of the benzo(a)pyrene, copper and lead hotspots, and the presence of fragments of asbestos cement sheeting on the site.

15 LIMITATIONS OF THIS REPORT

This report has been prepared for use by the client who commissioned the works in accordance with the project brief and based on information provided by the client. The advice contained in this report relates only to the current project and all results, conclusions and recommendations should be reviewed by a competent person with experience in environmental investigations before being used for any other purpose. Consulting Earth Scientists (CES) accepts no liability for use of interpretation by any person or body other than the client. This report must not be reproduced except in full and must not be amended in any way without prior approval by the client and CES.

The extent of sampling points and analysis of soil, groundwater and subsurface gas has been a grid pattern with the exception of in the vicinity of the USTs. This approach has been adopted in order to maximise the probability of identifying contaminants, however the approach may not identify contamination that occurs in isolated pockets between sampling points.

Furthermore, soil, rock and aquifer conditions are variable, resulting in the heterogeneous distribution of contaminants across the site. Contaminant concentrations have been identified at discrete locations, however conditions between sample locations have been inferred based on estimated geological and hydrogeological conditions, the nature and extent of identified contamination. Boundaries between zones of variable contamination are generally unclear and have been interpreted based on available data and professional judgement. The accuracy with which subsurface conditions have been characterised depends on the frequency of sampling, field and laboratory methods, the uniformity of the substrate and is therefore limited by the scope of works undertaken.

This report is based on statistical sampling constructs and does not provide a complete assessment of the environmental status of the site and is limited to the scope defined therein. Should information become available regarding conditions at the site including previously unknown sources of contamination, CES reserves the right to review the report in the context of the additional information.

16 REFERENCES

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Figures

CONSULTING
EARTH
SCIENTISTS
Suite 3, Level 1
55-65 Grandview Street
Pymble, NSW, 2073
Ph 8569 2200 Fax 9983 0582

Title

Figure 1. Site Location Plan

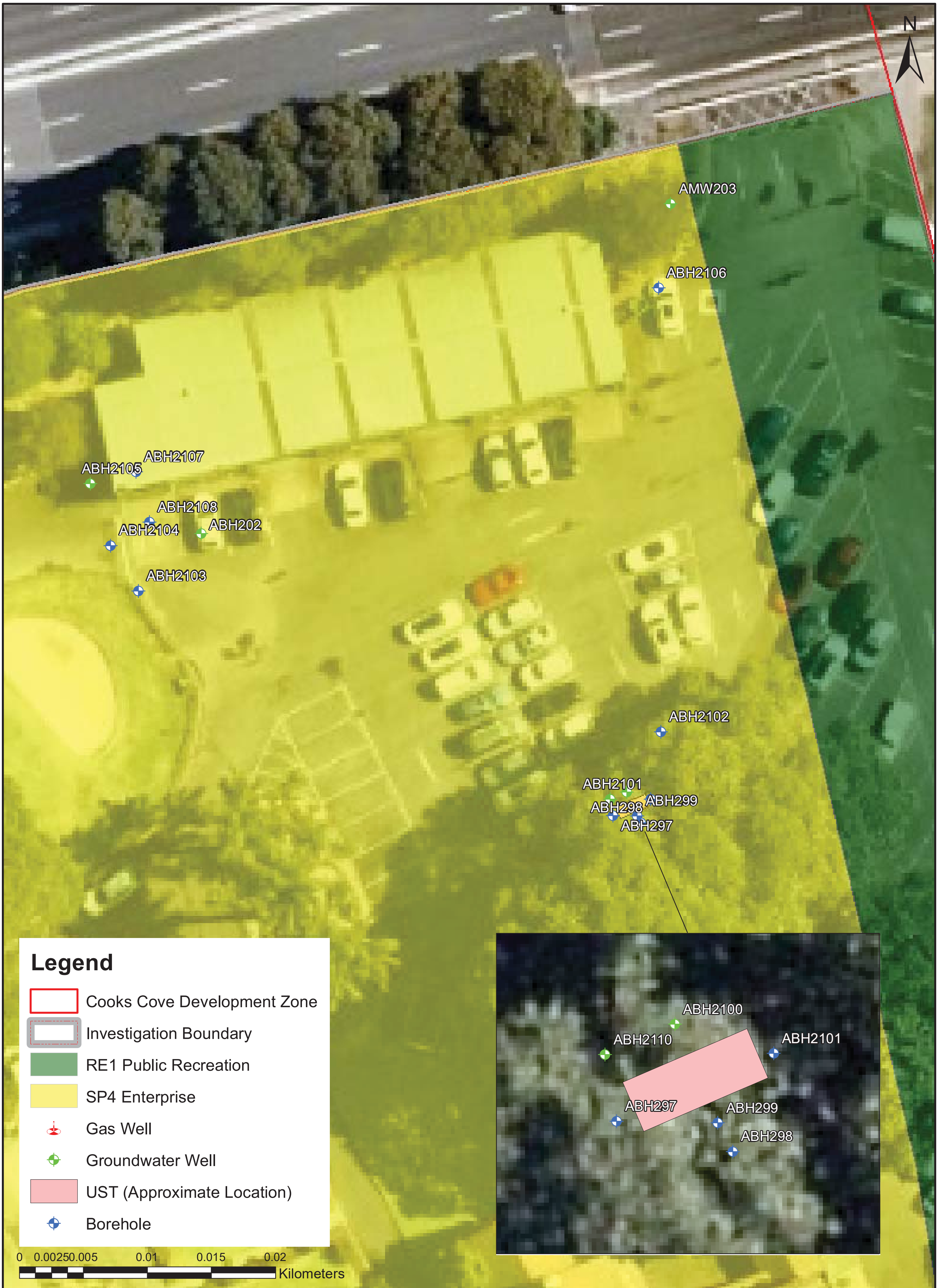
CES Project ID:	Date:
CES130608-BP	17/02/2023
Prepared By:	Checked By:
T.Goodbody	D. Lowe

CONSULTING EARTH SCIENTISTS
Suite 3, Level 1
55 Grandview Street, Pymble, NSW, 2073
ph 8569 2200 fax 9963 0582

Title

Figure 2. Site Layout Plan and Sampling Locations

CES Project ID: CES130608-BP	Date: 17/02/2023
Prepared By: T. Goodbody	Checked By: D.Lowe



CONSULTING EARTH SCIENTISTS
Suite 3, Level 1
55 Grandview Street, Pymble, NSW, 2073
ph 8569 2200 fax 9963 0582

Title

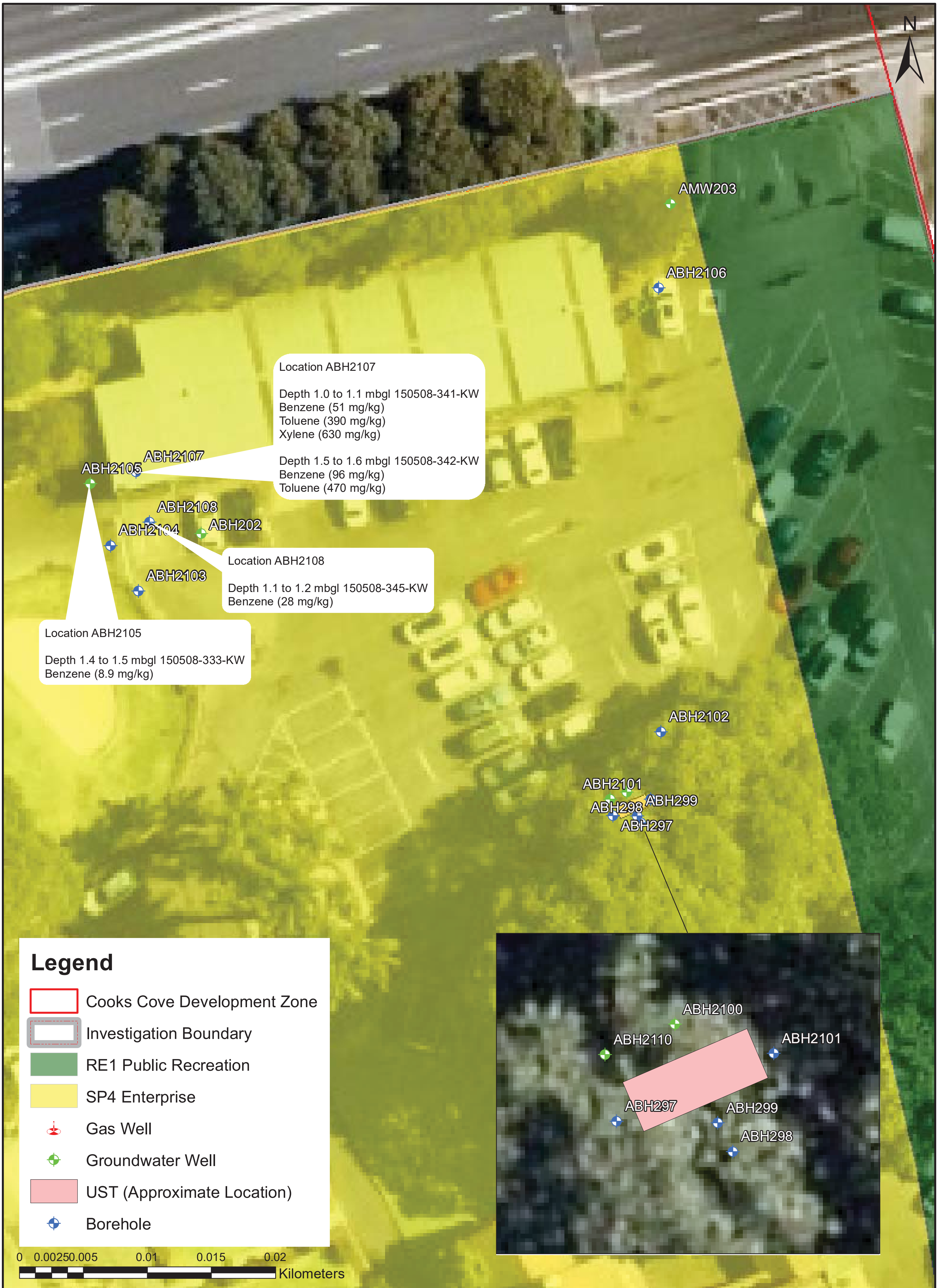
Figure 2. Site Layout Plan and Sampling Locations - UST Area

CES Project ID: CES130608-BP	Date: 17/02/2023
Prepared By: T. Goodbody	Checked By: D.Lowe

CONSULTING EARTH SCIENTISTS
Suite 3, Level 1
55 Grandview Street, Pymble, NSW, 2073
ph 8569 2200 fax 9983 0582

Title
Figure 3. Hotspot Locations

CES Project ID:	Date:
CES130608-BP	17/02/2023
Prepared By: T. Goodbody	Checked By: D.Lowe



CONSULTING EARTH SCIENTISTS
Suite 3, Level 1
55 Grandview Street, Pymble, NSW, 2073
ph 8569 2200 fax 9963 0582

Title

Figure 3a. Hotspot Locations - UST Area

CES Project ID: CES130608-BP	Date: 17/02/2023
Prepared By: T. Goodbody	Checked By: D.Lowe

Tables

Table 1: Summary of Borehole Information

Borehole ID	Sampling Rationale	Date Drilled	Depth m	Well Screen Interval m
ABH201	Site Coverage	05 May 2008	2.8	N/A
ABH202	Targetted, adjacent to USTs	09 May 2008	4	1.0-4.0
ABH203	Site Coverage	07 May 2008	2.8	N/A
ABH204	Site Coverage	07 May 2008	2.8	N/A
ABH205	Site Coverage	06 May 2008	2	N/A
ABH206	Site Coverage	09 May 2008	2.8	N/A
ABH207	Site Coverage	09 May 2008	0.4	N/A
ABH208	Site Coverage	07 May 2008	2.8	N/A
ABH209	Site Coverage	07 May 2008	2.8	N/A
ABH210	Site Coverage	06 May 2008	2.8	N/A
ABH2100	Targetted, adjacent to old UST	21 May 2008	6.5	1.8-6.5
ABH2101	Targetted, adjacent to old UST	09 May 2008	1.7	N/A
ABH2102	Targetted, downgradient of old UST and under former maintenance shed	09 May 2008	2	N/A
ABH2103	Targetted, adjacent to USTs	09 May 2008	2.8	N/A
ABH2104	Targetted, adjacent to USTs	09 May 2008	4	N/A
ABH2105	Targetted, adjacent to bowsers	15 May 2008	4	1.0-4.0
ABH2106	Targetted, adjacent to underground waste oil tank	09 May 2008	2.8	N/A
ABH2107	Targetted, adjacent to bowsers and fuel lines	15 May 2008	1.6	N/A
ABH2108	Targetted, adjacent to USTs and fuel lines	15 May 2008	4.5	N/A
ABH2109	Targetted to assist in delineating hydrocarbon impact	15 May 2008	3	N/A
ABH211	Site Coverage	12 May 2008	2.8	N/A
ABH2110	Targetted, adjacent to old UST	21 May 2008	2	0.5-2.0
ABH212	Site Coverage	08 May 2008	2.8	N/A
ABH213	Site Coverage	12 May 2008	2.8	N/A
ABH214	Site Coverage	07 May 2008	2.8	N/A
ABH215	Site Coverage	06 May 2008	2.8	N/A
ABH216	Site Coverage	06 May 2008	2.8	N/A
ABH217	Site Coverage	06 May 2008	2.3	N/A
ABH218	Site Coverage	06 May 2008	0.5	N/A
ABH219	Site Coverage	06 May 2008	1	N/A
ABH220	Site Coverage	06 May 2008	0.6	N/A
ABH221	Site Coverage	08 May 2008	2.8	N/A
ABH222	Site Coverage	08 May 2008	2.8	N/A
ABH223	Site Coverage	08 May 2008	4.1	N/A
ABH224	Site Coverage	06 May 2008	2.8	N/A
ABH225	Site Coverage	06 May 2008	2.8	N/A
ABH226	Site Coverage	06 May 2008	2.8	N/A
ABH227	Site Coverage	06 May 2008	2.8	N/A
ABH228	Site Coverage	06 May 2008	2.8	N/A
ABH229	Site Coverage	06 May 2008	2.8	N/A
ABH230	Site Coverage	08 May 2008	2.8	N/A
ABH231	Site Coverage	08 May 2008	2.8	N/A
ABH232	Site Coverage	06 May 2008	2.8	N/A
ABH233	Site Coverage	07 May 2008	2.8	N/A
ABH234	Site Coverage	07 May 2008	2.8	N/A
ABH235	Site Coverage	07 May 2008	2.8	N/A
ABH236	Site Coverage	08 May 2008	2.8	N/A
ABH237	Site Coverage	06 May 2008	2.8	N/A
ABH238	Site Coverage	06 May 2008	2.8	N/A
ABH239	Site Coverage	08 May 2008	2.8	N/A
ABH240	Site Coverage	08 May 2008	2.8	N/A
ABH241	Site Coverage	08 May 2008	2.8	N/A
ABH242	Site Coverage	08 May 2008	2.8	N/A
ABH243	Site Coverage	08 May 2008	2.8	N/A
ABH244	Site Coverage	08 May 2008	2.8	N/A
ABH245	Site Coverage	07 May 2008	2.8	N/A
ABH246	Site Coverage	07 May 2008	2.8	N/A
ABH247	Site Coverage	07 May 2008	2.8	N/A
ABH248	Site Coverage	08 May 2008	2.8	N/A
ABH249	Site Coverage	08 May 2008	2.8	N/A
ABH250	Site Coverage	08 May 2008	2.8	N/A
ABH251	Site Coverage	08 May 2008	2.8	N/A
ABH252	Site Coverage	08 May 2008	2.8	N/A
ABH253	Site Coverage	08 May 2008	2.8	N/A

Table 1(continued): Summary of Borehole Information				
Borehole ID	Sampling Rationale	Date Drilled	Depth m	Well Screen Interval m
ABH254	Site Coverage	08 May 2008	2.8	N/A
ABH255	Site Coverage	08 May 2008	2.8	N/A
ABH256	Site Coverage	12 May 2008	2.8	N/A
ABH257	Site Coverage	12 May 2008	2.8	N/A
ABH258	Site Coverage	12 May 2008	2.8	N/A
ABH259	Site Coverage	12 May 2008	2.8	N/A
ABH260	Site Coverage	12 May 2008	2.8	N/A
ABH261	Site Coverage	12 May 2008	2.8	N/A
ABH262	Site Coverage	12 May 2008	2.8	N/A
ABH263	Site Coverage	12 May 2008	2.8	N/A
ABH264	Site Coverage	12 May 2008	2.8	N/A
ABH265	Site Coverage	12 May 2008	2.8	N/A
ABH266	Site Coverage	12 May 2008	2.8	N/A
ABH267	Site Coverage	12 May 2008	2.8	N/A
ABH268	Site Coverage	12 May 2008	2.8	N/A
ABH269	Site Coverage	13 May 2008	2.8	N/A
ABH270	Site Coverage	13 May 2008	2.8	N/A
ABH271	Site Coverage	13 May 2008	2.8	N/A
ABH272	Site Coverage	13 May 2008	2.8	N/A
ABH273	Site Coverage	13 May 2008	2.8	N/A
ABH274	Site Coverage	13 May 2008	2.8	N/A
ABH275	Site Coverage	13 May 2008	2.8	N/A
ABH276	Site Coverage	13 May 2008	2.8	N/A
ABH277	Site Coverage	13 May 2008	2.8	N/A
ABH278	Site Coverage	13 May 2008	2.8	N/A
ABH279	Site Coverage	13 May 2008	2.8	N/A
ABH280	Site Coverage	13 May 2008	2.8	N/A
ABH281	Site Coverage	13 May 2008	2.8	N/A
ABH282	Site Coverage	13 May 2008	2.8	N/A
ABH283	Site Coverage	15 May 2008	2.8	N/A
ABH284	Site Coverage	15 May 2008	2.8	N/A
ABH285	Site Coverage	15 May 2008	2.8	N/A
ABH286	Site Coverage	15 May 2008	2.8	N/A
ABH287	Site Coverage	15 May 2008	2.8	N/A
ABH288	Site Coverage	15 May 2008	2.8	N/A
ABH289	Site Coverage	15 May 2008	2.8	N/A
ABH290	Site Coverage	15 May 2008	2.8	N/A
ABH291	Site Coverage	15 May 2008	4.2	N/A
ABH292	Site Coverage	13 May 2008	4.2	N/A
ABH293	Site Coverage	13 May 2008	4.2	N/A
ABH294	Site Coverage	15 May 2008	4.2	N/A
ABH295	Site Coverage	13 May 2008	4.2	N/A
ABH296	Site Coverage	12 May 2008	2.8	N/A
ABH297	Targetted, adjacent to old UST	09 May 2008	1.3	N/A
ABH298	Targetted, adjacent to old UST	09 May 2008	1.5	N/A
ABH299	Targetted, adjacent to old UST	09 May 2008	1.5	N/A
ALG201	Site Coverage	12 May 2008	2.8	0.2-1.7
ALG202	Site Coverage	12 May 2008	2.8	0.2-1.7
ALG203	Site Coverage	12 May 2008	1.7	0.2-1.7
ALG204	Site Coverage	15 May 2008	2.8	0.2-1.7
ALG205	Site Coverage	15 May 2008	4.2	0.2-1.7
ALG206	Site Coverage	15 May 2008	2.8	0.2-1.6
AMW201	Site Coverage	12 May 2008	2.4	0.9-2.4
AMW202	Site Coverage	07 May 2008	2.8	1.0-2.5
AMW203	Site Coverage	09 May 2008	2.8	1.0-2.5
AMW204	Site Coverage	09 May 2008	2.8	0.9-2.4
AMW205	Site Coverage	08 May 2008	2.2	0.5-2.0
AMW206	Site Coverage	15 May 2008	2.8	0.9-2.4
AMW207	Site Coverage	12 May 2008	2.8	1.0-2.5
BBH401	Site Coverage	28 Apr 2008	2.8	N/A
BBH402	Site Coverage	28 Apr 2008	2.6	N/A

Table 1 (continued): Summary of Borehole Information				
Borehole ID	**Sampling Rationale**	**Date Drilled**	**Depth m**	**Well Screen Interval m**
BBH403	Site Coverage	28 Apr 2008	2.8	N/A
BBH404	Site Coverage	28 Apr 2008	2.8	N/A
BBH405	Site Coverage	28 Apr 2008	0.5	N/A
BBH406	Site Coverage	29 Apr 2008	2.8	N/A
BBH407	Site Coverage	29 Apr 2008	2.8	N/A
BBH408	Site Coverage	29 Apr 2008	2.8	N/A
BBH409	Site Coverage	29 Apr 2008	2.8	N/A
BBH410	Site Coverage	29 Apr 2008	2.8	N/A
BBH411	Site Coverage	29 Apr 2008	2.8	N/A
BBH412	Site Coverage	29 Apr 2008	2.8	N/A
BBH413	Site Coverage	29 Apr 2008	2.8	N/A
BBH414	Site Coverage	02 May 2008	2.8	N/A
BBH415	Site Coverage	30 Apr 2008	2.8	N/A
BBH417	Site Coverage	29 Apr 2008	2.8	N/A
BBH418	Site Coverage	29 Apr 2008	2.8	N/A
BBH419	Site Coverage	29 Apr 2008	2.8	N/A
BBH420	Site Coverage	30 Apr 2008	2.8	N/A
BBH421	Site Coverage	30 Apr 2008	2.8	N/A
BBH422	Site Coverage	30 Apr 2008	2.8	N/A
BBH423	Site Coverage	30 Apr 2008	2.8	N/A
BBH425	Site Coverage	29 Apr 2008	2.8	N/A
BBH426	Site Coverage	29 Apr 2008	2.8	N/A
BBH427	Site Coverage	29 Apr 2008	2.8	N/A
BBH428	Site Coverage	01 May 2008	2.8	N/A
BBH429	Site Coverage	01 May 2008	2.8	N/A
BBH430	Site Coverage	30 Apr 2008	2.8	N/A
BBH431	Site Coverage	30 Apr 2008	2.8	N/A
BBH432	Site Coverage	01 May 2008	2.8	N/A
BBH433	Site Coverage	01 May 2008	2.8	N/A
BBH434	Site Coverage	01 May 2008	2.8	N/A
BBH435	Site Coverage	01 May 2008	2.8	N/A
BBH436	Site Coverage	30 Apr 2008	2.8	N/A
BBH438	Site Coverage	30 Apr 2008	2.8	N/A
BBH439	Site Coverage	30 Apr 2008	2.8	N/A
BBH440	Site Coverage	30 Apr 2008	2.8	N/A
BBH441	Site Coverage	30 Apr 2008	2.8	N/A
BBH442	Site Coverage	30 Apr 2008	2.8	N/A
BBH443	Site Coverage	30 Apr 2008	2.8	N/A
BBH445	Site Coverage	01 May 2008	2.8	N/A
BBH446	Site Coverage	01 May 2008	2.8	N/A
BBH447	Site Coverage	01 May 2008	2.8	N/A
BBH448	Site Coverage	01 May 2008	2.8	N/A
BBH450	Site Coverage	01 May 2008	2.8	N/A
BBH451	Site Coverage	01 May 2008	2.8	N/A
BBH452	Site Coverage	01 May 2008	2.8	N/A
BBH453	Site Coverage	01 May 2008	2.8	N/A
BBH455	Site Coverage	01 May 2008	2.8	N/A
BBH456	Site Coverage	01 May 2008	2.8	N/A
BBH457	Site Coverage	30 Apr 2008	2.8	N/A
BBH458	Site Coverage	01 May 2008	4.2	N/A
BBH460	Site Coverage	01 May 2008	2.8	N/A
BLG404	Site Coverage	02 May 2008	2.8	0.3-1.8
BMW401	Site Coverage	02 May 2008	4.5	3.0-4.5
BMW402	Site Coverage	02 May 2008	2.8	1.1-2.6
BMW404	Site Coverage	02 May 2008	3.5	2.0-3.5
BBH304	Located towards eastern boundary of site	Installed by Golders (2001)	5.2	0.8-5.2

Table 2: Summary of Sample Information

Location	Sample Depth	Sample Id	Date Sampled	Material Type	Material Description	PID (ppm)
SOIL SAMPLES						
ABH201	0-0.2	050508-01-KW	05 May 2008	FILL	Grass over silty sand topsoil, fine grained, dark brown, dry, loose with rootlets.	0
ABH201	0.7-0.9	050508-02-KW	05 May 2008	FILL	Sand, fine grained, yellow, dry to moist, loose.	0
ABH201	2.6-2.8	050508-03-KW	05 May 2008	SAND	Sand, fine grained, pale grey, moist, dense.	0.4
ABH202	0.1-0.2	090508-191-KW	09 May 2008	FILL	Sand, fine grained, brown, dry, loose, gravels and rootlets, odourless. Moist at 0.4 m.	3.8
ABH202	0.45-0.55	090508-192-KW	09 May 2008	FILL	Sand, fine grained, brown, dry, loose, gravels and rootlets, odourless. Moist at 0.4 m.	2.8
ABH202	0.9-1	090508-193-KW	09 May 2008	FILL	Silty sand, fine grained, brown/grey, moist, soft, trace clay, sandstone, gravels, roots.	3.8
ABH202	1.3-1.4	090508-200-KW	09 May 2008	SAND	Sand, fine to medium grained, grey/brown, wet at 1.3 m. Hydrocarbon odour at 1.3 m. Strong hydrocarbon odour at 2.0 m.	2.8
ABH202	1.9-2.2	090508-202-KW	09 May 2008	SAND	Sand, fine to medium grained, grey/brown, wet at 1.3 m. Hydrocarbon odour at 1.3 m. Strong hydrocarbon odour at 2.0 m.	8
ABH202	2.7-2.8	090508-203-KW	09 May 2008	SAND	Sand, fine grained, grey, wet, dense, silty.	6.1
ABH202	3.8-4	150508-601-KW	15 May 2008	SAND	Sand, medium grained, brow, wet, loose.	0.6
ABH203	0-0.1	070508-59-KW	07 May 2008	FILL	Grass over silty sand topsoil, fine grained, dark brown, moist, dense, rootlets.	0
ABH203	0.7-0.8	070508-60-KW	07 May 2008	SAND	Sand, fine to medium grained, pale grey, moist, dense.	0
ABH203	2.6-2.8	070508-61-KW	07 May 2008	SAND	Sand, fine to medium grained, pale grey, wet, dense, slight H2S odour.	0.4
ABH204	0.1-0.4	070508-55-KW	07 May 2008	FILL	Silty sand, fine grained, dark brown/grey, moist, dense, ironstone gravel at 0.2 m, rootlets throughout.	0.3
ABH204	0.1-0.4	070508-56-KW Field Blind Replicate Sample of 070508-55-KW	07 May 2008	FILL	Silty sand, fine grained, dark brown/grey, moist, dense, ironstone gravel at 0.2 m, rootlets throughout.	-
ABH204	0.1-0.4	070508-57-KW Split Field Duplicate of 070508-55-KW	07 May 2008	FILL	Silty sand, fine grained, dark brown/grey, moist, dense, ironstone gravel at 0.2 m, rootlets throughout.	-
ABH204	1.3-1.5	070508-58-KW	07 May 2008	SILTY SAND	Silty sand, fine to medium grained, dark grey, moist to wet, dense.	0.2
ABH205	0.1-0.2	060508-49-KW	06 May 2008	SAND	Sand, fine grained, dark brown/grey, moist, firm, silty.	9.4
ABH205	0.4-0.5	060508-50-KW	06 May 2008	SILTY SAND	Silty sand, fine to medium grained, dark brown/black, moist, dense.	1.1
ABH205	1.8-2	060508-51-KW	06 May 2008	SAND	Sand, fine to meidum grained, pale grey, wet, dense, silty lenses, H2S odour.	0.7
ABH206	0.1-0.2	090508-208-KW	09 May 2008	SILTY SAND	Silty sand, fine grained, dark grey/brown, dry, loose to mod dense.	8.3
ABH206	1-1.2	090508-209-KW	09 May 2008	SILTY SAND	Silty sand, fine grained, dark grey, dry, loose, odourless.	9
ABH206	2.6-2.8	090508-210-KW	09 May 2008	SAND	Sand, fine to medium grained, wet from 1.4 m, loose, trace silty, H2S odour.	7.2
ABH207	0.2-0.4	090508-207-KW	09 May 2008	FILL	Road base gravels with crushed sandstone, dry and odourless.	6.7
ABH208	0-0.05	070508-67-KW	07 May 2008	FILL	0.2 m core loss. Grass over silty sand topsoil, fine grained, dark brown, moist to dry, roots.	0.4
ABH208	1.2-1.4	070508-68-KW	07 May 2008	FILL	Sand, fine grained, dark brown, crushed sandstone (orange), with charcoal fragments.	0.3
ABH208	2.3-2.4	070508-69-KW	07 May 2008	SAND	Sand, fine to medium grained, palse grey, saturated from 2.4-2.7m, moderately dense, trace silty, H2S odour.	0.5
ABH209	0.15-0.25	070508-62-KW	07 May 2008	FILL	Sand, fine to medium grained, yellow, dry to moist, loose, bark and gravel.	-
ABH209	0.5-0.6	070508-63-KW	07 May 2008	SILTY SAND	Silty sand, fine to medium grained, dark brown, moist, moderately dense, trace clay, increasing clay with depth.	0.8
ABH209	1.3-1.4	070508-64-KW	07 May 2008	SILTY SAND	Sand, fine grained, pale grey/brown, saturated from 1.5-2.2 m, soft, silt lenses, H2S odour.	0.2
ABH210	0.1-0.2	060508-46-KW	06 May 2008	FILL	Black coke and ash with white slag and silty sand, fine grained, dark brown, moist, glass, VOC (WD40) odour.	23.1
ABH210	0.3-0.5	060508-47-KW	06 May 2008	SILTY SAND	Silty sand, medium to coarse grained, pale brown, moist, dense, trace clay, slight VOC and H2S odour.	14.2
ABH210	1.1-1.2	060508-48-KW	06 May 2008	SAND	Sand, medium grained, pale grey, moist and wet at 1.2 m, dense, silt lenses, H2S odour.	-
ABH2100	0.1-0.2	090508-171-KW	09 May 2008	FILL	Sand, brown, fine grained, loose, dry, gravesl, brick, blue metal, sheells and odourless	0.6
ABH2100	0.4-0.5	090508-172-KW	09 May 2008	FILL	Sand, grey, fine grained, dry and odourless	0.7
ABH2100	1-1.1	090508-173-KW	09 May 2008	FILL	Sand, yellow/grey, fine grained, dry, loose and odourless	0.7
ABH2100	1.3-1.4	090508-180-KW	09 May 2008	FILL	Silty sand, dark grey, fine grained, loose and dry	1.2
ABH2100	1.4-1.5	090508-179-KW	09 May 2008	SANDSTONE	Orange/yellow sandstone, fine grained and dry	2
ABH2101	0.1-0.2	090508-174-KW	09 May 2008	FILL	Sand, brown, fine grained, loose, dry with gravels and blue metals	1.4
ABH2101	0.4-0.5	090508-175-KW	09 May 2008	FILL	Sand, grey, fine grained, loose dry and odourless	1.3
ABH2101	0.9-1	090508-176-KW	09 May 2008	FILL	Sand, yellow/brown, fine grained, loose, dry and odourless	1
ABH2101	1.4-1.5	090508-177-KW	09 May 2008	FILL	Silt sand, dark brown, fine grained, dry, loose and odourless	2.5
ABH2101	1.6-1.7	090508-178-KW	09 May 2008	SANDSTONE	Weathered sandstone, white/orange, moist and odourless	1.7
ABH2102	0.2-0.3	090508-185-KW	09 May 2008	FILL	Crushed sandstone fill, pale brown/orange, course grained, sandstone gravels, loose and dry	1.4
ABH2102	0.7-0.8	090508-186-KW	09 May 2008	FILL	Sand, grey/brown, loose and dry with black gravels	1.4
ABH2102	1.8-2	090508-187-KW	09 May 2008	FILL	Sand, pale grey with silt lenses and wet. Refusal on sandstone at 2.0mBGL	1.1
ABH2103	0.1-0.2	090508-194-KW	09 May 2008	FILL	Sand, brown, fine grained, loose, dry to moist with gravels and shells. Terracota at 0.3m. Moist with orange mottles at 0.9m and gravels	4.7
ABH2103	0.1-0.2	090508-195-KW Field Blind Replicate Sample of 090508-194-KW	09 May 2008	FILL	Sand, brown, fine grained, loose, dry to moist with gravels and shells. Terracota at 0.3m. Moist with orange mottles at 0.9m and gravels	4.7
ABH2103	0.35-0.4	090508-196-KW	09 May 2008	FILL	Sand, brown, fine grained, loose, dry to moist with gravels and shells. Terracota at 0.3m. Moist with orange mottles at 0.9m and gravels	4.8
ABH2103	0.9-1	090508-197-KW	09 May 2008	FILL	Sand, brown, fine grained, loose, dry to moist with gravels and shells. Terracota at 0.3m. Moist with orange mottles at 0.9m and gravels	2.5
ABH2103	1.3-1.4	090508-199-KW	09 May 2008	FILL	Sand, grey with silt lenses, fine to medium grained, wet from 1.4m. Saturated from 1.4-2.8m	3
ABH2103	2.6-2.8	090508-201-KW	09 May 2008	FILL	Silty clayey sand, brown, soft and saturated with several shells	4.1
ABH2104	0.3-0.5	090508-198-KW	09 May 2008	FILL	Sand, brown, fine to medium grained, loose and moist with gravels	3.6
ABH2104	0.5-0.6	090508-334-KW	09 May 2008	FILL	Sand, yellow, fine grained and odourless. Grading to grey/yellow, fine to medium grained and wet	59.2
ABH2104	1.1-1.2	090508-335-KW	09 May 2008	FILL	Sand, yellow, fine grained and odourless. Grading to grey/yellow, fine to medium grained and wet	2.7
ABH2104	2.8-3	090508-349-KW	09 May 2008	FILL	Sailty clayey sand, grey/brown, dense and wet with shells	60.8
ABH2104	4.2-4.5	090508-350-KW	09 May 2008	SANDY CLAY	Sandy clay, orange and odourless	35.9
ABH2105	0.4-0.5	150508-323-KW	15 May 2008	FILL	Clayey sand, orange/grey, course grained, odourless and moist, large boulder rocks, sandstone and concrete. Very strong, hydrocarbon odour from 1m	-
ABH2105	1.4-1.5	150508-333-KW	15 May 2008	FILL	Clayey sand, orange/grey, course grained, odourless and moist, large boulder rocks, sandstone and concrete. Very strong, hydrocarbon odour from 1m	920
ABH2105	2.8-3	150508-346-KW	15 May 2008	SAND	Sand grey, fine to medium grained, saturated, hydrocarbon odour and loose	126
ABH2105	3.8-4	150508-600-KW	15 May 2008	SAND	Brown sand, fine to medium grained with no odour	102
ABH2106	0.1-0.2	090508-204-KW	09 May 2008	FILL	Silty brown topsoil, fine grained and moist	6.2
ABH2106	1.1-1.2	090508-205-KW	09 May 2008	FILL	Sand, yellow, medium grained, moderately dense with shells and moist. Saturated at 2.0m	6.4
ABH2106	2.6-2.8	090508-206-KW	09 May 2008	FILL	Silty clay, grey, soft and wet with H2S odour	5.7
ABH2107	0.15-0.2	150508-339-KW	15 May 2008	FILL	Silty sand topsoil, fine to medium grained, moist and odourless with gravels	53.7
ABH2107	0.5-0.6	150508-340-KW	15 May 2008	FILL	Sand, brown/grey, fine to medium grained, gravels and odourless	204
ABH2107	1-1.1	150508-341-KW	15 May 2008	FILL	Rocks, sand, grey becoming brown, moist to wet with strong hydrocarbon odour and surface sheen. EOH at 1.6mBGL due to access restrictions	2927
ABH2107	1.5-1.6	150508-342-KW	15 May 2008	FILL	Rocks, sand, grey becoming brown, moist to wet with strong hydrocarbon odour and surface sheen. EOH at 1.6mBGL due to access restrictions	1670
ABH2108	0.1-0.2	150508-343-KW	15 May 2008	FILL	Sand, yellow, fine grained, most to dry. Rocks at 0.3m	471
ABH2108	0.5-0.6	150508-344-KW	15 May 2008	FILL	Silty sand, dark brown, fine grained with trace clay, moist with slight HC odour	388
ABH2108	1.1-1.2	150508-345-KW	15 May 2008	FILL	Very strong Hydrocarbon odour	1432
ABH2108	3-3.1	150508-347-KW	15 May 2008	FILL	Silty sand, dark grey, fine to medium grained, wet with shells and hydrocarbon odour	55.4
ABH2108	4.2-4.5	150508-348-KW	15 May 2008	SAND	Sand, pale grey, silty lenses, odourless and moist	80.6
ABH2109	0-0.05	150508-336-KW	15 May 2008	FILL	Gravels and roadbase	26.8
ABH2109	0.5-0.6	150508-337-KW	15 May 2008	FILL	Silty sand, dark brown, fine to medium grained, moist and odourless	23.6
ABH2109	1.1-1.2	150508-338-KW	15 May 2008	FILL	Sand, grey, fine to medium grained, moist and odourless	19.3
ABH2109	2.8-3	150508-351-KW	15 May 2008	SILTY SAND	Silty sand, grey, fine to medium grained, moist and dense	17
ABH211	0-0.1	120508-214-KW	12 May 2008	FILL	Grass over silty sand, trace clay, dark brown, fine grained, moist, dense with rootlets	3.5
ABH211	1-1.2	120508-215-KW	12 May 2008	FILL	Sand, pale grey, medium grained, moist to wet, H2S odour, dense, silt lenses throughout, saturated at 1.4m to 2.0m	3
ABH211	1-1.2	120508-216-KW Split Field Duplicate Sample of 120508-215-KW	12 May 2008	FILL	Sand, pale grey, medium grained, moist to wet, H2S odour, dense, silt lenses throughout, saturated at 1.4m to 2.0m	3
ABH211	2.5-2.6	120508-217-KW	12 May 2008	SAND	Sand, pale grey, course grained, dense and wet	3.8
ABH212	0.35-0.45	080508-161-KW	08 May 2008	FILL	Silty sand, fine to medium grained, brown, firm, charcoal fragments and shells at 0.4m. Trace clay and moist	-
ABH212	0.6-0.7	080508-162-KW	08 May 2008	FILL	Sand, yellow, fine grained, dense and dry to moist	2.8
ABH212	2.6-2.8	080508-163-KW	08 May 2008	SAND	Sand, white, fine grained, very dense, hard and dry (near rig refusal)	2.4
ABH213	0-0.2	120508-211-KW	12 May 2008	FILL	Grass over silty sand topsoil, dark brown, loose, dry to moist with rootlets	5.7
ABH213	0.5-0.6	120508-212-KW	12 May 2008	FILL	Sand, yellow, medium grained, dry, black charcoal at 0.5m	3.5
ABH213	1.2-1.3	120508-213-KW	12 May 2008	SANDSTONE	Sandstone, orange course grained and dry. Refusal at 1.3m BGL on sandstone bedrock	4.6
ABH214	0-0.1	070508-70-KW	07 May 2008	FILL	Grass over silty sand topsoil, dark brown, moist with rootlets	0
ABH214	0.4-0.5	070508-71-KW	07 May 2008	FILL	Sand, yellow/pale grey, fine to medium grained, dense, moist and H2S odour. Silt lenses from 0.8m. Wet from 0.6m. Saturated from 1.5-2.0m	0.3
ABH215	0-0.2	060508-36-KW	06 May 2008	FILL	Grass over silty clay topsoil, dark brown, firm to soft, moist with rootlets	0.5
ABH215	0.7-0.9	060508-37-KW	06 May 2008	FILL	Sand, yellow/pale grey, fine to medium grained, dense, moist with rootlets. Silt lenses and H2S odour throughout	0.9
ABH215	0.7-0.9	060508-38-KW Field Blind Replicate Sample of 060508-37-KW	06 May 2008	FILL	Sand, yellow/pale grey, fine to medium grained, dense, moist with rootlets. Silt lenses and H2S odour throughout	0.9
ABH215	2-2.2	060508-39-KW	06 May 2008	SAND	Sand, pale grey, fine to medium grained, moderately dense, moist to wet with H2S odour	0.5
ABH216	0-0.2	060508-40-KW	06 May 2008	FILL	Grass over silty clay topsoil, brown/orange, moist, dense with rootlets	0.5
ABH216	0.3-0.4	060508-41-KW	06 May 2008	FILL	Silty clayey sand, dark brown, fine to medium grained, dense, moist and odourless	0.2
ABH216	2.6-2.8	060508-42-KW	06 May 2008	SAND	Sand, pale grey, wet, fine to medium grained, dense with H2S odour	0.3
ABH217	0-0.2	060508-43-KW	06 May 2008	FILL	Grass covering silt sand, top soil. Fine to medium grained, dark brown, moist and loose.	0.7
ABH217	0.2-0.5	060508-44-KW	06 May 2008	FILL	Silty sand, fine to medium grained, moist, pale brown/grey, dense with H2S odour. Grading to sand with trace silts with depth	1.3
ABH217	1.3-1.4	050608-45-KW	06 May 2008	FILL	Increase in clay content, becoming wet at 1.3m	6
ABH218	0-0.1	060508-06-KW	06 May 2008	FILL	Grass over silty sand topsoil, dark brown, moist with rootlets	1.3
ABH218	0.4-0.5	060508-07-KW	06 May 2008	SAND	Sand, light brown, fine grained, moist and dense. Refusal at 0.5mBGL on Sandstone	1.4
ABH219	0-0.2	060508-08-KW	06 May 2008	FILL	Grass over silty sand topsoil, dark brown, loose, moist with roots	1.3
ABH219	0.8-1	060508-09-KW	06 May 2008	SAND	Sand, dark grey, fine to medium grained and moist. Refusal on sandstone at 1.0mBGL	1.6
ABH220	0.2-0.3	060508-04-KW	06 May 2008	FILL	Ash fill, black/grey, crisp and dry to moist	0.5
ABH220	0.5-0.6	060508-05-KW	06 May 2008	FILL	Sand, trace clay, light brown, dense and moist. Refusal on sandstone bedrock at 0.6mBGL	0.6
ABH221	0.1-0.25	080508-158-KW	08 May 2008	FILL	Grass over silty sand topsoil, dark brown, fine to medium grained, roots and moist	2.7
ABH221	0.75-0.85	080508-159-KW	08 May 2008	FILL	Sand, fine grained, brown, loose and dry.	4.9
ABH221	1.5-1.6	080508-160-KW	08 May 2008	FILL	Silty clay sand, brown, soft, wet to saturated at 1.5-1.8m	3.9
ABH222	0-0.1	070508-76-KW	07 May 2008	FILL	Silty topsoil, brown, moist with roots	0.3
ABH222	0.3-0.4	070508-77-KW	07 May 2008	FILL	Silty sand, dark brown/black, fine grained, moist and soft	-
ABH222	1.6-1.8	070508-78-KW	07 May 2008	SAND	Sand, pale grey, fine to medium grained, moist to wet, soft and loose with H2S odour. Silt lenses from 2.0. Saturated from 1.7-2.5m.	0.4
ABH223	0-0.2	070508-72-KW	08 May 2008	FILL	Grass over sandy topsoil, brown, dry with gravels and rootlets	1.7
ABH223	0.5-0.6	070508-73-KW	07 May 2008	FILL	Sand, fine grained, brown, dry and loose with gravels and ash at 0.5-0.6m. Shells and sandstone gravels, dense and moist at depth	0.6
ABH223	1.3-1.4	070508-74-KW	07 May 2008	FILL	Silty sand, brown/grey, fine grained, dense, moist, with gravels and possible ash	0.2
ABH223	3.7-3.8	070508-75-KW	08 May 2008	SILTY SAND	Silty sand, dark grey, fine to medium grained, moist to wet at 2.8m. Saturated at 3.7-4.1m	0.3

Table 2 (continued): Summary of Sample Information

Location	Sample Depth	Sample Id	Date Sampled	Material Type	Material Description	PID (ppm)
SOIL SAMPLES						
ABH224	0-0.3	060508-30-KW	06 May 2008	FILL	Grass over silty sand top soil, fine grained, loose, moist with roots	1.2
ABH224	0.6-0.7	060508-31-KW	06 May 2008	FILL	Silty sand, dark grey, moderately dense and moist	1.6
ABH224	2.65-2.8	060508-32-KW	06 May 2008	SAND	Sand, pale, grey, fine to medium grained, wet and dense	6.9
ABH225	0-0.2	060508-33-KW	06 May 2008	FILL	Grass over silty sand topsoil, fine to medium grained, dark brown, moist with rootlets	2.1
ABH225	0.2-0.6	060508-34-KW	06 May 2008	FILL	Sand, yellow, fine to medium grained, loose, moist, odourless and shells	1.9
ABH225	1.8-1.9	060508-35-KW	06 May 2008	FILL	Silty sand, brown, fine to medium grained wit trace clays, loose and soft with slight H2S odour. Saturated from 1.5-2.0m	1
ABH226	0.1-0.2	060508-20-KW	06 May 2008	FILL	Ash fill	-
ABH226	0.4-0.5	060508-21-KW	06 May 2008	FILL	Sand, yellow, fine to medium grained, moderately dense, moist, shells, charcoal gravels and tree roots	2
ABH226	1.7-1.8	060508-22-KW	06 May 2008	FILL	Sand brown, wet and loose	1.2
ABH227	0.2-0.6	060508-17-KW	06 May 2008	FILL	Silty clay, brown/grey soft, moist with minor gravels	-
ABH227	0.2-0.6	060508-18-KW	06 May 2008	FILL	Silty clay, brown/grey soft, moist with minor gravels	-
ABH227	1.0-1.1	060508-19-KW	06 May 2008	FILL	Clay silt sand dark grey	1.4
ABH228	0.2-0.3	060508-10-KW	06 May 2008	FILL	Grass over silty clay topsoil, dark brown and moist with charcoal at 0.3m	1.6
ABH228	0.5-0.6	060508-11-KW	06 May 2008	FILL	Clayey silt, brown/grey, soft, moist with minor gravels	1.4
ABH228	2.5-2.6	060508-12-KW	06 May 2008	SAND	Sand, pale grey, fine to medium grained, dense and moist	1.8
ABH229	0.1-0.3	060508-13-KW	06 May 2008	FILL	Grass over silty clay topsoil, dark brown, moist with rootlets. Ash at 0.1m and tree roots at 0.3m	1.1
ABH229	0.5-0.8	060508-14-KW	06 May 2008	SAND	Sand, pale grey, fine grained, dense, moist with H2S odour. Silt clay contant from 1.2m. Wet from 1.5m. Refusal on sandstone at 1.6mBGL	1.1
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	SAND	Sand, pale grey, fine grained, dense, moist with H2S odour. Silt clay contant from 1.2m. Wet from 1.5m. Refusal on sandstone at 1.6mBGL	1.1
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	SAND	Sand, pale grey, fine grained, dense, moist with H2S odour. Silt clay contant from 1.2m. Wet from 1.5m. Refusal on sandstone at 1.6mBGL	1.1
ABH230	0.1-0.2	080508-148-KW	08 May 2008	FILL	Sand, brown, fine to medium grained, loose, dry to moist with gravels, sandstone and minor charcoal	2.1
ABH230	0.5-0.6	080508-149-KW	08 May 2008	FILL	Shale rocks, crushed brick, brown clay, stiff, dry and sandstone rubble	2.7
ABH230	2-2.2	080508-150-KW	08 May 2008	SANDSTONE	Weathered sandstone, course grained, white and wet	-
ABH231	0-0.3	080508-151-KW	08 May 2008	FILL	Sand, pale grey/brown, fine grained, loose and dry	3
ABH231	0.6-0.7	080508-152-KW	08 May 2008	FILL	Sand, yellow, fine to medium grained, moderately dense and moist	3
ABH231	0.6-0.7	080508-153-KW Field Blind Replicate Sample of 080508-152-KW	08 May 2008	FILL	Sand, yellow, fine to medium grained, moderately dense and moist	3
ABH231	0.9-1	080508-154-KW	08 May 2008	FILL	Silty sand, grey, fine grained, dense and moist with concrete gravels	2.1
ABH232	0-0.2	060508-52-KW	06 May 2008	FILL	Grass over silty clay topsoil, dark brown, soft and moist	0.8
ABH232	0.3-0.4	060508-53-KW	06 May 2008	FILL	Silty sand, dark brown, fine grained, moist and odourless	0.6
ABH232	1.9-2.1	060508-54-KW	06 May 2008	FILL	Sand, pale grey, fine to medium grained, dense, moist with silt lenses. Wet at 1.4m	0.5
ABH233	0-0.15	070508-93-KW	07 May 2008	FILL	Grass over silty sand topsoil, moist, dense with roots	1.4
ABH233	0.2-0.4	070508-94-KW	07 May 2008	FILL	Sandstone rubble, white/orange, hard. Clay with sand, brown, fine grained and moist	2.6
ABH233	0.2-0.4	070508-95-KW Field Blind Replicate Sample of 070508-94-KW	07 May 2008	FILL	Sandstone rubble, white/orange, hard. Clay with sand, brown, fine grained and moist	2.6
ABH233	2.6-2.8	070508-96-KW	07 May 2008	SILTY SAND	Silty clay sand, grey, wet with H2S odour	2
ABH234	0.3-0.5	070508-81-KW	07 May 2008	FILL	Silty sand, dark brown, fine grained, very dense and moist	0.7
ABH234	0.3-0.5	070508-82-KW Field Blind Replicate Sample of 070508-81-KW	07 May 2008	FILL	Silty sand, dark brown, fine grained, very dense and moist	0.7
ABH234	2.6-2.8	070508-83-KW	07 May 2008	SILTY SAND	Silty sand, dark grey, fine to medium grained, soft to dense and moist to wet	0.3
ABH235	0-0.1	070508-79-KW	07 May 2008	FILL	Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	-
ABH235	0.4-0.55	070508-80-KW	07 May 2008	FILL	Sand, pale grey/orange, fine to medium grained, dense and moist	-
ABH236	0-0.1	080508-102-KW	08 May 2008	FILL	Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	15.3
ABH236	0.65-0.75	080508-103-KW	08 May 2008	FILL	Sand, pale grey with orange mottles, fine to medium grained, trace silt lenses, shells and moist	7
ABH236	1.4-1.5	080508-104-KW	08 May 2008	SILTY SAND	Silty clayey sand, brown/grey, fine to medium grained, wet, soft with H2S odour. Saturated from 1.4-2.5m	21.8
ABH237	0-0.2	060508-27-KW	06 May 2008	FILL	Grass over silty sand top soil, brown, fine to medium grained, moist and loose	-
ABH237	1.1-1.2	060508-28-KW	06 May 2008	FILL	Sand, yellow, fine to medium grained, silty clay lenses at 1.0-1.2m, moderately dense, moist and shells	2
ABH237	2.6-2.8	060508-29-KW	06 May 2008	SILTY SAND	Silty clay sand, dark grey, fine to medium grained, moderately dense, wet and H2S odour	2.2
ABH238	0.1-0.5	060508-23-KW	06 May 2008	FILL	Sand, yellow, fine to medium grained, loose, moist with shells at 0.7m	2.3
ABH238	0.1-0.5	060508-24-KW Field Blind Replicate Sample of 060508-23-KW	06 May 2008	FILL	Sand, yellow, fine to medium grained, loose, moist with shells at 0.7m	2.3
ABH238	1-1.2	060508-25-KW	06 May 2008	FILL	Silty sand, dark brown, fine to medium grained, dense and moist	2
ABH238	1.5-1.6	060508-26-KW	06 May 2008	SILTY SAND	Silty sand with trace clays, brown/grey, moist, dense, organic odour and shells. Saturated from 1.5m	1.2
ABH239	0-0.1	080508-121-KW	08 May 2008	FILL	Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	3.1
ABH239	0.4-0.5	080508-122-KW	08 May 2008	FILL	Sand, pale, brown, fine grained, loose and moist with white shells	2.5
ABH240	0.1-0.4	080508-123-KW	08 May 2008	FILL	Sand, yellow, fine to medium grained, loose, moist with shells	2.9
ABH240	0.1-0.4	080508-124-KW Field Blind Replicate Sample of 080508-123-KW	08 May 2008	FILL	Sand, yellow, fine to medium grained, loose, moist with shells	2.9
ABH240	0.1-0.4	080508-125-KW Split Field Duplicate of 080508-123-KW	08 May 2008	FILL	Sand, yellow, fine to medium grained, loose, moist with shells	2.9
ABH240	0.8-1	080508-126-KW	08 May 2008	FILL	Sand, pale grey, fine to medium grained, dense, moist with slight organic odour	1.3
ABH241	0-0.1	080508-127-KW	08 May 2008	FILL	Grass over silty clay topsoil, dark brown, loose, moist with rootlets	2.2
ABH241	0.5-0.6	080508-128-KW	08 May 2008	FILL	Sand, yellow, fine to medium grained, loose, moist with shells and orange mottles	3.7
ABH241	1.5-1.6	080508-129-KW	08 May 2008	FILL	Silty clayey sand, dark brown, soft and moist. Saturated from 1.4-1.9m. Clay contant and stiffness increased with depth	3.9
ABH242	0-0.1	080508-144-KW	08 May 2008	FILL	Grass over silty sand topsoil, dark brown, dense with roots	1.3
ABH242	0.5-0.7	080508-145-KW	08 May 2008	FILL	Sand, pale grey, fine grained, dense, moist with orange mottles, rootlets and shells	2.4
ABH242	0.5-0.7	080508-146-KW Field Blind Replicate Sample of 080508-145-KW	08 May 2008	FILL	Sand, pale grey, fine grained, dense, moist with orange mottles, rootlets and shells	2.4
ABH242	2.6-2.8	080508-147-KW	08 May 2008	SAND	Sand, pale grey, fine to medium grained, dense and wet	2.3
ABH243	0-0.1	080508-141-KW	08 May 2008	FILL	Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	1.5
ABH243	0.2-0.3	080508-142-KW	08 May 2008	FILL	Silty sand, dark brown, fine grained, dense and moist with black charcoal at 0.2m	1.4
ABH243	1.5-1.6	080508-143-KW	08 May 2008	SILTY SAND	Silty clay sand, dark grey, soft and wet	1.5
ABH244	0.25-0.35	070508-90-KW	07 May 2008	FILL	Ash fill, white gravels, some sand, moist to wet	0.3
ABH244	0.5-0.6	070508-91-KW	07 May 2008	FILL	Ash fill, white gravels, minor sand, moist to wet	0.3
ABH244	1.3-1.4	070508-92-KW	07 May 2008	SAND	Sand, pale grey, fine to medium grained with silt lenses, moderately dense, moist to wet with H2S odour. Saturated from 1.5-2.7m	0.2
ABH245	0.3-0.4	070508-87-KW	07 May 2008	FILL	Sand, dark brown, fine grained, loose with ash	-
ABH245	0.5-0.6	070508-88-KW	07 May 2008	FILL	Sand, dark brown, fine grained, ash waste and loose	1.2
ABH245	0.9-1	070508-89-KW	07 May 2008	SAND	Sand, pale grey, fine to medium grained, loose to moderately dense and moist. Saturated from 1.5-2.8m with H2S odour	0.4
ABH246	0-0.2	070508-84-KW	07 May 2008	FILL	Grass over silty sand topsoil, dark brown, moist with roots	0.2
ABH246	1.4-1.6	070508-85-KW	07 May 2008	SAND	Sand, pale grey, fine to medium grained, firm, moist, with silt lenses and H2S odour. Staurated at 1.4-2.8m	0.1
ABH246	1.4-1.6	070508-86-KW Field Blind Replicate Sample of 070508-85-KW	07 May 2008	SAND	Sand, pale grey, fine to medium grained, firm, moist, with silt lenses and H2S odour. Staurated at 1.4-2.8m	0.1
ABH247	0.1-0.4	070508-98-KW	07 May 2008	FILL	Silty sand, dark brown, fine to medium grained, dense, black charcoal and gravels	1.9
ABH247	0.1-0.4	070508-99-KW Field Blind Replicate Sample of 070508-98-KW	07 May 2008	FILL	Silty sand, dark brown, fine to medium grained, dense, black charcoal and gravels	1.9
ABH247	1-1.2	070508-100-KW	07 May 2008	FILL	Sand, pale grey, fine to medium grained, dense, moist with silt lenses and shells	2.9
ABH247	2.6-2.8	070508-101-KW	07 May 2008	SAND	Sand, pale grey, fine to medium grained, dense, moist with H2S odour	10.5
ABH248	0-0.1	080508-105-KW	08 May 2008	FILL	Grass over silty sand topsoil, dark brown, trace clay and moist	21.6
ABH248	1-1.1	080508-106-KW	08 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry to moist with silt lenses and shells	20.9
ABH248	1-1.1	080508-107-KW Field Blind Replicate Sample of 080508-106-KW	08 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry to moist with silt lenses and shells	20.9
ABH248	2.6-2.8	080508-108-KW	08 May 2008	SAND	Sand, pale grey, fine to medium, moderately, moist to wet with H2S odour	4.3
ABH249	0.1-0.3	080508-109-KW	08 May 2008	FILL	Sand, pale brown, fine to medium grained, loose, dry to moist	8.6
ABH249	1-1.1	080508-110-KW	08 May 2008	FILL	Silty sand, grey, fine grained, dense, moist with ash waste (black and white)	7.4
ABH249	1.2-1.4	080508-111-KW	08 May 2008	FILL	Sand, grey, silty caly lenses, fine to medium grained, and moist	9.5
ABH249	2-2.1	080508-112-KW	08 May 2008	SILTY SAND	Silty clayey sand, dark grey, fine grained, wet. Saturated from 1.5-2.2m	2.3
ABH250	0.1-0.3	080508-113-KW	08 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry to moist, shells, black gravels with trace silty clay lenses	4.1
ABH250	0.7-0.9	080508-114-KW	08 May 2008	FILL	Ash waste layer, balck/white, wet from 0.9-1.1m	2.8
ABH250	1.5-1.6	080508-115-KW	08 May 2008	SILTY SAND	Silty clayey sand, fine grained, soft and wet. Saturated from 1.4-2.0m	0.2
ABH251	0-0.1	080508-116-KW	08 May 2008	FILL	Grass over silty sand topsiul, dark brown, fine grained, loose and moist with roots	3.2
ABH251	0.9-1	080508-117-KW	08 May 2008	FILL	Silty sand with trace clay, brown, firm and moist with roots	3.1
ABH252	0-0.1	080508-130-KW	08 May 2008	FILL	Grass over silty sand topsoil, dark brown, fine to medium grained, moist with rootlets	1.1
ABH252	0.6-0.8	080508-131-KW	08 May 2008	FILL	Sand, yellow, fine to medium grained, dense and moist with shells	1.3
ABH252	1.2-1.3	080508-132-KW	08 May 2008	FILL	Silty sand, dark grey, fine to medium grained, dense and moist	2.5
ABH253	0-0.1	080508-133-KW	08 May 2008	FILL	Grass over silty sand topsoil, dark brown, loose, moist with roots	2
ABH253	0.5-0.7	080508-134-KW	08 May 2008	FILL	Sand, yellow, fine to medium grained, loose and moist with shells	1.4
ABH253	2-2.1	080508-135-KW	08 May 2008	SILTY SAND	Silty clayey sand, brown, fine grained, soft, moist to wet. Saturated from 1.5-2.4m	2.9

Table 2 (continued): Summary of Sample Information

Location	Sample Depth	Sample Id	Date Sampled	Material Type	Material Description	PID (ppm)
SOIL SAMPLES						
ABH254	0-0.1	080508-136-KW	08 May 2008	FILL	Grass over silty clay topsoil, trace sand, dark brown, firm, moist with roots and shells	3.2
ABH254	0.6-0.7	080508-137-KW	08 May 2008	FILL	Silty sand, dark grey, soft and wet to 0.6m	1.8
ABH254	2.6-2.8	080508-138-KW	08 May 2008	SILTY SAND	Ilty sand with trace clay, grey, rootlets, dense and moist	2.1
ABH255	0-0.2	080508-139-KW	08 May 2008	FILL	Grass over silty sand topsoil, dark brown, dense, moist with roots	1.9
ABH255	0.9-1	080508-140-KW	08 May 2008	FILL	Silty sand, silty clay lenses throughout, dark grey, dense and moist to wet	1.8
ABH256	0-0.1	120508-264-KW	12 May 2008	FILL	Grass over silty sand, brown, moist with roots	6.3
ABH256	1.2-1.3	120508-265-KW	12 May 2008	SAND	Sand, pale grey, fine to medium grained, moderately dane, silt lenses, Wet from 1.5-2.6m with slight H2S odour at 2.0m	5.7
ABH256	2.4-2.6	120508-266-KW	12 May 2008	SAND	Sand, pale grey, fine to medium grained, moderately dane, silt lenses, Wet from 1.5-2.6m with slight H2S odour at 2.0m	11.2
ABH257	0-0.2	120508-254-KW	12 May 2008	FILL	Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	7.1
ABH257	0.4-0.5	120508-255-KW	12 May 2008	FILL	Silty sand with trace clay, dark brown, medium grained, dense, moist with roots and gravels at 0.4-0.5m	7.1
ABH257	2.2-2.3	120508-256-KW	12 May 2008	SAND	Sand, pale grey, medium grained, dense, moist to wet with silt lenses. Saturated from 1.4-2.2m	14.1
ABH258	0-0.2	120508-251-KW	12 May 2008	FILL	Grass over silty sand topsoil, dark brown, fine grained, dense, moist with roots	8.4
ABH258	0.9-1.1	120508-252-KW	12 May 2008	FILL	Silty sand, dark brown, fine grained, very dense, and moist	8.8
ABH258	1.4-1.5	120508-253-KW	12 May 2008	SAND	Sand, pale grey, fine to medium grained, silt lenses, moist, trace clay from 1.5m. Saturated from 1.5-2.1m with H2S odour	7.9
ABH259	0-0.1	120508-248-KW	12 May 2008	FILL	Grass on silty sand topsoil, dark brown, loose and moist with roots	10.6
ABH259	0.6-0.7	120508-249-KW	12 May 2008	FILL	Sand, pale gray, fine grained, loose, moist with silt lenses	13.1
ABH259	1.8-1.9	120508-250-KW	12 May 2008	SAND	Sand, pale grey, fine to medium grained, moist and loose	6.8
ABH260	0-0.2	120508-243-KW	12 May 2008	FILL	Grass over silty sand topsoil, dark brown, dry, loose, roots with gravels	-
ABH260	0.6-0.8	120508-245-KW	12 May 2008	FILL	Sand, pale grey, fine grained, dry, loose, shells and moist from 1.0m	12.8
ABH260	0.6-0.8	120508-246-KW Field Blind Replicate Sample of 120508-245-KW	12 May 2008	FILL	Sand, pale grey, fine grained, dry, loose, shells and moist from 1.0m	12.8
ABH260	1.5-1.7	120508-247-KW	12 May 2008	FILL	Silty sand, layered orange/brown/grey with trace sand, moist, shells and wet from 1.5-1.8m	5.3
ABH261	0-0.2	120508-244-KW	12 May 2008	FILL	Grass on silty sand topsoil, brown, loose and dry	-
ABH261	1.3-1.4	120508-241-KW	12 May 2008	FILL	Sand, yellow, fine to medium grained, dry to moist, loose with sporadic shells	3.5
ABH261	2.7-2.8	120508-242-KW	12 May 2008	SAND	Sand, grey, fine to medium grained, firm, moist with silt lenses	8.1
ABH262	0.3-0.5	120508-238-KW	12 May 2008	FILL	Sand, yellow, fien to medium grained, loose dry with shells	6.4
ABH262	1.7-1.9	120508-239-KW	12 May 2008	FILL	Sand, grey, silt lenses, shells and wet	-
ABH262	1.7-1.9	120508-240-KW Field Blind Replicate Sample of 120508-239-KW	12 May 2008	FILL	Sand, grey, silt lenses, shells and wet	-
ABH263	0-0.1	120508-235-KW	12 May 2008	FILL	Grass on sand topsoil, fine grained, dry, roots and loose	6.9
ABH263	1-1.2	120508-236-KW	12 May 2008	FILL	SAnd, yellow, fine grained, loose and dry. Medium grained with shells at 1.2m	10.9
ABH263	2-2.1	120508-237-KW	12 May 2008	FILL	Calyeye sandy silt, black, firm and moist	7.7
ABH264	0-0.1	120508-232-KW	12 May 2008	FILL	Grass over silty sand topsoil, fine grained, roots, dry and loose	6.3
ABH264	0.2-0.4	120508-233-KW	12 May 2008	FILL	Sand, yellow, finr to medium grained, loose, dry with shells	4.8
ABH264	2.2-2.3	120508-234-KW	12 May 2008	SILTY SAND	Silty clayay sand, brown/grey, soft and wet with shells at 2.7m	9
ABH265	0-0.1	120508-228-KW	12 May 2008	FILL	Grass over silty sand, dark brown, dense, moist, fine grained with roots and shells	12.8
ABH265	0.9-1.1	120508-229-KW	12 May 2008	FILL	Sand, pale grey, medium grained, dense, moist with shells and wet at 1.0m	7.7
ABH265	0.9-1.1	120508-230-KW Split Field Duplicate Sample of 120508-229-KW	12 May 2008	FILL	Sand, pale grey, medium grained, dense, moist with shells and wet at 1.0m	7.7
ABH265	1.6-1.7	120508-231-KW	12 May 2008	SILTY SAND	Silty clayey sand, dark grey, soft wet with shells at 2.5m	2.9
ABH266	0.1-0.2	120508-226-KW	12 May 2008	FILL	Grass over sand silt, brown, fine grained, moist, loose with rootlets	3
ABH266	1.2-1.3	120508-227-KW	12 May 2008	SILTY SAND	Silty sand, grey, moist to wet, finr to medium grained with shells	3.4
ABH267	0-0.2	120508-223-KW	12 May 2008	FILL	Grass over silty sandtopsoil, brown, fine to medium grained dry, rootlets and shells	-
ABH267	0.3-0.6	120508-224-KW	12 May 2008	FILL	Sand, pale grey/yellow, mediun grained, moist and loose with shells and roots	4.5
ABH267	1.1-1.2	120508-225-KW	12 May 2008	FILL	Sand, pale grey/yellow, mediun grained, moist and loose with shells and roots	4.2
ABH268	0-0.2	120508-275-KW	12 May 2008	FILL	Grass over silty sand topsoil, dark brown, firm and moist with roots	-
ABH268	0.5-0.6	120508-273-KW	12 May 2008	FILL	Silty sand with trace clay, brown/grey, fine grained, moist, gravels and shells	2.8
ABH268	1.5-1.6	120508-274-KW	12 May 2008	SILTY SAND	Silty clayey sand, dark grey, fine grained, firm, moist to wet	5.2
ABH269	0-0.1	130508-314-KW	13 May 2008	FILL	Grass over silty sand topsoil, dark brown, fine grained, dry and loose	6.9
ABH269	0.5-0.6	130508-315-KW	13 May 2008	FILL	Silty sand, dark brown, moist, roots with organic odour	7.2
ABH269	1.2-1.4	130508-316-KW	13 May 2008	FILL	Crushed sandstone, yellow/orange, moist and hard	7.2
ABH270	0.1-0.2	130508-311-KW	13 May 2008	FILL	Sand, yellow, fine to medium grained, loose, moist with numerous shells. Wet at 1.5m	5.3
ABH270	1.5-1.6	130508-312-KW	13 May 2008	FILL	Sand, yellow, fine to medium grained, loose, moist with numerous shells. Wet at 1.5m	6
ABH270	2.7-2.8	130508-313-KW	13 May 2008	SILTY SAND	Silty sand, dark grey, fine grained, dense, moist with rootlets	9.8
ABH271	0-0.2	130508-308-KW	13 May 2008	FILL	Sandy topsoil, brown, fine grained, dry, loose with roots	5.8
ABH271	0.4-0.5	130508-309-KW	13 May 2008	FILL	Sand, pale grey, fine to medium grained, dry grading to moist with depth, shells and loose	6.3
ABH271	1.8-1.9	130508-310-KW	13 May 2008	FILL	Silty sand with trace clay, dark grey, fine to medium grained, numerous shells. Silty clay lenses	8.1
ABH272	0.1-0.5	130508-304-KW	13 May 2008	FILL	Grass over sand, pale brown, fine to medium grained, dry, loose with roots. Charcoal fragments andmetal pieces	3.9
ABH272	0.1-0.5	130508-305-KW Field Blind Replicate Sample of 130508-304-KW	13 May 2008	FILL	Grass over sand, pale brown, fine to medium grained, dry, loose with roots. Charcoal fragments andmetal pieces	3.9
ABH272	2.1-2.2	130508-307-KW	13 May 2008	FILL	Sandy silt, dark grey, soft and wet	5.8
ABH273	0.05-0.15	130508-292-KW	13 May 2008	FILL	Grass over silty sand topsoil, brown, fine grained, dry and loose with roots	3.9
ABH273	0.7-0.8	130508-293-KW	13 May 2008	FILL	Sand, yellow/pale grey with orange mottles and trace silts and several shells. Fine grained and moist	2.4
ABH273	0.7-0.8	130508-294-KW Field Blind Replicate Sample of 130508-293-KW	13 May 2008	FILL	Sand, yellow/pale grey with orange mottles and trace silts and several shells. Fine grained and moist	2.4
ABH274	0.1-0.3	130508-289-KW	13 May 2008	FILL	Crushed sandstone, orange/brown, course grained with clay and moist	4.2
ABH274	0.5-0.6	130508-290-KW	13 May 2008	FILL	Sand, dark brown, fine to medium grained, loose and moist	2.9
ABH274	2-2.1	130508-291-KW	13 May 2008	SAND	Sand, pale grey, fine to medium grained, loose, moist with shells. Saturated from 1.4-2.5m	2.7
ABH275	0-0.2	130508-285-KW	13 May 2008	FILL	Grass over silty sand, brown, fine grained, loose, moist with roots	2.8
ABH275	0.8-1.2	130508-286-KW	13 May 2008	FILL	Sand, yellow, fine to medium grained, moderately turbid, dense, large shells and moist	8.5
ABH275	0.8-1.2	130508-287-KW Field Blind Replicate Sample of 130508-286-KW	13 May 2008	FILL	Sand, yellow, fine to medium grained, moderately turbid, dense, large shells and moist	8.5
ABH275	0.8-1.2	130508-288-KW Split Field Duplicate of 130508-286-KW	13 May 2008	FILL	Sand, yellow, fine to medium grained, moderately turbid, dense, large shells and moist	8.5
ABH276	0.05-0.25	130508-282-KW	13 May 2008	FILL	Sand, brown, fine to medium grained, gravels and ash (black/grey/white), dry to moist and loose	4.2
ABH276	0.8-1	130508-283-KW	13 May 2008	FILL	Sand, brown, fine to medium grained, gravels and ash (black/grey/white), dry to moist and loose	2.9
ABH276	1.2-1.4	130508-284-KW	13 May 2008	FILL	Sand, yellow, medium grained, moderately dense, moist and shells	5.6
ABH277	0.2-0.4	130508-278-KW	13 May 2008	FILL	Sand, yellow, fine to medium grained, loose and moist with shells and rootlets	-
ABH277	0.2-0.4	130508-279-KW Field Blind Replicate Sample of 130508-278-KW	13 May 2008	FILL	Sand, yellow, fine to medium grained, loose and moist with shells and rootlets	-
ABH277	1.1-1.2	130508-280-KW	13 May 2008	FILL	Sandy clayey silt, dark brown/black, strong H2S odour	6.2
ABH277	2.1-2.2	130508-281-KW	13 May 2008	FILL	Silty clayey sand, fine grained, dark brown, soft and saturated with H2S odour	4.5
ABH278	0-0.2	120508-276-KW	13 May 2008	FILL	Grass over silty sand topsoil, dark brown, soft, fine grained and moist	12.4
ABH278	0.8-1	120508-277-KW	13 May 2008	FILL	Silty sand, grey, fine to medium grained, moderately dense and moist with shells	17
ABH279	0-0.2	130508-319-KW	13 May 2008	FILL	Grass over sandy topsoil, dark brown, loose, dry with roots	2.6
ABH279	0.8-0.9	130508-320-KW	13 May 2008	FILL	Sand and silt layers, brown, grey with shells	0.5
ABH279	1.4-1.6	130508-321-KW	13 May 2008	SAND	Sand, pale grey, medium grained, wet, dense with trace silt and shells	12
ABH280	0-0.2	130508-299-KW	13 May 2008	FILL	Grass over sandy topsoil, brown, fine to medium grained, dry and loose	3.3
ABH280	0.5-0.6	130508-300-KW	13 May 2008	FILL	Clay, brown/grey/orange mottles, gravels and very stiff	6.5
ABH280	2.5-2.6	130508-301-KW	13 May 2008	SAND	Sand, pale grey, fine to medium grained, loose, moist with shells	10.2
ABH281	0-0.2	130508-302-KW	13 May 2008	FILL	Grass over unknown due to core loss	3.8
ABH281	1.4-1.5	130508-303-KW	13 May 2008	FILL	Silty sand, fine to medium grained, loos and moist to wet. Grading through brown/grey/yellow and grey. Wet from 1.4m	3.4
ABH282	0-0.2	130508-296-KW	13 May 2008	FILL	Grass over silty sand topsoil, dark brown, moist with rootlets	3.4
ABH282	1.3-1.4	130508-297-KW	13 May 2008	FILL	Sand, pale grey, with dark brown, fine to course grained, moderately dense and moist with silt lenses, orange mottles and shells	6
ABH282	2.6-2.8	130508-298-KW	13 May 2008	SILTY SAND	Silty clayey sand, grey, moist and soft	1.5
ABH283	0-0.2	150508-381-KW	15 May 2008	FILL	Grass over silty clayey sand topsoil, dark brown, firm, dry to moist with roots and charcoal	10.3
ABH283	0.5-0.6	150508-382-KW	15 May 2008	FILL	Sand, pale yellow, grading to grey, fine to medium grained, loose and moist. Wet at 1.5m	4.9
ABH283	1.8-2	150508-383-KW	15 May 2008	SAND	Sand, pale grey, medium grained, moderately dense and wet with shells	6.8
ABH284	0-0.15	150508-384-KW	15 May 2008	FILL	Grass over silty top soil, dark brown, firm, dry with roots	5.3
ABH284	1.3-1.6	150508-385-KW	15 May 2008	FILL	Sand, yellow, fine to medium grained, orange mottles,shells and wet from 1.4m	3.4
ABH284	1.3-1.6	150508-386-KW Field Blind Replicate Sample of 150508-385-KW	15 May 2008	FILL	Sand, yellow, fine to medium grained, orange mottles,shells and wet from 1.4m	3.4
ABH284	1.3-1.6	150508-387-KW Split Field Duplicate of 150508-385-KW	15 May 2008	FILL	Sand, yellow, fine to medium grained, orange mottles,shells and wet from 1.4m	3.4
ABH284	2.6-2.8	150508-388-KW	15 May 2008	SILTY SAND	Silty clayey sand, dark brown, soft and wet with shells	4
ABH285	0-0.2	150508-389-KW	15 May 2008	FILL	Bark over silty sand topsoil, dark brown, dry, loose with roots	6
ABH285	0.6-0.7	150508-390-KW	15 May 2008	FILL	Sand, pale grey with orange mottles and shells, fine to medium grained, loose to dense and moist. Wet at 1.4m	4.5
ABH286	0.1-0.3	150508-391-KW	15 May 2008	FILL	Sand, yellow, fine to medium grained, dry, loose, shells and orange mottles. Ash at 0.3m	2.4
ABH286	0.9-1	150508-392-KW	15 May 2008	FILL	Sand, yellow, fine to medium grained, dry, loose, shells and orange mottles. Ash at 0.3m	7.1
ABH286	2.3-2.5	150508-393-KW	15 May 2008	SILTY SAND	Silty sand, grey, fine to medium grained, moderatley dense, wet with rootlets	8.2
ABH286	2.3-2.5	150508-394-KW Field Blind Replicate Sample of 150508-393-KW	15 May 2008	SILTY SAND	Silty sand, grey, fine to medium grained, moderatley dense, wet with rootlets	8.2
ABH287	0-0.4	150508-378-KW	15 May 2008	FILL	Grass over silty topsoil, brown, fine grained, dry, loose with rootlets	6.9
ABH287	0-0.4	150508-379-KW Field Blind Replicate Sample of 150508-378-KW	15 May 2008	FILL	Grass over silty topsoil, brown, fine grained, dry, loose with rootlets	6.9
ABH287	1.6-1.7	150508-380-KW	15 May 2008	FILL	Sand, pale grey, silt lenses and orange mottles, shells, fine to medium grained, moist at depth and wet from 1.3m	5.3
ABH288	0-0.2	150508-373-KW	15 May 2008	FILL	Grass over silty sand topsoil, dark brown, fine grained, moist and rootlets	6.6
ABH288	0.7-0.8	150508-374-KW	15 May 2008	FILL	Sand, pale grey, fine to medium grained, loose and moist with shells	3.4
ABH288	2.7-2.8	150508-375-KW	15 May 2008	SILTY CLAY	Silty clay, dark brown, soft and moist	4.2
ABH289	0-0.3	150508-370-KW	15 May 2008	FILL	Grass over silty clay topsoil, dark brown, moist with rootlets	10.3
ABH289	0-0.3	150508-371-KW Field Blind Replicate Sample of 150508-370-KW	15 May 2008	FILL	Grass over silty clay topsoil, dark brown, moist with rootlets	10.3
ABH289	2-2.2	150508-372-KW	15 May 2008	FILL	Sand, pale grey/orange mottles, fine to mediou m grained, moderately dense, moist with shells. Wet at 1.4m	6

Table 2 (continued): Summary of Sample Information

Location	Sample Depth	Sample Id	Date Sampled	Material Type	Material Description	PID (ppm)
					SOIL SAMPLES	
ABH290	0-0.2	150508-358-KW	15 May 2008	FILL	Grass over silty sand topsoil, dark brown, firm, dry with trace clay	15.2
ABH290	1.3-1.4	150508-359-KW	15 May 2008	FILL	Silty clay, dark brown, firm and dry	14.4
ABH291	0.1-0.5	150508-352-KW	15 May 2008	FILL	Sand, pale brown, fine to medium grained, loose to dense, dry to moist with sandstone gravels	13.3
ABH291	0.1-0.5	150508-353-KW Field Blind Replicate Sample of 150508-352-KW	15 May 2008	FILL	Sand, pale brown, fine to medium grained, loose to dense, dry to moist with sandstone gravels	13.3
ABH291	0.1-0.5	150508-354-KW Split Field Duplicate of 150508-352-KW	15 May 2008	FILL	Sand, pale brown, fine to medium grained, loose to dense, dry to moist with sandstone gravels	13.3
ABH291	1.3-1.4	150508-355-KW	15 May 2008	FILL	Silty clay sand, brown, soft, moist with shells	14.2
ABH291	2.7-2.8	150508-356-KW	15 May 2008	FILL	Ash waste, black/white, loose and wet	14.6
ABH291	4-4.2	150508-357-KW	15 May 2008	SAND	Sand with trace clay, brown, fine grained and moist to wet	15.3
ABH292	0.8-0.9	130508-325-KW	13 May 2008	FILL	Sand, yellow, fine to medium grained, moist and loose with ash gravels at 0.8-0.9m	5.1
ABH292	1.1-1.2	130508-326-KW	13 May 2008	FILL	Silty sand, yellow, fine to medium grained, with shells and as gravels	-
ABH292	1.8-1.9	130508-327-KW	13 May 2008	FILL	Clayey silt with trace sands, black, dense and moist with ash wast, glass and gravels. Refusal on sandstone fill at 1.9mBGL	7.4
ABH293	0.4-0.5	130508-328-KW	13 May 2008	FILL	Crushed sandstone (white/brown), brown with silt, clay and ash at 0.4-0.5m	1
ABH293	1.3-1.4	130508-329-KW	13 May 2008	FILL	Silty sand, brwon/grey with charcoal	3.8
ABH293	2.1-2.2	130508-330-KW	13 May 2008	SILTY CLAY	Silty clay, dark grey, firm and moist with shells	6
ABH294	0-0.2	150508-367-KW	15 May 2008	FILL	Grass over silty clay sand, dark brown, moist with roots	14.9
ABH294	0.5-0.6	150508-368-KW	15 May 2008	FILL	Silty clay, brown/grey, firm and dry with rootlets	11.1
ABH294	2-2.2	150508-369-KW	15 May 2008	FILL	silty clay, dark grey, soft and wet	11.5
ABH295	0-0.2	130508-322-KW	13 May 2008	FILL	Grass over silty sand topsoil, fine grained, dry and loose with roots	6.9
ABH295	1.2-1.4	130508-323-KW	13 May 2008	FILL	Sand, yellow, fine to medium grained, loose and dry with shells. Moist at 1.4m. Wet at 1.6m with silt lenses	4.2
ABH295	1.2-1.4	130508-324-KW Field Blind Replicate Sample of 130508-323-KW	13 May 2008	FILL	Sand, yellow, fine to medium grained, loose and dry with shells. Moist at 1.4m. Wet at 1.6m with silt lenses	-
ABH296	0-0.2	120508-261-KW	12 May 2008	FILL	Grass over silty topsoil, dark brown, dense and moist with roots	7.2
ABH296	0.4-0.5	120508-262-KW	12 May 2008	FILL	Silty sand, dark brown, fine grained, dense and moist	3.3
ABH296	2.6-2.8	120508-263-KW	12 May 2008	SAND	Sand, pale grey, fine to medium grained, loose to moderately dense, moist with trace silt lenses and roots	11.4
ABH297	0.9-1.0	090508-166-KW	09 May 2008	FILL	Silty sand, dark grey, fine grained, loose, dry and odourless	-
ABH297	0.1-0.2	090508-164-KW	09 May 2008	FILL	Sand, dark brown, fine to medium grained, loose and dry with gravels and shell fragments	0
ABH297	0.5-0.55	090508-165-KW	09 May 2008	FILL	Sand, dark brown, fine to medium grained, loose and dry with gravels and shell fragments	1.1
ABH297	0.9-1	090805-166-KW	09 May 2008	FILL	Sand, yellow, fine grained, loose, dry and odourless	1.4
ABH297	1.2-1.3	090508-181-KW	09 May 2008	SANDSTONE	Sanstone, yellow/white/orange, course grained, moist and odourless. Refusal on sandstone bedrock at 1.3mBGL	1.6
ABH298	0.1-0.2	090508-167-KW	09 May 2008	FILL	Sand, brown, fine to medium grained, looseand dry with gravels, shells and trace clay	0.3
ABH298	1.4-1.5	090508-184-KW	09 May 2008	FILL	Sand, yellow, fine to medium grained, loose and dry. Refusal on sandstone at 1.5mBGL	1
ABH299	0.1-0.2	090508-168-KW	09 May 2008	FILL	Sand, brown, fine to medium grained, loose, dry with gravels, shells and charcoal	0.8
ABH299	0.5-0.6	090508-169-KW	09 May 2008	FILL	Sand, grey/brown, fine grained, loose, dry to moist and odourless	1.6
ABH299	1-1.1	090508-170-KW	09 May 2008	FILL	Sand, yellow, fine grained, dense, dry and odourless	0.2
ABH299	1.2-1.3	090508-182-KW	09 May 2008	FILL	Silty sand, dark grey, fine grained, dry, loose and odourless	1.2
ABH299	1.4-1.5	090508-183-KW	09 May 2008	FILL	Sandstone, yellow/orange, course grained and moist. Refusal on sandstone at 1.5mBGL	-
ALG201	0.4-0.5	120508-267-KW	12 May 2008	FILL	Sand, brown, fine to medium grained, moist, loose with roots and trace silt	5.5
ALG201	0.7-0.8	120508-268-KW	12 May 2008	FILL	Silty sand, brown, fine grained, dense and moist	11.2
ALG201	1.4-1.5	120508-269-KW	12 May 2008	SAND	Sand, pale grey, fine to medium grained, moderately dense with silt lenses. Saturated from 1.5-2.6m. H2S odour at 2.0m	6.5
ALG202	0.2-0.4	120508-270-KW	12 May 2008	FILL	Sand, pale brown, fine grained, dry and loose with sandstone fragments (white), minor coal fragments. Orange/red mottles	9.4
ALG202	1.1-1.3	120508-271-KW	12 May 2008	FILL	Sand, pale brown, fine grained, dry and loose with sandstone fragments (white), minor coal fragments. Orange/red mottles	4.8
ALG202	1.1-1.3	120508-272-KW Field Blind Replicate Sample of 120508-271-KW	12 May 2008	FILL	Sand, pale brown, fine grained, dry and loose with sandstone fragments (white), minor coal fragments. Orange/red mottles	4.8
ALG203	0-0.2	130508-317-KW	12 May 2008	FILL	Grass over silty sand, topsoil, dark brown, fine grained, loose, dry to moist	8.3
ALG203	0.8-1	130508-318-KW	12 May 2008	FILL	Sand, yellow, medium grained, loose, moist with shells and silt lenses, orange mottles and wet at 1.5m	8.2
ALG204	0-0.2	150508-376-KW	15 May 2008	FILL	Grass over silty clay topsoil, dark brown, moist with roots	4
ALG204	1.6-1.7	150508-377-KW	15 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry, shells. Wet at 1.4m	3.6
ALG205	0-0.15	150508-363-KW	15 May 2008	FILL	Grass on silty sand, dark brown, firm, dry to moist	10.2
ALG205	1.1-1.2	150508-364-KW	15 May 2008	FILL	Sand, pale grey, fine to medium grained, moist, sandstone gravels with charcoal and ash	15.9
ALG205	2.6-2.8	150508-365-KW	15 May 2008	FILL	Crushed sandstone, grey and white	13.3
ALG205	3.5-3.6	150508-366-KW	15 May 2008	SILTY CLAY	Silty clay, shells, moist to wet with H2S odour	10.5
AMW201	0.1-0.2	120508-257-KW	12 May 2008	FILL	Sand, pale brown, fine grained, moderately dense, moist with gravels	7.3
AMW201	0.9-1.2	120508-258-KW	12 May 2008	SAND	Sand, pale grey, fine to medium grained, moist with silt lenses	2.1
AMW201	0.9-1.2	120508-259-KW Field Blind Replicate Sample of 120508-258-KW	12 May 2008	SAND	Sand, pale grey, fine to medium grained, moist with silt lenses	2.1
AMW201	0.9-1.2	120508-260-KW Split Field Duplicate of 120508-258-KW	12 May 2008	SAND	Sand, pale grey, fine to medium grained, moist with silt lenses	2.1
AMW202	0.05-0.15	070508-65-KW	07 May 2008	FILL	Silty sand, pale brown, fine grained, dense, moist with sandstone gravels, tiles and no odour	0.2
AMW202	0.4-0.5	070508-66-KW	07 May 2008	FILL	Silty clayey sand, brown/orange, moist, dense with no odour	0.3
AMW203	0.25-0.35	090508-188-KW	09 May 2008	FILL	Ash fill, black gravels with sand	1.1
AMW203	0.7-0.8	090508-189-KW	09 May 2008	FILL	Ash waste, black and dry	1.5
AMW203	1.9-2	090508-190-KW	09 May 2008	FILL	Sand, pale brown/yellow, fine to medium grained, moist to wet at 1.4m. Shells and H2S odour	2.8
AMW204	0-0.1	080508-118-KW	09 May 2008	FILL	Grass over silty sand top soil, dark brown, fine grained, loose, dry to moist with roots	3.1
AMW204	0.9-1	080508-119-KW	08 May 2008	FILL	Silty clay, brown, soft and moist	3.3
AMW204	2.6-2.8	080508-120-KW	08 May 2008	SAND	Sand, grey, fine to medium grained, dense and wet	0.4
AMW205	0.1-0.2	080508-155-KW	08 May 2008	FILL	Sand, yellow, fine to medium grained, loose to moderate density and moist	3.3
AMW205	0.6-0.7	080508-156-KW	08 May 2008	FILL	Silty clay, brown, firm and moist	1
AMW205	2-2.2	080508-157-KW	08 May 2008	SAND	Sand, pale grey, fine grained, dense and wet with shells. Refusal at 2.2mBGL on sandstone	2.5
AMW206	0.2-0.4	150508-360-KW	15 May 2008	FILL	Sand, yellow, fine grained, dense, moist, grading to pale grey with silt lenses	12.9
AMW206	0.2-0.4	150508-361-KW Field Blind Replicate Sample of 150508-360-KW	15 May 2008	FILL	Sand, yellow, fine grained, dense, moist, grading to pale grey with silt lenses	12.9
AMW206	1.8-2	150508-362-KW	15 May 2008	FILL	Sandy silty clay, dark brown, soft and wet at 1.4m. Becoming grey at 1.9m	10.7
AMW207	0.2-0.4	120508-218-KW	12 May 2008	FILL	Silty sand topsoil, brown, dry, loose with rootlets	1.2
AMW207	0.5-0.7	120508-219-KW	12 May 2008	FILL	Sand fill, fine to medium grained, alternating sand layers. Dark brown/grey/pale brown/grey. Slightly moist with minor ash throughout fill. Metal shavings at 0.6m	1.9
AMW207	1.4-1.5	120508-220-KW	12 May 2008	FILL	Sandy clay to clayey sand, pale brown/orange to dark brown, moist and dense with ash gravels at 1.4-1.5m	4
AMW207	1.9-2	120508-221-KW	12 May 2008	FILL	Clayey sand, brown, wet, fine to medium grained, silt layers with H2S odour	3.7
AMW207	2.6-2.8	120508-222-KW	12 May 2008	FILL	Silty clay, dark grey, soft and wet with shells	13

Table 2 (continued): Summary of Sample Information

Location	Sample Depth	Sample Id	Date Sampled	Material Type	Material Description	PID (ppm)
					SOIL SAMPLES	
BBH401	0.2-0.4	280408-01-KW	28 Apr 2008	FILL	Sand, medium grained, white/brown, dry, odourless	1.9
BBH401	0.5-0.6	280408-02-KW	28 Apr 2008	FILL	Sand, white/pale brown, loose, possible thin peat with shells grading to dark brown/grey. Moist at 1.2m	10.3
BBH401	1.1-1.2	280408-03-KW	19 Jun 2008	FILL	Sand, white/pale brown, loose, possible thin peat with shells grading to dark brown/grey. Moist at 1.2m	6.1
BBH401	1.8-2	280408-04-KW	19 Jun 2008	SANDY SILT	Sandy clay silt, dark grey, organics, some shells, dense and wet	10.5
BBH402	0.1-0.3	280408-05-KW	28 Apr 2008	FILL	Grass over sandy clay topsoil, brown, roots, dry and loose	15.1
BBH402	0.5-0.6	280408-06-KW	28 Apr 2008	FILL	Gravelly sand fill, brown, loose, dry to moist, ash (black) with sandstone fragments	10.6
BBH402	0.8-0.9	280408-07-KW	28 Apr 2008	FILL	Sand, light to dark brown, moderately dense, fine to medium grained, coal/ash (small air bubbles) at 0.8-0.9m. Dry to moist	7.5
BBH402	1.3-1.4	280408-08-KW	28 Apr 2008	FILL	Silty sand , trace clay, black/dark brown, shells with organic odour. Very dense, fine grained and moist	13.4
BBH402	2.6-2.8	280408-09-KW	28 Apr 2008	FILL	Sandy clay, black, shells, moist to wet. Dense and fine grained	1.6
BBH403	0-0.1	280408-10-KW`	28 Apr 2008	FILL	Grass over silty sand topsoil, brown with rootlets	12.3
BBH403	0.5-0.7	280408-11-KW	28 Apr 2008	FILL	Becoming dark brown, shells at 0.7m	3.8
BBH403	1.1-1.4	280408-12-KW	28 Apr 2008	SAND	Becoming dark grey, silty clay lenses, organic odour	5.9
BBH403	1.1-1.4	280408-13-KW Field Blind Replicate Sample of 280408-12-KW	28 Apr 2008	SAND	Becoming dark grey, silty clay lenses, organic odour	5.9
BBH403	1.1-1.4	280408-14-KW Split Field Duplicate of 280408-12-KW	28 Apr 2008	SAND	Becoming dark grey, silty clay lenses, organic odour	5.9
BBH404	0-0.1	280408-15-KW	28 Apr 2008	FILL	Grass over sand, light grey, fine to medium grained, moist with shells, rootlets and gravels	16.6
BBH404	0.8-0.9	280408-16-KW	28 Apr 2008	FILL	Dark brown, silty sand, fine grained, gravels, organic odour, moist and dense	9.7
BBH404	1.8-1.9	280408-17-KW	28 Apr 2008	SAND	Becoming grey/orange fine to medium grained	1
BBH405	0-0.2	290408-48-KW	28 Apr 2008	FILL	Grass over clayey sand topsoil, orange/brown, medium to course grained, dry to moist, gravels and rrotlets	1.9
BBH405	0.4-0.5	290408-49-KW	28 Apr 2008	FILL	Crushed sandstone fill, white/brown/orange, course grained, moist to dry, minor black bitumen gravels. Refusal on fill.	6.6
BBH406	0.1-0.2	290408-46-KW	29 Apr 2008	FILL	Grass over silty sand topsoil. Medium grained, light brown, moist, loose, some gravels	1.8
BBH406	0.6-0.8	290408-47-KW	29 Apr 2008	FILL	Silty sand, darker brown, moist, dense medium grained	0
BBH407	0.05-0.15	290408-43-KW	29 Apr 2008	FILL	Grass over silty sand, topsoil, fine grained, dark brown, moist with gravels	0.4
BBH407	0.4-0.5	290408-44-KW	29 Apr 2008	FILL	Clayey sand, fine to medium grained, light brown/orange with crushed white sandstone and ironstone gravels, moist and dense	0
BBH407	1.5-1.6	290408-45-KW	29 Apr 2008	SILTY SAND	Silty sand, dark grey, fine grained, very dense, moist to wet. Wet at 1.6m.	1.2
BBH408	0-0.2	290408-50-KW	29 Apr 2008	FILL	Grass over silty sand top soil, grey/brown, roots, moist, medium grained and loose	4.9
BBH408	1.2-1.4	290408-51-KW	29 Apr 2008	SAND	Sand, grey, medium grained, moderately dense, moist, wet at 1.4m. Organic odour	9.9
BBH408	1.2-1.4	290408-52-KW Field Blind Replicate Sample of 290408-51-KW	29 Apr 2008	SAND	Sand, grey, medium grained, moderately dense, moist, wet at 1.4m. Organic odour	9.9
BBH409	0.2-0.5	290408-39-KW	29 Apr 2008	CLAYEY SAND	Dark brown, fine to medium grained, dense, moist	16.7
BBH409	0.2-0.5	290408-40-KW Field Blind Replicate Sample of 290408-39-KW	29 Apr 2008	CLAYEY SAND	Dark brown, fine to medium grained, dense, moist	16.7
BBH409	0.2-0.5	290408-41-KW Split Field Duplicate of 290408-39-KW	29 Apr 2008	CLAYEY SAND	Dark brown, fine to medium grained, dense, moist	16.7
BBH409	1.9-2	290408-42-KW	29 Apr 2008	SAND	Pale grey, medium grained, wet at 0.8m, moderately dense	3.7
BBH410	0.1-0.4	280408-25-KW	29 Apr 2008	FILL	Grass over sandy topsoil, brown/orange/yellow, fine grained with minor clay. Ash at 0.1m. Red ironstone gravels at 0.5m, black charcoal fragments throughout	11.9
BBH410	0.9-1	280408-26-KW	29 Apr 2008	FILL	Sand, dark brown, fine grained with glass, bone, moist and loose	12.6
BBH410	1.6-1.8	280408-27-KW	29 Apr 2008	CLAY	Clay, black, wet at 1.6m, plastic, organic odour, roots, shells with bacterial sheen	8.9
BBH410	2.6-2.8	280408-28-KW	28 Apr 2008	SAND	Sand, fine to medium grained, grey with shells throughout and wet	11.5
BBH411	0.2-0.4	290408-36-KW	29 Apr 2008	FILL	Clay, grey/red/orange, stiff and dry with trace sand, gravels, ironstone gravels, sandstone and shale fragments with ash at 0.8-0.9m	9.6
BBH411	0.8-0.9	290408-37-KW	29 Apr 2008	FILL	Clay, grey/red/orange, stiff and dry with trace sand, gravels, ironstone gravels, sandstone and shale fragments with ash at 0.8-0.9m	2.2
BBH411	2.5-2.6	290408-38-KW	29 Apr 2008	SILT	Sand, medium grained, grey, moist and dense	0
BBH412	0-0.2	280408-21-KW	29 Apr 2008	FILL	Grass overlying sandy clay topsoil, brown, rootlets, moist with charcoal pieces	12.1
BBH412	0.5-0.6	280408-22-KW	29 Apr 2008	FILL	Sand, dark brown/grey, fine grained, loose, trace clay moist	11.2
BBH412	1-1.2	280408-23-KW	29 Apr 2008	FILL	silty sandy clay, black with glass and ash inclusions, ash odour	3.5
BBH412	2.1-2.2	280408-24-KW	29 Apr 2008	SAND	Sand, grey, with trace silt and clay, moderately dense, moist and fine grained	11.2
BBH413	0-0.4	280408-18-KW	29 Apr 2008	FILL	Grass with sandy topsoil, brown, rootlets, dry with shells	12.4
BBH413	1-1.3	280408-19-KW	29 Apr 2008	FILL	Sand, grey with dark brown lenses, shells. Moist to wet	17.8
BBH413	1-1.3	280408-20-KW Field Blind Replicate Sample of 280408-19-KW	29 Apr 2008	FILL	Sand, grey with dark brown lenses, shells. Moist to wet	17.8
BBH414	0.1-0.4	020508-168-KW	02 May 2008	FILL	Sand, brown, trace clay, fine grained, moist with some gravels	20.1
BBH414	0.1-0.4	020508-169-KW Field Blind Replicate Sample of 020508-168-KW	02 May 2008	FILL	Sand, brown, trace clay, fine grained, moist with some gravels	20.1
BBH414	0.1-0.4	020508-170-KW Split Field Duplicate of 020508-168-KW	02 May 2008	FILL	Sand, brown, trace clay, fine grained, moist with some gravels	20.1
BBH414	1.3-1.4	020508-171-KW	02 May 2008	FILL	Sand, yellow, fine to medium grained, loose, shells, moist, silt lenses, wet at 1.5m	16.7
BBH415	0.1-0.3	300408-78-KW	30 Apr 2008	FILL	Clayey sand, orange/brown/grey, moist, medium grained, moderately dense with crushed sandstone	4.7
BBH415	0.9-1	300408-79-KW	30 Apr 2008	SILTY SAND	Silty sand, dark grey, medium grained, moderately dense, moist woth organic odour	4.7
BBH415	2-2.1	300408-80-KW	30 Apr 2008	SILTY SAND	Silty sand, dark grey, medium grained, moderately dense, wet with H2S odour at 2.6m	4.3
BBH417	0.2-0.4	290408-29-KW	29 Apr 2008	FILL	Clayey silty sand, grey/brown with ash and glass fragments, moist and dense	0
BBH417	1.1-1.2	290408-30-KW	29 Apr 2008	FILL	Black silt, fibrous root mass, organic odour, gravels (possible ash), moist to wet	5
BBH417	2-2.1	290408-31-KW	29 Apr 2008	SILTY SAND	Silty sand, dark grey, moist to wet, moderatelt dense, organic odour. Shells and rootlets from 2.3m	3
BBH418	0.1-0.2	290408-66KW	29 Apr 2008	FILL	Grass over silty sand topsoil, fine grained, moist, roots and loose	-
BBH418	0.8-0.9	290408-67-KW	29 Apr 2008	FILL	Clayey silt, dark brown, soft, dense. Layered grey/orange silt from 0.8 to 0.9m	6
BBH418	1.5-1.6	290408-68-KW	29 Apr 2008	SAND	Sand, pale grey, wet medium grained and dense	9.3
BBH419	0.2-0.3	290408-62-KW	29 Apr 2008	FILL	Sand, brown/grey, fine to medium grained, loose, moist with gravels coal and sandstone	8.5
BBH419	0.5-0.7	290408-63-KW	29 Apr 2008	FILL	Clay, grey/orange, moist, stiff with gravels	2.4
BBH419	2-2.1	290408-64-KW	29 Apr 2008	FILL	Fibrous black mass, silt, ash, rock, glass and wet	0
BBH419	2.6-2.8	290408-65-KW	29 Apr 2008	SAND	Sand, grey with silt, shells, moist to wet and dense	2.2
BBH420	0-0.1	020508-165-KW	02 May 2008	FILL	Grass over silty sand top soil, dark brown, fine grained, loose, moist with roots	22.3
BBH420	0.5-0.6	020508-166-KW	02 May 2008	FILL	Sand, yellow, fine grained to grained. Moderately dense, moist with shells	28.9
BBH420	2.4-2.6	020508-167-KW	02 May 2008	FILL	Crushed sansdtone, orange/white, clay content, moist (wet at 2.4m) and odourless	20.4
BBH421	0-0.1	300408-105-KW	30 Apr 2008	FILL	Grass over sandy topsoil, brown, fine grained, loose, dry with rootlets	-
BBH421	0.5-0.6	300408-104-KW	30 Apr 2008	FILL	Sand, pale grey, fine to medium grained, loose, dry with rootlets. Silty clay lenses at 0.3m, shells, moist and dense at 0.6m	7.3
BBH422	0.2-0.4	300408-112-KW	30 Apr 2008	FILL	Sand, yellow, fine to medium grained, moderately dense with gravels from 0.2-0.4m	2.4
BBH422	2-2.2	300408-113-KW	30 Apr 2008	SILTY CLAY	Silty clay, dark brown, soft and wet (sturated at 2.0-2.2m) and organic odour	2.3
BBH423	0.1-0.3	300408-81-KW	30 Apr 2008	FILL	Weathered sandstone, orange/white, medium to course grained, moderately dense and moist	7.6
BBH423	0.7-0.8	300408-82-KW	30 Apr 2008	FILL	Sand, grey to dark grey, medium grained, moderately dense, moist, gravels and ash at 0.7-0.8m	1.9

Table 2 (continued): Summary of Sample Information

Location	Sample Depth	Sample Id	Date Sampled	Material Type	Material Description	PID (ppm)
					SOIL SAMPLES	
BBH423	1.5-1.6	300408-83-KW	30 Apr 2008	FILL	Silty sand, dark grey, fine to medium grained, dense, wet with H2S odour. Shells at 2.2m	0.5
BBH425	0.2-0.4	290408-57-KW	29 Apr 2008	FILL	Sand, yellow, fine to medium grained, loose, dry to moist, moderately dense with shells at 0.8-1.1m	11.8
BBH425	1.3-1.4	290408-58-KW	29 Apr 2008	FILL	Clayey silt, black, moderately dense with organic odour	7.5
BBH426	0.1-0.2	290408-69-KW	29 Apr 2008	FILL	Grass over silty sand topsoil, brown, medium grained, loose, dry to moist	-
BBH426	0.5-0.6	290408-70-KW	29 Apr 2008	FILL	Sand, yellow grading to pale grey with depth, dense and dry to moist	7.7
BBH426	1.7-1.8	290408-71-KW	29 Apr 2008	FILL	Silt, dark brown, soft with glass, gravel and roots	1
BBH427	0.1-0.3	290408-59-KW	29 Apr 2008	FILL	Clayey sand, brown/orange with concrete rubble, gravels and shells. Some stiffer brown clay	4.2
BBH427	0.8-1	290408-60-KW	29 Apr 2008	FILL	Sand, yellow, medium grained,	8
BBH427	1.8-2	290408-61-KW	29 Apr 2008	FILL	Orange sand lenses	10.4
BBH428	0.1-0.2	010508-162-KW	01 May 2008	FILL	Silty sand, brown, fine grained moist with gravels and roots	16.2
BBH428	0.6-0.7	010508-163-KW	01 May 2008	FILL	Sand, yellow/pale grey with orange mottles, shells and peat sections throughout	5.8
BBH428	2.4-2.6	010508-164-KW	01 May 2008	FILL	Silty sand, moist with gravels, glass and organic odour	26.2
BBH429	0-0.1	010508-152-KW	01 May 2008	FILL	Grass over silty clay topsoil, dark brown, roots and gravels	2.3
BBH429	0.5-0.7	010508-153-KW	01 May 2008	FILL	Clay, dark grey/brown mottles, moist, stiff, roots and sand at 1.3m	4.2
BBH429	2.4-2.5	010508-155-KW	01 May 2008	FILL	Sandy silt, black, roots, glass, plastic, moist to wet with gravels and H2S odour	15
BBH430	0.1-0.3	300408-106-KW	30 Apr 2008	FILL	Sand, pale grey, fine to medium grained, moderately dense, moist with shells throughout	2.4
BBH430	2.4-2.6	300408-107-KW	30 Apr 2008	FILL	Silt, black with gravels and organic odour	3.2
BBH431	0.1-0.2	300408-84-KW	30 Apr 2008	FILL	Sand, medium grained, loose, dark grey grading to pale grey	1.6
BBH431	0.5-0.6	300408-85-KW	30 Apr 2008	FILL	Sailty sand, dark grey, fine to medium grained, moist, loose with ash and gravels	4.5
BBH431	2-2.1	300408-86-KW	30 Apr 2008	CLAYEY SAND	Clayey silty sand, grey, medium grained, dense, soft with organic odour. Shells at 2.1-2.2m. Grading to silty clay with trace sands at 2.5m	11.3
BBH432	0-0.1	010508-160-KW	01 May 2008	FILL	Grass over silty sand topsoil, moist with roots	2.3
BBH432	1.3-1.4	010508-161-KW	01 May 2008	FILL	Silty clay, dark grey, soft and moist	2.2
BBH433	0.1-0.3	010508-156-KW	01 May 2008	FILL	Sandy silt clay, brown with gravels, ceramic peices, charcoal, moist and dense	2.1
BBH433	0.1-0.3	010508-157-KW Field Blind Replicate Sample of 010508-156-KW	01 May 2008	FILL	Sandy silt clay, brown with gravels, ceramic peices, charcoal, moist and dense	2.1
BBH433	2.4-2.5	010508-159-KW	01 May 2008	FILL	Silt, black, moist with glass, gravels and sand	8.1
BBH434	0-0.2	300408-108-KW	30 Apr 2008	FILL	Grass over sandy topsoil, dark brown, loose dry to moist, rootlets with trace clays	-
BBH434	0.5-0.6	300408-109-KW	30 Apr 2008	FILL	Sand, yellow, fine to medium grained, concrete rubble and gravels at 0.4m. Ironstone gravels at 0.8m	3.5
BBH435	0.1-0.3	300408-110-KW	30 Apr 2008	FILL	Clayey silt sand, grey/brown, fine grained, dense, dry to moist	5.2
BBH435	1-1.1	300408-111-KW	30 Apr 2008	FILL	Sand, yellow grading to grey at 1.0m, fine to medium grained, moderately dense, moist to wet at 1.4m	5.2
BBH436	0.1-0.3	300408-87-KW	30 Apr 2008	FILL	Sand, pale grey, fine to medium grained, loose, moist with black gravels	3.6
BBH436	0.5-0.6	300408-88-KW	30 Apr 2008	FILL	Sand with trace silt and clay at 1.1m, brown/grey/orange, medium grained, dense, moist	1.4
BBH438	0.2-0.3	290408-72-KW	30 Apr 2008	FILL	Silty sand with trace clay, brown, dry to moist, dense with rootlets	4.1
BBH438	1.9-2	290408-73-KW	30 Apr 2008	FILL	Clayey silt, dark brown, soft, dense and wet	3.3
BBH439	0.1-0.2	010508-133-KW	01 May 2008	FILL	Sandy clay, brown sand with orange clay, black gravels, glass, dry and osourless	6.3
BBH439	0.2-0.4	010508-134-KW	01 May 2008	FILL	Silty sand, dark brown/orange with black gravels	8.1
BBH439	2-2.1	010508-135-KW	30 Apr 2008	FILL	Silty clay sand, dark grey, dense and moist to wet	-
BBH440	0.2-0.4	010508-148-KW	01 May 2008	FILL	Sand, yellow/pale grey with orange mottles throughout, shells throughout, moist and moderately dense	-
BBH440	1-1.1	010508-149-KW	01 May 2008	FILL	Sand, yellow/pale grey with orange mottles throughout, shells throughout, moist and moderately dense	-
BBH441	0-0.2	010508-150-KW	01 May 2008	FILL	Grass over silty sand topsoil, fine grained, dark brown, loose, dry with roots	-
BBH441	1.5-1.6	010508-151-KW	30 Apr 2008	FILL	Sand, pale grey, finr to medium grained, slightly dense, moist to wet with shells throughout	-
BBH442	0.1-0.4	300408-101-KW	30 Apr 2008	FILL	Sand, brown/grey, fine to medium grained, loose, moist with shells	2
BBH442	0.1-0.4	300408-102-KW Field Blind Replicate Sample of 300408-101-KW	30 Apr 2008	FILL	Sand, brown/grey, fine to medium grained, loose, moist with shells	2
BBH442	1-1.1	300408-103-KW	30 Apr 2008	FILL	Sand, pale grey, medium grained, moist, broken shells. Rock/gravels at 1.3m	1
BBH443	0.4-0.5	300408-89-KW	30 Apr 2008	FILL	Crushed sandstone, orange/white, course grained, dense, moist to dry with rock/gravels	-
BBH443	0.4-0.5	300408-90-KW Field Blind Replicate Sample of 300408-89-KW	30 Apr 2008	FILL	Crushed sandstone, orange/white, course grained, dense, moist to dry with rock/gravels	-
BBH443	2.2-2.4	300408-91-KW	30 Apr 2008	SILTY CLAY	Silty clay, dark grey, fine grained, dense and moist	1.9
BBH445	0.1-0.4	010508-136-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry. Brown silty lense at 1.2m	3.5
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry. Brown silty lense at 1.2m	3.5
BBH445	0.1-0.4	010508-138-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry. Brown silty lense at 1.2m	3.5
BBH445	1.8-1.9	010508-139-KW	01 May 2008	FILL	Silty clay, dark brown, soft and wet	11.4
BBH446	0.1-0.2	010508-146-KW	01 May 2008	FILL	Grass overs silty clay topsoil, dark brown, moist with roots and gravels	8.4
BBH446	0.4-0.5	010508-147-KW	01 May 2008	FILL	Silty clay, dark grey/brown mottles, moist and rootlets	6.3
BBH447	0.1-0.2	010508-144-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry, becoming moist at 0.5m	3
BBH447	0.7-0.8	010508-145-KW	01 May 2008	FILL	Silty sand, dark brown, fine grained, rootlets, moserately dense and moist	1.4
BBH448	0.1-0.2	300408-98-KW	30 Apr 2008	FILL	Sand, pale grey, fine to medium grained, loose to dense, moist. Shells at 0.3m	1.8
BBH448	0.4-0.5	300408-99-KW	30 Apr 2008	FILL	Silty clay, dark brown, shells, soft with organic odour	1.7
BBH448	1.2-1.3	300408-100-KW	01 May 2008	FILL	Sand, fine to medium grained, pale grey, and wet	3.6
BBH450	0.4-0.5	010508-140-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry to moist (increasing with depth), minor charcoal/coal fragments, from 0.1-0.8m. Crushed white sandstone at 0.8m	3
BBH450	0.8-1	010508-141-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry to moist (increasing with depth), minor charcoal/coal fragments, from 0.1-0.8m. Crushed white sandstone at 0.8m	1.9
BBH451	0-0.2	010508-142-KW	01 May 2008	FILL	Sand, yellow, fine to medium, moist and loose	-

Table 2 (continued): Summary of Sample Information

Location	Sample Depth	Sample Id	Date Sampled	Material Type	Material Description	PID (ppm)
					SOIL SAMPLES	
BBH451	0-0.1	010508-A1-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, moist and loose	-
BBH451	0.65-0.75	010508-143-KW	01 May 2008	FILL	Silty clay, brown, moist and soft with roots	3.2
BBH452	0.1-0.2	300408-96-KW	30 Apr 2008	FILL	Sandy clay, dark brown, fine grained, dense/stiff and moist	1.7
BBH452	0.5-0.7	300408-97-KW	01 May 2008	FILL	Sand, pale grey, fine to medium grained, loose and dense, moist with shells at 0.7-0.8m	2.1
BBH453	0.2-0.3	300408-92-KW	30 Apr 2008	FILL	Crushed sandstone, orange/white, course grained and dry	1.5
BBH453	0.55-0.65	300408-93-KW	30 Apr 2008	FILL	Sand, brown, fine to medium grained, loose and dry	2.1
BBH455	0.1-0.2	010508-120-KW	01 May 2008	FILL	Sand, light brown, fine to medium grained, loose, dry to moist	9
BBH455	0.5-0.6	010508-121-KW	01 May 2008	FILL	Silty clay, dark brown and dry	1.9
BBH456	0.2-0.4	010508-118-KW	01 May 2008	FILL	Sandy clay, brown with weathered/crushed sandstone (white/yellow)	10.2
BBH456	1-1.2	010508-119-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, slightly dense, moist with shells	9.1
BBH457	0.45-0.6	300408-94-KW	30 Apr 2008	FILL	Sand, dry to moist, black with ash(black and white), crunchy and sharp	2.2
BBH457	1.1-1.2	300408-95-KW	30 Apr 2008	SILTY CLAY	Silty clay, dark brown, fine grained, stiif, soft from 1.1m, shells at 1.3m and organic odour	0.9
BBH458	0.1-0.4	010508-122-KW	01 May 2008	FILL	Sand pale grey, fine to medium grained, loose and dry. Interspersed silt layeres. H2S odour at 2.6m. Moist to wet at 2.8m	7.4
BBH458	0.1-0.4	010508-123-KW	01 May 2008	FILL	Sand pale grey, fine to medium grained, loose and dry. Interspersed silt layeres. H2S odour at 2.6m. Moist to wet at 2.8m	7.4
BBH458	0.1-0.4	010508-124-KW	01 May 2008	FILL	Sand pale grey, fine to medium grained, loose and dry. Interspersed silt layeres. H2S odour at 2.6m. Moist to wet at 2.8m	7.4
BBH458	0.9-1.1	010508-125-KW	01 May 2008	FILL	Sand pale grey, fine to medium grained, loose and dry. Interspersed silt layeres. H2S odour at 2.6m. Moist to wet at 2.8m	6
BBH460	0-0.15	010508-114-KW	01 May 2008	FILL	Grass over silty sand topsoil, dark brown, fine grained, moist with rootlets	-
BBH460	0.7-0.8	010508-115-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, moderately dense, moist shells, silty clay, lenses at 0.8m	1.6
BLG404	0-0.2	020508-178-KW	02 May 2008	FILL	Silty sand top soil, brown, fine grained, dry and loose with gravels	-
BLG404	1-1.2	020508-179-KW	02 May 2008	FILL	Sand, pale grey, fine grained, loose and dry	7.4
BLG404	2.7-2.8	020508-180-KW	02 May 2008	SILTY CLAY	Dark brown, wet with H_2S odour	-
BMW401	0.15-0.35	020508-187-KW	02 May 2008	FILL	Crushed weathered sandstone and white	10.4
BMW401	0.6-0.7	020508-A2-KW	02 May 2008	FILL	Clay, brown/orange, sand, dry with black gravels	-
BMW401	1.3-1.4	020508-188-KW	02 May 2008	FILL	Clay, brown/orange, stiff, dry, gravels, crushed sandstone and ash at 1.3m	22.4
BMW401	1.3-1.4	020508-188-LJ	02 May 2008	FILL	Clay, brown/orange, stiff, dry, gravels, crushed sandstone and ash at 1.3m	22.4
BMW404	0.1-0.2	020508-175-KW	02 May 2008	FILL	Crushed sandstone, white, course grained, gravels and ceramic pieces	-
BMW404	0.4-0.5	020508-176-KW	02 May 2008	FILL	Sand, black, dry with ash gravels	-
BMW404	2.6-2.8	020508-177-KW	02 May 2008	SAND	Sand with trace silt, pale grey, fine to medium grained, dense and moist becoming moist	17.9
					GROUNDWATER SAMPLES	
AMW201	-	290508-05-LJ	29 May 2008	WATER	Pale brown tint, almost clear, odourless.	-
AMW201	-	290508-06-LJ Field Blind Replicate Sample of 290508-05-LJ	29 May 2008	WATER	Pale brown tint, almost clear, odourless.	-
AMW201	-	290508-07-LJ Split Field Duplicate of 290508-05-LJ	29 May 2008	WATER	Pale brown tint, almost clear, odourless.	-
AMW202	-	300508-12-LJ	30 May 2008	WATER	Pale brown, turbid, odourless.	-
AMW203	-	290508-01-LJ	29 May 2008	WATER	Brown tint, H2S odour.	-
AMW204	-	290508-08-LJ	29 May 2008	WATER	Orange/red, turbid, odourless.	-
AMW205	-	290508-04-LJ	29 May 2008	WATER	Grey tint, slightly turbid, organic odour.	-
AMW206	-	300508-10-LJ	30 May 2008	WATER	Pale brown, slightly turbid, odourless.	-
AMW206		300508-11-LJ	30 May 2008	WATER	Pale brown, slightly turbid, odourless.	-
AMW207	-	300508-09-LJ	30 May 2008	WATER	Pale brown tint, slightly turbid, odourless.	-
ABH202	-	290508-03-LJ	29 May 2008	WATER	Pale brown tint, sheen with hydrocarbon odour.	-
ABH2105	-	290508-02-LJ	29 May 2008	WATER	Almost clear, brown tint, hydrocarbon odour.	-
ABH2110		300508-13-LJ	30 May 2008	WATER	Almost clear, brown tint, odourless.	-
ABH2100		300508-14-LJ	30 May 2008	WATER	Pale brown tint, almost clear, odourless.	-
BMW401	-	170608-01-LJ	17 June 2008	WATER	Clear, colourless, odourless	-
BMW402	-	170608-05-LJ	17 June 2008	WATER	Pale brown tint, odourless.	-
BMW403	-	170608-02-LJ	17 June 2008	WATER	Pale brown/yellow, slightly turbid, odourless.	-
BMW404	-	170608-03-LJ	17 June 2008	WATER	Black, very turbid, rich organic odour.	-
BMW404		170608-04-LJ Field Blind Replicate Sample of 170608-03-LJ	17 June 2008	WATER	Black, very turbid, rich organic odour.	-
BBH304		180608-06-LJ	18 June 2008	WATER	Brown, clear, H2S odour.	-
					GAS SAMPLES	
ALG202	-	ALG202	16 June 2008	GAS	-	-
BLG402	-	BLG402	16 June 2008	GAS	-	-
					QC SAMPLES	
Trip Blank	-	Trip Blank	5/5/08, 6/5/08 and 7/5/08	SOIL	Sand	-
Trip Spike	-	Trip Spike	5/5/08, 6/5/08 and 7/5/08	SOIL	Sand	-
Trip Blank	-	Trip Blank	8 May 2008	SOIL	Sand	-
Trip Spike	-	Trip Spike	8 May 2008	SOIL	Sand	-
Trip Blank	-	Trip Blank	9 May 2008	SOIL	Sand	-
Trip Spike	-	Trip Spike	9 May 2008	SOIL	Sand	-
Trip Blank	-	Trip Blank	12 May 2008	SOIL	Sand	-
Trip Spike	-	Trip Spike	12 May 2008	SOIL	Sand	-
Trip Blank	-	Trip Blank	13 May 2008	SOIL	Sand	-
Trip Spike	-	Trip Spike	13 May 2008	SOIL	Sand	-
Trip Blank	-	Trip Blank	15 May 2008	SOIL	Sand	-
Trip Spike	-	Trip Spike	15 May 2008	SOIL	Sand	-
Trip Blank	-	Trip Blank	28/4/08 and 29/4/08	SOIL	Sand	-
Trip Spike	-	Trip Spike	28/4/08 and 29/4/08	SOIL	Sand	-
Trip Blank	-	Trip Blank	30/4/08 and 1/5/08	SOIL	Sand	-
Trip Spike	-	Trip Spike	30/4/08 and 1/5/08	SOIL	Sand	-
Trip Blank	-	Trip Blank	2 May 2008	SOIL	Sand	-
Trip Spike	-	Trip Spike	2 May 2008	SOIL	Sand	-
Trip Blank	-	Trip Blank	29/5/08 and 30/5/08	WATER	Water	-
Trip Spike	-	Trip Spike	29/5/08 and 30/5/08	WATER	Water	-
Rinsate	-	090508-500-KW	9/05/2008	WATER	Water	-
Trip Blank	-	Trip Blank	17 June 2008	WATER	Water	-
Trip Spike	-	Trip Spike	17 June 2008	WATER	Water	-

Table 3: Containers, preservation requirements and holding times - Soil

Parameter	Container	Preservation	Maximum holding time	Colour code
Acid digestible metals and metalloids (As	250 mL glass	Nil	6 months	Orange
Mercury	250 mL glass	4^oC	28 days	Orange
TPH/BTEX	250 mL glass	4^oC	14 days	Orange
PAHs	250 mL glass	4^oC, zero headspace	14 days	Orange
OCPs/OPPs/PCBs	250 mL glass	4^oC, zero headspace	14 days	Orange
VOCs, PAAHs, Phenols	250 mL glass	4^oC, zero headspace	14 days	Orange
Nutrients	250 mL glass	4^oC	7 days	Orange
Asbestos	Sealed plastic bag	Nil	Nil	Nil
SPOCAS	Sealed plastic bag	Frozen	Nil	Nil
Salinity indicators	Sealed plastic bag - min 1500g	Nil	Nil	Nil

Table 4: Containers, preservation requirements and holding times – Groundwater

Parameter	Container Volume (mL)	Preservative	Maximum holding	Colour Code	Field Filtered
Metals and metalloids	125 mL Plastic	HNO_3 / 4°C	6 months	Red	Yes
Anions	250 ml Plastic	None / 4°C	48 Hrs	Green	No
Cations	125 mL Plastic	HNO_3 / 4°C	7 days	Red	Yes
Nutrients	250 ml Plastic	H_2SO_4 / 4°C	28 days	Purple	No
TPH (C_6-C_9)/BTEX/VOCs	4 x 43 mL Glass	HCl / 4°C	14 days	Orange	No
TPH (C_{10}-C_{36})/PAHs	1000 mL Glass	None / 4°C	28 days	Orange	No
PAAHs/Phenols	1000 mL Glass	None / 4°C	28 days	Orange	No
Salinity Indicators	1000 mL	None / 4°C	48 Hrs	Green	No

Table 5: Containers and preservation requirements –		
Parameter	**Container Volume (mL)**	**Preservative**
VOC	4 L	Tedlar Gas Bag

Table 6: Analytical parameters, PQLs and methods - Soil			
Parameter	**Unit**	**PQL**	**Method Based On**
Metals and Metalloids in Soil			
Arsenic [1]	mg kg^{-1}	1	USEPA 200.7
Cadmiun [1]	mg kg^{-1}	1	USEPA 200.7
Chromium [1]	mg kg^{-1}	1	USEPA 200.7
Copper [1]	mg kg^{-1}	1	USEPA 200.7
Mercury [2]	mg kg^{-1}	0.1	USEPA 7471A
Nickel [1]	mg kg^{-1}	1	USEPA 200.7
Lead [1]	mg kg^{-1}	1	USEPA 200.7
Zinc [1]	mg kg^{-1}	1	USEPA 200.7
Total Petroleum Hydrocarbons (TPH) and BTEX Compounds			
C_6-C_9 fraction	mg kg^{-1}	2	USEPA 8015B
C_{10}-C_{14} fraction	mg kg^{-1}	50	USEPA 8015B
C_{15}-C_{28} fraction	mg kg^{-1}	100	USEPA 8015B
C_{29}-C_{36} fraction	mg kg^{-1}	100	USEPA 8015B
Total C_6-C_{36}	mg kg^{-1}	--	USEPA 8015B
Benzene	mg kg^{-1}	0.2	USEPA 8021A
Toluene	mg kg^{-1}	0.5	USEPA 8021A
Ethylbenzene	mg kg^{-1}	0.5	USEPA 8021A
m&p-xylene	mg kg^{-1}	1	USEPA 8021A
o-xylenes	mg kg^{-1}	0.5	USEPA 8021A
Organics in Soil			
Polycyclic Aromatic Hydrocarbons	mg kg^{-1}	0.5-1	USEPA 8270 SIM
Organochlorine Pesticides	mg kg^{-1}	0.05-0.2	USEPA 8081A
Organophosphorus Pesticides	mg kg^{-1}	0.05-0.2	USEPA 8081A
Phenols	mg kg^{-1}	5	APHA
Polychlorinated Biphenyls	mg kg^{-1}	0.1	USEPA 8081A
Asbestos			
Asbestos	-	-	Polarised Light Microscopy
SPOCAS analysis			
SPOCAS	r mol H^+ ton	0.001-0.01	Ahern *et al* (1998)
Salinity Indicators			
pH	pH units	0.01	AS2159:1995
Electrical Conductivity	µS cm^{-1}	1	AS2159:1995
Salinity	ppt	1	AS2159:1995
Resistivity	Ohms	1	AS2159:1995
Soluble sulfate	mg kg^{-1}	10	AS2159:1995
Chloride	mg kg^{-1}	10	AS2159:1995

Note 1: Acid soluble metals by ICP-AES.

Note 2: Total recoverable mercury.

Salinity Indicators			
pH	pH units	0.1	AS2159:1995
Electrical conductivity	$\mu S\ cm^{-1}$	1	AS2159:1995
Salinity	ppt	1	AS2159:1995
Total dissolved solids	$mg\ L^{-1}$	1	AS2159:1995
Resistivity	Ohms	1	AS2159:1995
Alkalinity	$mg\ L^{-1}$	1	AS2159:1995
Sulfate	$mg\ L^{-1}$	0.1	AS2159:1995
Chloride	$mg\ L^{-1}$	0.1	AS2159:1995

Table 8: Site Assessment Criteria – Soils (mg kg^{-1})			
Contaminant	**HIL (Setting C)**	**HIL (Setting D)**	**Source**
Arsenic (total)	300	3000	NEPC (2014) – Schedule (B1)
Benzo(a)pyrene TEQ	3	40	NEPC (2014) – Schedule (B1)
Cadmium	90	900	NEPC (2014) – Schedule (B1)
Copper	17000	240000	NEPC (2014) – Schedule (B1)
Lead	600	1500	NEPC (2014) – Schedule (B1)
Mercury (inorganic)	80	730	NEPC (2014) – Schedule (B1)
Nickel	2100	6000	NEPC (2014) – Schedule (B1)
Zinc	30000	4000000	NEPC (2014) – Schedule (B1)
Total PAHs	300	400	NEPC (2014) – Schedule (B1)
TPH C_6-C_9	-	-	-
TPH C_{10}-C_{40}	-	-	-
Benzene	-	-	-
Toluene	-	-	-
Ethylbenzene	-	-	-
Total Xylene	-	-	-
Aldrin + Dieldrin	10	45	NEPC (2014) – Schedule (B1)
Chlordane	70	530	NEPC (2014) – Schedule (B1)
DDT+DDD+DDE	400	3600	NEPC (2014) – Schedule (B1)
Phenol	40000	240000	NEPC (2014) – Schedule (B1)
Heptachlor	10	50	NEPC (2014) – Schedule (B1)
Polychlorinated Biphenyls	-	-	NEPC (2014) – Schedule (B1)

Table 8: Site Assessment Criteria – Soils (mg kg^{-1})			
Contaminant	**EIL (Urban Residential/Public Open Space)**	**EIL (Commercial/ Industrial)**	**Source**
Arsenic (total)	100	160	NEPC (2014) – Schedule (B1)
Benzo(a)pyrene			NEPC (2014) – Schedule (B1)
Cadmium			NEPC (2014) – Schedule (B1)
Chromium (III)	200	320	NEPC (2014) – Schedule (B1)
Copper	103	148	NEPC (2014) – Schedule (B1)
Lead	1131	1831	NEPC (2014) – Schedule (B1)
Mercury (inorganic)			NEPC (2014) – Schedule (B1)
Nickel	35	60	NEPC (2014) – Schedule (B1)
Zinc	275	405	NEPC (2014) – Schedule (B1)
Naphthalene	170	370	NEPC (2014) – Schedule (B1)
Total PAHs			NEPC (2014) – Schedule (B1)
TPH C_6-C_9			NEPC (2014) – Schedule (B1)
TPH C_{10}-C_{40}			NEPC (2014) – Schedule (B1)
Benzene			NEPC (2014) – Schedule (B1)
Toluene			NEPC (2014) – Schedule (B1)
Ethylbenzene			NEPC (2014) – Schedule (B1)
Total Xylene			NEPC (2014) – Schedule (B1)
Aldrin + Dieldrin			NEPC (2014) – Schedule (B1)
Chlordane			NEPC (2014) – Schedule (B1)
DDT+DDD+DDE			NEPC (2014) – Schedule (B1)
DDT	180	640	NEPC (2014) – Schedule (B1)
Phenol			NEPC (2014) – Schedule (B1)
Heptachlor			NEPC (2014) – Schedule (B1)
Polychlorinated Biphenyls			NEPC (2014) – Schedule (B1)

Table 9: Action criteria based on ASS soil analysis					
Type of Material		**Action Criteria 1-1000 tonnes**		**Action Criteria if 1000 tonnes**	
	Approx. clay	**Sulfur trail**	**Acid trail**	**Sulfur trail**	**Acid trail**
Texture range[1]	**content** (%<0.002 mm)	% S oxidisable (oven-dry basis) eg S_{TOS} or S_{POS}	mol H+/tonne (oven-dry basis) eg TPA or TSA	% S oxidisable (oven-dry basis) eg S_{TOS} or S_{POS}	mol H+/tonne (oven-dry basis) eg TPA or TSA
Coarse Texture Sands to loamy sands	≤5	0.03	18	0.03	18
Medium Texture Sandy loams to light clays	May-40	0.06	18	0.03	18
Fine Texture Medium to heavy clays and silty clays.	≥40	0.1	18	0.03	18

Source: Ahern *et al.* (1998a) Table 4.4.

Table 10: Summary of site assessment criteria - groundwater		
Parameter	**Criterion (µg L^{-1})**	**Source and Comments[1]**
Metals and Metalloids		
Arsenic (V)	13	NEPM 2013 GIL- Marine Waters
Cadmium	0.7	NEPM 2013 GIL- Marine Waters
Chromium VI	4.4	NEPM 2013 GIL- Marine Waters
Copper	1.3	NEPM 2013 GIL- Marine Waters
Nickel	7	NEPM 2013 GIL- Marine Waters
Lead	4.4	NEPM 2013 GIL- Marine Waters
Zinc	15	NEPM 2013 GIL- Marine Waters
Mercury (inorganic)	0.1	NEPM 2013 GIL- Marine Waters
Nutrients		
Nitrate	700	ANZG 2018[5]
Ammonia	0.91	ANZG 2018
TPH and BTEX		
TPH C_6-C_{36}	285	ANZG 2018[4]
Benzene	500	ANZG 2018 (99 % marine)
Toluene	180	ANZG 2018
Ethylbenzene	5	ANZG 2018
m + p xylene	ID	ANZG 2018
o-xylene	350	ANZG 2018
Total xylenes	380	-
Polycyclic Aromatic Hydrocarbons		
Fluoranthene	1	ANZG 2018
Phenanthrene	0.6	ANZG 2018
Anthracene	0.01	ANZG 2018
Benzo(a)pyrene	0.1	ANZG 2018
Napthalene	50	ANZG 2018 (99%)
Organic Compounds		
Ammonia	0.91	ANZG 2018
Organochlorine Pesticides	See Table 29	ANZG 2018
Polychlorinated Biphenyls	See Table 31	ANZG 2018
Volatile Organic Compounds	See Table 28	ANZG 2018
Organic Compounds		
Ammonia	0.91	ANZG 2018
Endosulfan	0.005	ANZG 2018 (99%)
Endrin	0.004	ANZG 2018 (99%)
Chlorpyrifos	0.009	ANZG 2018
1,1,2-trichloroethane	1900	ANZG 2018
1,2,4-trichlorobenzene	20	ANZG 2018 (99%)

Note 1: ANZECC 2000 95% level of protection in marine water.

Note 2: EPA NSW 1994 Guidelines for Assessing Service Stations.

Note 3: ID - insufficient data for guideline development.

Note 4: Addition of the combined detection limits

Note 5: Recreational waters guideline (this level was used as there are no guidelines for marine water)

Table 11: Soil Analytical Results - Metals[1]

Location	Sample Depth (m)	Sample ID	Date Sampled	Arsenic	Cadmium	Chromium	Copper	Nickel	Lead	Zinc	Mercury
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP4 Enterprise											
ABH202	0.45-0.55	090508-192-KW	09 May 2008	7.1	< 1	8.5	24	4.7	180	69	< 0.1
ABH202	1.9-2.2	090508-202-KW	09 May 2008	8	< 1	3.6	< 1	1.6	1.7	1.4	< 0.1
ABH202	3.8-4	150508-601-KW	15 May 2008	nt	nt	nt	nt	nt	4	nt	nt
ABH204	0.1-0.4	070508-55-KW	07 May 2008	< 4	< 1	3.1	3.9	1	9.9	4.8	< 0.1
ABH204	0.1-0.4	070508-56-KW Field Blind Replicate Sample of 070508-55-KW	07 May 2008	< 4	< 1	3	6.5	1	16	16	< 0.1
ABH204	0.1-0.4	070508-57-KW Split Field Duplicate of 070508-55-KW	07 May 2008	< 5	< 1	2	6	< 2	9	8	< 0.1
ABH205	0.1-0.2	060508-49-KW	06 May 2008	< 4	< 1	3.4	12	3.9	33	64	0.14
ABH205	0.4-0.5	060508-50-KW	06 May 2008	9.3	< 1	7	8	1.5	23	13	< 0.1
ABH206	0.1-0.2	090508-208-KW	09 May 2008	< 4	< 1	3.1	11	2.7	47	36	0.9
ABH206	1-1.2	090508-209-KW	09 May 2008	< 4	< 1	< 1	1.9	< 1	< 1	33	< 0.1
ABH207	0.2-0.4	090508-207-KW	09 May 2008	< 4	< 1	6	2.2	1.7	6.3	7.1	< 0.1
ABH210	0.1-0.2	060508-46-KW	06 May 2008	13	< 1	4	8.1	3.4	26	27	< 0.1
ABH2102	0.7-0.8	090508-186-KW	09 May 2008	4.6	< 1	3.9	13	7.2	40	44	0.26
ABH2103	0.1-0.2	090508-194-KW	09 May 2008	< 4	< 1	9.7	13	12	950	41	< 0.1
ABH2103	0.1-0.2	090508-195-KW Field Blind Replicate Sample of 090508-194-KW	09 May 2008	< 4	< 1	4.2	7.3	4	1200	34	< 0.1
ABH2103	0.9-1	090508-197-KW	09 May 2008	< 4	< 1	2.8	13	1.5	61	57	0.53
ABH2104	0.3-0.5	090508-198-KW	09 May 2008	< 4	< 1	11	22	15	990	200	< 0.1
ABH2105	1.4-1.5	150508-333-KW	15 May 2008	nt	nt	nt	nt	nt	37	nt	nt
ABH2105	3.8-4	150508-600-KW	15 May 2008	nt	nt	nt	nt	nt	2.2	nt	nt
ABH2106	0.1-0.2	090508-204-KW	09 May 2008	< 4	< 1	6.7	25	9.2	130	89	< 0.1
ABH2107	1-1.1	150508-341-KW	15 May 2008	nt	nt	nt	nt	nt	58	nt	nt
ABH2107	1.5-1.6	150508-342-KW	15 May 2008	nt	nt	nt	nt	nt	2.8	nt	nt
ABH2108	0.1-0.2	150508-343-KW	15 May 2008	< 4	< 1	4.2	4.6	4.2	54	20	< 0.1
ABH2108	1.1-1.2	150508-345-KW	15 May 2008	nt	nt	nt	nt	nt	8.2	nt	nt
ABH2108	4.2-4.5	150508-348-KW	15 May 2008	nt	nt	nt	nt	nt	2.1	nt	nt
ABH211	1-1.2	120508-215-KW	12 May 2008	< 4	< 1	1.6	< 1	< 1	1	2.1	0.14
ABH211	1-1.2	120508-216-KW Split Field Duplicate Sample of 120508-215-KW	12 May 2008	< 5	< 1	2	< 5	< 2	< 5	< 5	< 0.1
ABH212	0.35-0.45	080508-161-KW	08 May 2008	6.3	< 1	7.2	**240**	8.6	33	340	< 0.1
ABH213	0.5-0.6	120508-212-KW	12 May 2008	< 4	< 1	2.2	3.1	1.3	10	11	0.56
ABH215	0-0.2	060508-36-KW	06 May 2008	11	< 1	17	12	7.4	29	82	< 0.1
ABH215	0.7-0.9	060508-37-KW Field Blind Replicate Sample of 060508-36-KW	06 May 2008	6.5	< 1	2.7	< 1	1.6	1.4	3	< 0.1
ABH215	0.7-0.9	060508-38-KW Split Sample Replicate of Sample 060508-37-KW	06 May 2008	<5	<1	3	<5	<5	<2	<5	<0.1
ABH216	0-0.2	060508-40-KW	06 May 2008	12	< 1	23	10	6.4	20	34	< 0.1
ABH216	2.6-2.8	060508-42-KW	06 May 2008	< 4	< 1	1	< 1	< 1	< 1	4.4	< 0.1
ABH217	0-0.2	060508-43-KW	06 May 2008	< 4	< 1	3.5	11	1.9	36	38	< 0.1
ABH226	0-0.1	060508-06-KW	06 May 2008	9.6	< 1	4.2	9.9	1.6	45	50	2
ABH227	0.8-1	060508-09-KW	06 May 2008	< 4	< 1	1.9	3	< 1	12	6.1	< 0.1
ABH227	0.2-0.3	060508-04-KW	06 May 2008	7	< 1	3.9	27	21	11	38	0.71
ABH229	0.5-0.6	060508-05-KW	06 May 2008	< 4	< 1	1.4	1.5	< 1	7.7	7.1	< 0.1
ABH229	0.1-0.25	080508-158-KW	08 May 2008	< 4	< 1	1.9	7.6	1.5	34	67	0.29
ABH297	0.5-0.55	090508-165-KW	09 May 2008	6.2	< 1	2.1	3.6	< 1	14	11	0.28
ABH297	0.9-1.0	090508-166-KW	09 May 2008	4.5	< 1	2.3	8.5	1.6	31	51	0.14
ABH299	0.1-0.2	090508-168-KW	09 May 2008	5.1	< 1	3.8	2	1.8	5.7	7.9	< 0.1
ABH299	1.2-1.3	090508-182-KW	09 May 2008	< 4	< 1	1.7	< 1	< 1	3	28	< 0.1
AMW203	0.25-0.35	090508-188-KW	09 May 2008	4.5	< 1	5.4	16	4.5	68	47	0.23
AMW203	0.7-0.8	090508-189-KW	09 May 2008	< 4	< 1	2.4	33	15	21	33	< 0.1
RE1 Public Recreation											
BBH401	0.2-0.4	280408-01-KW	28 Apr 2008	4.9	< 1	4.1	3.4	2.3	7.7	12	0.13
BBH402	0.5-0.6	280408-06-KW	28 Apr 2008	8.7	< 1	15	44	32	64	65	< 0.1
BBH426	0.1-0.2	290408-69-KW	29 Apr 2008	< 4	< 1	4.4	7.6	1.4	34	46	< 0.1
BBH426	0.5-0.6	290408-70-KW	29 Apr 2008	< 4	< 1	< 1	< 1	< 1	2.4	2.8	< 0.1
SP4 Enterprise											
ABH228	2.5-2.6	060508-12-KW	06 May 2008	< 4	< 1	1.2	< 1	< 1	1.2	14	< 0.1
ABH229	0.1-0.3	060508-13-KW	06 May 2008	68	< 1	9.7	31	2	68	13	0.27
ABH229	0.5-0.8	060508-14-KW	06 May 2008	< 4	< 1	2.1	< 1	< 1	1.1	36	< 0.1
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	< 4	< 1	1.8	< 1	< 1	1.2	12	< 0.1
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	<5	<1	<2	<5	<5	<2	28	<0.1
ABH230	0.5-0.6	080508-149-KW	08 May 2008	4.9	< 1	7.3	11	5.4	26	29	< 0.1
ABH231	0-0.3	080508-151-KW	08 May 2008	< 4	< 1	< 1	3.4	< 1	18	18	< 0.1
ABH231	0.6-0.7	080508-152-KW	08 May 2008	< 4	< 1	1.3	1.6	< 1	7.8	9	< 0.1
ABH231	0.6-0.7	080508-153-KW Field Blind Replicate Sample of 080508-152-KW	08 May 2008	< 4	< 1	1.2	1.8	< 1	9.1	12	< 0.1
RE1 Public Recreation											
ABH235	0-0.1	070508-79-KW	07 May 2008	< 4	< 1	3.4	9.5	1.4	36	21	< 0.1
ABH235	0.4-0.55	070508-80-KW	07 May 2008	23	< 1	31	8.4	11	21	40	< 0.1
SP4 Enterprise											
ABH236	0-0.1	080508-102-KW	08 May 2008	< 4	< 1	4.3	7.9	2.3	32	38	< 0.1
ABH237	0-0.2	060508-27-KW	06 May 2008	< 4	< 1	2.1	5.3	1.1	21	33	< 0.1
ABH238	0.1-0.5	060508-23-KW	06 May 2008	< 4	< 1	3.5	2.3	1	3.3	9.7	< 0.1
ABH240	0.1-0.4	080508-123-KW	08 May 2008	< 4	< 1	2	1.8	< 1	3.5	5.3	< 0.1
ABH240	0.1-0.4	080508-124-KW Field Blind Replicate Sample of 080508-123-KW	08 May 2008	< 4	< 1	2.6	1.6	1.1	2	3.3	< 0.1
ABH240	0.1-0.4	080508-125-KW Split Field Duplicate of 080508-123-KW	08 May 2008	< 5	< 1	2	< 5	< 2	< 5	< 5	< 0.1
ABH241	0-0.1	080508-127-KW	08 May 2008	< 4	< 1	3.1	12	3	27	48	< 0.1
ABH242	0.5-0.7	080508-145-KW	08 May 2008	< 4	< 1	7.2	9.7	2.1	26	32	0.24
ABH242	0.5-0.7	080508-146-KW Field Blind Replicate Sample of 080508-145-KW	08 May 2008	6.7	< 1	12	13	2.9	26	23	0.1
ABH242	2.6-2.8	080508-147-KW	08 May 2008	< 4	< 1	< 1	< 1	< 1	< 1	< 1	< 0.1
ABH243	0.2-0.3	080508-142-KW	08 May 2008	8.1	1.8	20	110	15	180	320	0.71
RE1 Public Recreation											
ABH247	1-1.2	070508-100-KW	07 May 2008	< 4	< 1	5.8	2.6	4	3.9	63	< 0.1
ABH248	1-1.1	080508-106-KW	08 May 2008	< 4	< 1	1	< 1	< 1	1.1	1.7	< 0.1
ABH248	1-1.1	080508-107-KW Field Blind Replicate Sample of 080508-106-KW	08 May 2008	< 4	< 1	< 1	< 1	< 1	< 1	4.2	< 0.1
SP4 Enterprise											
ABH249	1-1.1	080508-110-KW	08 May 2008	< 4	< 1	1.9	8.5	6.3	2.7	49	< 0.1
ABH249	1.2-1.4	080508-111-KW	08 May 2008	< 4	< 1	1.6	< 1	< 1	< 1	4.5	< 0.1
ABH250	0.7-0.9	080508-114-KW	08 May 2008	< 4	< 1	3.2	6.3	9.1	2.6	14	< 0.1
ABH250	1.5-1.6	080508-115-KW	08 May 2008	8.3	< 1	5.6	1.5	1.1	8.5	12	< 0.1
ABH251	0-0.1	080508-116-KW	08 May 2008	< 4	< 1	3	6.3	1.5	20	32	< 0.1
ABH252	0.6-0.8	080508-131-KW	08 May 2008	11	< 1	14	9.6	5.5	22	43	< 0.1
ABH253	0-0.1	080508-133-KW	08 May 2008	< 4	< 1	5.2	18	2.6	50	73	< 0.1
ABH254	0-0.1	080508-136-KW	08 May 2008	4.9	< 1	7.3	16	3.6	35	48	< 0.1
ABH254	0.6-0.7	080508-137-KW	08 May 2008	28	2	48	36	12	40	150	0.29
ABH255	0-0.2	080508-139-KW	08 May 2008	6.3	< 1	7.8	9.7	2.8	21	36	0.15
RE1 Public Recreation											
ABH259	0-0.1	120508-248-KW	12 May 2008	4.8	< 1	4.3	12	4.5	38	28	0.21
ABH260	0.6-0.8	120508-245-KW	12 May 2008	< 4	< 1	< 1	< 1	< 1	< 1	1.9	< 0.1
ABH260	0.6-0.8	120508-246-KW Field Blind Replicate Sample of 120508-245-KW	12 May 2008	< 4	< 1	< 1	1.1	< 1	1.3	3.4	< 0.1

Table 11: Soil Analytical Results - Metals[1]											
Location	Sample Depth (m)	Sample ID	Date Sampled	Arsenic	Cadmium	Chromium	Copper	Nickel	Lead	Zinc	Mercury
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP4 Enterprise											
ABH261	0-0.2	120508-244-KW	12 May 2008	< 4	< 1	4.1	22	1.6	100	130	< 0.1
ABH265	0-0.1	120508-228-KW	12 May 2008	4.7	< 1	5.1	8.3	2.3	21	32	< 0.1
ABH265	0.9-1.1	120508-229-KW	12 May 2008	< 4	< 1	< 1	1.2	< 1	< 1	2.1	< 0.1
ABH265	0.9-1.1	120508-230-KW Split Field Duplicate Sample of 120508-229-KW	12 May 2008	< 5	< 1	< 2	< 5	< 2	< 5	< 5	< 0.1
ABH266	1.2-1.3	120508-227-KW	12 May 2008	5.8	< 1	15	15	2.8	18	59	< 0.1
ABH267	0-0.2	120508-223-KW	12 May 2008	< 4	< 1	2.3	6.4	1.2	23	26	< 0.1
ABH268	0-0.2	120508-275-KW	12 May 2008	< 4	< 1	4.6	11	2.6	28	33	0.24
RE1 Public Recreation											
ABH270	0.1-0.2	130508-311-KW	13 May 2008	< 4	< 1	< 1	1.3	< 1	2.7	5.1	< 0.1
ABH270	1.5-1.6	130508-312-KW	13 May 2008	< 4	< 1	< 1	< 1	< 1	1.2	< 1	< 0.1
ABH271	0-0.2	130508-308-KW	13 May 2008	12	< 1	8.8	20	4.5	36	42	0.29
ABH271	0.4-0.5	130508-309-KW	13 May 2008	< 4	< 1	< 1	1.8	< 1	< 1	< 1	< 0.1
ABH272	0.1-0.5	130508-304-KW	13 May 2008	< 4	< 1	4.1	13	2	72	120	0.12
ABH272	0.1-0.5	130508-305-KW Field Blind Replicate Sample of 130508-304-KW	13 May 2008	< 4	< 1	4.8	17	2.2	81	110	0.18
ABH272	2.1-2.2	130508-307-KW	13 May 2008	24	1.3	59	36	15	92	250	0.58
ABH273	0.05-0.15	130508-292-KW	13 May 2008	< 4	< 1	5.3	8.6	2.5	25	38	< 0.1
ABH273	0.7-0.8	130508-293-KW	13 May 2008	< 4	< 1	2.8	3.7	< 1	13	17	< 0.1
ABH274	0.5-0.6	130508-290-KW	13 May 2008	< 4	< 1	1.9	2.3	< 1	5.5	6.5	< 0.1
ABH275	0.8-1.2	130508-286-KW	13 May 2008	< 4	< 1	< 1	< 1	< 1	< 1	3.5	< 0.1
ABH275	0.8-1.2	130508-287-KW Field Blind Replicate Sample of 130508-286-KW	13 May 2008	< 4	< 1	< 1	< 1	< 1	< 1	1.3	< 0.1
ABH275	0.8-1.2	130508-288-KW Split Field Duplicate of 130508-286-KW	13 May 2008	< 5	< 1	< 2	< 5	< 2	< 5	< 5	< 0.1
ABH276	0.05-0.25	130508-282-KW	13 May 2008	4.5	< 1	16	45	11	110	150	0.16
ABH276	0.8-1	130508-283-KW	13 May 2008	4	< 1	19	66	18	120	110	0.16
SP4 Enterprise											
ABH277	1.1-1.2	130508-280-KW	13 May 2008	12	< 1	7.3	15	3.9	45	14	0.15
ABH277	2.1-2.2	130508-281-KW	13 May 2008	< 4	< 1	8.4	2	1.1	4.3	3.6	< 0.1
RE1 Public Recreation											
ABH283	0-0.2	150508-381-KW	15 May 2008	26	< 1	58	48	6.4	75	77	0.37
ABH284	1.3-1.6	150508-385-KW	15 May 2008	< 4	< 1	2	1.7	1.3	2.7	25	< 0.1
ABH284	1.3-1.6	150508-386-KW Field Blind Replicate Sample of 150508-385-KW	15 May 2008	< 4	< 1	1.1	1.4	1.3	1.2	16	< 0.1
ABH284	1.3-1.6	150508-387-KW Split Field Duplicate of 150508-385-KW	15 May 2008	< 5	< 1	4	6	8	9	26	< 0.1
SP4 Enterprise											
ABH285	0-0.2	150508-389-KW	15 May 2008	11	< 1	21	30	7.5	160	150	0.53
ABH286	0.1-0.3	150508-391-KW	15 May 2008	< 4	< 1	2.2	3.5	1.4	11	14	< 0.1
ABH286	2.3-2.5	150508-393-KW	15 May 2008	< 4	< 1	4.2	< 1	< 1	2.1	1.9	< 0.1
ABH286	2.3-2.5	150508-394-KW Field Blind Replicate Sample of 150508-393-KW	15 May 2008	< 4	< 1	4.1	< 1	1	1.8	1.2	< 0.1
RE1 Public Recreation											
ABH287	0-0.4	150508-378-KW	15 May 2008	4.5	< 1	7.4	5.4	2.3	14	31	< 0.1
ABH287	0-0.4	150508-379-KW Field Blind Replicate Sample of 150508-378-KW	15 May 2008	< 4	< 1	5.9	5.7	1.8	18	26	< 0.1
ABH288	0.7-0.8	150508-374-KW	15 May 2008	7.6	< 1	8.9	4.5	2.8	5.6	11	< 0.1
ABH289	0-0.3	150508-370-KW	15 May 2008	22	< 1	42	28	8.5	65	88	0.3
ABH289	0-0.3	150508-371-KW Field Blind Replicate Sample of 150508-370-KW	15 May 2008	25	< 1	53	40	9.5	77	100	0.44
ABH290	1.3-1.4	150508-359-KW	15 May 2008	7.7	< 1	22	19	5.2	48	67	0.3
SP4 Enterprise											
ABH291	0.1-0.5	150508-352-KW	15 May 2008	< 4	< 1	2	2.2	1.9	64	14	< 0.1
ABH291	0.1-0.5	150508-353-KW Field Blind Replicate Sample of 150508-352-KW	15 May 2008	< 4	< 1	1.6	2.7	1.4	140	20	< 0.1
ABH291	0.1-0.5	150508-354-KW Split Field Duplicate of 150508-352-KW	15 May 2008	< 5	< 1	< 2	< 5	< 2	46	13	< 0.1
ABH291	2.7-2.8	150508-356-KW	15 May 2008	17	< 1	4.9	16	4.2	130	12	< 0.1
ABH291	4-4.2	150508-357-KW	15 May 2008	< 4	< 1	5.4	1.1	2.1	2.8	4	< 0.1
RE1 Public Recreation											
ABH293	0.4-0.5	130508-328-KW	13 May 2008	< 4	< 1	6.5	9.4	3.6	56	42	< 0.1
ABH293	2.1-2.2	130508-330-KW	13 May 2008	19	2.4	50	40	15	120	260	0.65
ABH294	0.5-0.6	150508-368-KW	15 May 2008	18	1	34	26	11	61	110	0.27
ALG204	1.6-1.7	150508-377-KW	15 May 2008	< 4	< 1	< 1	< 1	< 1	< 1	< 1	< 0.1
ALG205	1.1-1.2	150508-364-KW	15 May 2008	< 4	< 1	3.5	3.1	2.3	5.3	30	< 0.1
ALG205	2.6-2.8	150508-365-KW	15 May 2008	< 4	< 1	3.7	3.9	< 1	8.9	33	< 0.1
AMW204	0.9-1	080508-119-KW	08 May 2008	19	< 1	27	8.1	9.8	20	29	< 0.1
AMW204	2.6-2.8	080508-120-KW	08 May 2008	22	< 1	6.7	< 1	5.1	2.6	3.2	< 0.1
AMW205	0.1-0.2	080508-155-KW	08 May 2008	< 4	< 1	1.5	< 1	< 1	5.8	16	< 0.1
AMW205	2-2.2	080508-157-KW	08 May 2008	< 4	< 1	2.4	< 1	1.3	1.1	10	< 0.1
AMW207	0.5-0.7	120508-219-KW	12 May 2008	9.9	< 1	20	**7500**	**59**	350	**540**	< 0.1
AMW207	1.4-1.5	120508-220-KW	12 May 2008	< 4	< 1	3.8	12	3.7	7.2	13	< 0.1
BBH403	1.1-1.4	280408-12-KW	28 Apr 2008	7.3	< 1	6.1	1.6	2.9	5.8	17	< 0.1

Table 11: Soil Analytical Results - Metals[1]

Location	Sample Depth (m)	Sample ID	Date Sampled	Arsenic	Cadmium	Chromium	Copper	Nickel	Lead	Zinc	Mercury
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BBH403	1.1-1.4	280408-13-KW Field Blind Replicate Sample of 280408-12-KW	28 Apr 2008	5.8	< 1	5.2	3.4	1.9	11	7.5	< 0.1
BBH403	1.1-1.4	280408-14-KW Split Field Duplicate of 280408-12-KW	28 Apr 2008	11	< 1	4	< 5	< 2	< 5	< 5	< 0.1
BBH404	0-0.1	280408-15-KW	28 Apr 2008	< 4	< 1	14	24	**42**	12	40	< 0.1
BBH405	0-0.2	290408-48-KW	28 Apr 2008	< 4	< 1	4.2	3.6	2.3	68	25	< 0.1
BBH405	0.4-0.5	290408-49-KW	28 Apr 2008	< 4	< 1	4	9.9	6.2	140	62	0.15
BBH407	0.05-0.15	290408-43-KW	29 Apr 2008	8	< 1	7	6.1	6.1	43	29	< 0.1
BBH411	0.2-0.4	290408-36-KW	29 Apr 2008	7.3	< 1	11	14	7.1	16	13	< 0.1
BBH411	0.8-0.9	290408-37-KW	29 Apr 2008	9.7	< 1	70	90	**49**	230	180	< 0.1
BBH415	0.1-0.3	300408-78-KW	30 Apr 2008	9.6	< 1	13	19	1.6	13	9.1	< 0.1
SP4 Enterprise											
BBH421	0-0.1	300408-105-KW	30 Apr 2008	< 4	< 1	3.1	5.2	1.2	16	22	< 0.1
BBH422	2-2.2	300408-113-KW	30 Apr 2008	29	1.9	38	15	16	40	110	0.33
RE1 Public Recreation											
BBH423	0.1-0.3	300408-81-KW	30 Apr 2008	11	< 1	3.7	5	2.3	20	51	< 0.1
BBH423	0.7-0.8	300408-82-KW	30 Apr 2008	4.7	< 1	5	6.7	3.2	10	7.4	< 0.1
BBH460	0-0.15	010508-114-KW	01 May 2008	5.2	< 1	7.5	7	1.7	18	22	2.5
BMW401	0.15-0.35	020508-187-KW	02 May 2008	< 4	< 1	2.8	4.1	1.1	75	27	0.11
BMW401	1.3-1.4	020508-188-KW	02 May 2008	< 4	1	35	**110**	12	360	200	3.7
BBH454	0-0.1	010508-126-KW	01 May 2008	6.5	< 1	8.4	6	3.8	12	24	< 0.1
BBH454	2.2-2.3	010508-128-KW	01 May 2008	< 4	< 1	5.9	44	1.1	36	57	0.36
BBH406	0.1-0.2	290408-46-KW	29 Apr 2008	15	< 1	26	79	4.2	130	120	0.34
BBH406	0.6-0.8	290408-47-KW	29 Apr 2008	38	< 1	7.3	12	2.1	62	43	0.27
BBH409	0.2-0.5	290408-39-KW	29 Apr 2008	82	< 1	73	**160**	3.8	290	140	0.49
BBH409	0.2-0.5	290408-40-KW Field Blind Replicate Sample of 290408-39-KW	29 Apr 2008	40	< 1	97	**150**	4.3	360	150	0.58
BBH409	0.2-0.5	290408-41-KW Split Field Duplicate of 290408-39-KW	29 Apr 2008	56	< 1	72	**133**	3	268	111	0.3
BBH417	0.2-0.4	290408-29-KW	29 Apr 2008	8.7	< 1	16	60	9.2	69	160	0.7
BBH429	0-0.1	010508-152-KW	01 May 2008	< 4	< 1	8.4	36	9.8	160	100	0.15
BBH429	2.4-2.5	010508-155-KW	01 May 2008	14	< 1	15	90	30	450	**420**	2.1
SP4 Enterprise											
BBH430	2.4-2.6	300408-107-KW	30 Apr 2008	44	3	65	**260**	**59**	**2100**	**1100**	0.65
RE1 Public Recreation											
BBH431	0.1-0.2	300408-84-KW	30 Apr 2008	< 4	< 1	3.1	5.1	1.1	13	25	< 0.1
BBH431	0.5-0.6	300408-85-KW	30 Apr 2008	< 4	< 1	7.4	12	2.8	9.3	23	< 0.1
BBH432	0-0.1	010508-160-KW	01 May 2008	10	< 1	20	24	6.8	59	120	0.26
SP4 Enterprise											
BBH433	0.1-0.3	010508-156-KW	01 May 2008	16	< 1	19	66	12	110	190	0.4
BBH433	0.1-0.3	010508-157-KW Field Blind Replicate Sample of 010508-156-KW	01 May 2008	7.9	< 1	14	41	6.6	160	180	0.35
BBH433	2.4-2.5	010508-159-KW	01 May 2008	28	7.7	87	**180**	18	**4400**	**7800**	0.93
BBH434	0-0.2	300408-108-KW	30 Apr 2008	< 4	< 1	2.5	5.9	< 1	30	36	< 0.1
BBH434	0.5-0.6	300408-109-KW	30 Apr 2008	< 4	< 1	1.9	3.3	< 1	42	75	< 0.1
BBH435	0.1-0.3	300408-110-KW	30 Apr 2008	4.8	< 1	7.3	13	2.2	55	42	0.12
RE1 Public Recreation											
BBH436	0.1-0.3	300408-87-KW	30 Apr 2008	< 4	< 1	7.1	6.4	1.8	26	40	< 0.1
BBH436	0.5-0.6	300408-88-KW	30 Apr 2008	4.5	< 1	3.7	4.8	1	3.9	17	< 0.1
BBH439	0.1-0.2	010508-133-KW	01 May 2008	8.2	< 1	21	34	12	75	110	0.22
BBH439	0.2-0.4	010508-134-KW	01 May 2008	11	1.1	20	71	17	140	260	0.54
BBH440	0.2-0.4	010508-148-KW	01 May 2008	< 4	< 1	2	2.4	< 1	4	6.5	< 0.1
BBH440	1-1.1	010508-149-KW	01 May 2008	< 4	< 1	1	3.8	< 1	2.7	9.5	< 0.1
SP4 Enterprise											
BBH441	0-0.2	010508-150-KW	01 May 2008	< 4	< 1	2.5	6.1	1.3	110	39	< 0.1
BBH442	0.1-0.4	300408-101-KW	30 Apr 2008	5	< 1	7.8	86	2.4	48	86	0.22
BBH442	0.1-0.4	300408-102-KW Field Blind Replicate Sample of 300408-101-KW	30 Apr 2008	< 4	< 1	5.8	40	1.8	30	61	0.12
RE1 Public Recreation											
BBH443	0.4-0.5	300408-89-KW	30 Apr 2008	5.3	< 1	8.8	11	< 1	9.1	2.1	< 0.1
BBH443	0.4-0.5	300408-90-KW Field Blind Replicate Sample of 300408-89-KW	30 Apr 2008	< 4	< 1	4.6	6.3	1.2	8.6	8.4	< 0.1
BBH443	2.2-2.4	300408-91-KW	30 Apr 2008	11	< 1	10	2.2	2.7	4.4	2.7	< 0.1
BBH445	0.1-0.4	010508-136-KW	01 May 2008	< 4	< 1	1.4	1.9	< 1	3	6.9	< 0.1
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	< 4	< 1	1.4	2.3	< 1	5	8.7	< 0.1
BBH445	0.1-0.4	010508-138-KW Split Field Duplicate Sample of 010508-136-KW	01 May 2008	<5	<1	3	6	<2	18	18	<0.1
BBH445	1.8-1.9	010508-139-KW	01 May 2008	23	< 1	38	17	12	40	89	0.48
SP4 Enterprise											
BBH446	0.1-0.2	010508-146-KW	01 May 2008	11	< 1	11	26	3.5	66	84	0.27
BBH447	0.1-0.2	010508-144-KW	01 May 2008	< 4	< 1	1.6	3.8	< 1	51	25	< 0.1
BBH448	0.1-0.2	300408-98-KW	30 Apr 2008	7.4	< 1	13	10	4.5	22	30	< 0.1
RE1 Public Recreation											
BBH450	0.4-0.5	010508-140-KW	01 May 2008	< 4	< 1	< 1	< 1	< 1	1.9	3	< 0.1
BBH450	0.8-1	010508-141-KW	01 May 2008	< 4	< 1	< 1	< 1	1.5	1.1	2.2	< 0.1
BBH451	0-0.2	010508-142-KW	01 May 2008	4.7	< 1	9.7	19	3.4	58	52	< 0.1
SP4 Enterprise											
BBH452	0.1-0.2	300408-96-KW	30 Apr 2008	8.5	< 1	14	21	5.5	48	68	0.25
RE1 Public Recreation											
BBH453	0.2-0.3	300408-92-KW	30 Apr 2008	< 4	< 1	8.3	12	2.7	25	18	< 0.1
BBH455	0.1-0.2	010508-120-KW	01 May 2008	< 4	< 1	1.8	1.3	1.2	4.9	17	< 0.1
BBH455	0.5-0.6	010508-121-KW	01 May 2008	22	< 1	44	30	7.5	54	56	0.3
BBH456	0.2-0.4	010508-118-KW	01 May 2008	< 4	< 1	7.5	5.3	1.3	120	78	< 0.1
BBH456	1-1.2	010508-119-KW	01 May 2008	< 4	< 1	< 1	< 1	< 1	1.7	2.3	< 0.1
BBH457	0.45-0.6	300408-94-KW	30 Apr 2008	< 4	< 1	5.1	12	11	3.3	9.9	< 0.1
BBH457	1.1-1.2	300408-95-KW	30 Apr 2008	12	< 1	20	3.5	6.6	8.3	13	< 0.1
HIL-C Recreational				**300**	**90**	**-**	**17000**	**1200**	**600**	**30000**	**80**
HIL-D Commercial				**3000**	**900**	**-**	**240000**	**6000**	**1500**	**400000**	**730**
EIL - Urban residential / public open space				**100**	**-**	**200**	**103**	**35**	**1131**	**275**	**-**
EIL - Commercial/ Industrial				**160**	**-**	**320**	**148**	**60**	**1831**	**405**	**-**

Concentrations above this action level are shown in **bold** text.

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

Table 12: Soil Analytical Results - TPH/BTEX[1]

Location	Sample Depth (m)	Sample ID	Date Sampled	TPH C6 - C9	TPH C10 - C14	TPH C15 - C28	TPH C29 - C36	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP4 Enterprise													
ABH202	0.45-0.55	090508-192-KW	09 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH202	1.9-2.2	090508-202-KW	09 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH202	3.8-4	150508-601-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH204	0.1-0.4	070508-55-KW	07 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH204	0.1-0.4	070508-56-KW Field Blind Replicate Sample of 070508-55-KW	07 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH204	0.1-0.4	070508-57-KW Split Field Duplicate of 070508-55-KW	07 May 2008	< 10	< 50	< 100	< 100	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
ABH205	0.1-0.2	060508-49-KW	06 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH210	0.1-0.2	060508-46-KW	06 May 2008	< 25	50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH210	0.3-0.5	060508-47-KW	06 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH2103	0.9-1	090508-197-KW	09 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH2103	1.3-1.4	090508-199-KW	09 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH2104	0.3-0.5	090508-198-KW	09 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH2105	1.4-1.5	150508-333-KW	15 May 2008	200	720	130	< 100	**8.9**	2.1	22	53	3.4	**56.4**
ABH2105	2.8-3	150508-346-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH2105	3.8-4	150508-600-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH2106	1.1-1.2	090508-205-KW	09 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH2107	0.5-0.6	150508-340-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH2107	1-1.1	150508-341-KW	15 May 2008	1400	2400	190	< 100	**51**	**390**	120	470	160	**630**
ABH2107	1.5-1.6	150508-342-KW	15 May 2008	1900	4300	590	< 100	**96**	**470**	88	340	130	**470**
ABH2108	0.1-0.2	150508-343-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	<1
ABH2108	1.1-1.2	150508-345-KW	15 May 2008	860	2900	270	< 100	**28**	**150**	59	250	88	**338**
ABH2108	3-3.1	150508-347-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH2108	4.2-4.5	150508-348-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH212	0.35-0.45	080508-161-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH217	0.2-0.5	060508-44-KW	06 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH219	0-0.2	060508-08-KW	06 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH220	0.2-0.3	060508-04-KW	06 May 2008	< 25	< 50	130	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH221	0.75-0.85	080508-159-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
RE1 Public Recreation													
BBH401	0.5-0.6	280408-02-KW	28 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH402	0.8-0.9	280408-07-KW	28 Apr 2008	nt	nt	nt	nt	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH426	1.7-1.8	290408-71-KW	29 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH438	1.9-2	290408-73-KW	30 Apr 2008	< 25	< 50	< 100	200	< 0.5	< 0.5	< 1	< 2	< 1	< 1
SP4 Enterprise													
ABH225	0.2-0.6	060508-34-KW	06 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH226	0.1-0.2	060508-20-KW	06 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH227	0.2-0.6	060508-17-KW	06 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH227	0.2-0.6	060508-18-KW Field Blind Replicate Sample of 060508-17-KW	06 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH229	0.5-0.8	060508-14-KW	06 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
ABH230	0.5-0.6	080508-149-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH231	0.6-0.7	080508-152-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH231	0.6-0.7	080508-153-KW Field Blind Replicate Sample of 080508-152-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH238	1.5-1.6	060508-26-KW	06 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH240	0.1-0.4	080508-123-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH240	0.1-0.4	080508-124-KW Field Blind Replicate Sample of 080508-123-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH240	0.1-0.4	080508-125-KW Split Field Duplicate of 080508-123-KW	08 May 2008	< 10	< 50	< 100	< 100	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
ABH240	0.8-1	080508-126-KW	08 May 2008	nt	nt	nt	nt	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH241	0.5-0.6	080508-128-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH243	0.2-0.3	080508-142-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
RE1 Public Recreation													
ABH247	0.1-0.4	070508-98-KW	07 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH247	0.1-0.4	070508-99-KW Field Blind Replicate Sample of 070508-98-KW	07 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH248	2.6-2.8	080508-108-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
SP4 Enterprise													
ABH249	1-1.1	080508-110-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH250	0.7-0.9	080508-114-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH252	0.6-0.8	080508-131-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH253	2-2.1	080508-135-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH254	0-0.1	080508-136-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH255	0.9-1	080508-140-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
RE1 Public Recreation													
ABH259	0.6-0.7	120508-249-KW	12 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH260	0.6-0.8	120508-245-KW	12 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH260	0.6-0.8	120508-246-KW Field Blind Replicate Sample of 120508-245-KW	12 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
SP4 Enterprise													
ABH261	0-0.2	120508-244-KW	12 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH263	1-1.2	120508-236-KW	12 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH265	0-0.1	120508-228-KW	12 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH266	1.2-1.3	120508-227-KW	12 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH275	0.8-1.2	130508-286-KW	13 May 2008	nt	nt	nt	nt	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH275	0.8-1.2	130508-287-KW Field Blind Replicate Sample of 130508-286-KW	13 May 2008	nt	nt	nt	nt	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH275	0.8-1.2	130508-288-KW Split Field Duplicate of 130508-286-KW	13 May 2008	nt	nt	nt	nt	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
RE1 Public Recreation													
ABH276	0.8-1	130508-283-KW	13 May 2008	nt	nt	nt	nt	< 0.5	< 0.5	< 1	< 2	< 1	< 1
SP4 Enterprise													
ABH277	2.1-2.2	130508-281-KW	13 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
RE1 Public Recreation													
ABH281	0-0.2	130508-302-KW	13 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH287	0-0.4	150508-378-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH287	0-0.4	150508-379-KW Field Blind Replicate Sample of 150508-378-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH288	0.7-0.8	150508-374-KW	15 May 2008	nt	nt	nt	nt	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH289	0-0.3	150508-370-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH289	0-0.3	150508-371-KW Field Blind Replicate Sample of 150508-370-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
SP4 Enterprise													
ABH291	0.1-0.5	150508-352-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH291	0.1-0.5	150508-353-KW Field Blind Replicate Sample of 150508-352-KW	15 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH291	0.1-0.5	150508-354-KW Split Field Duplicate of 150508-352-KW	15 May 2008	< 10	< 50	< 100	< 100	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
RE1 Public Recreation													
ABH293	1.3-1.4	130508-329-KW	13 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
SP4 Enterprise													
ABH297	0.9-1.0	090508-166-KW	09 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH297	0.5-0.55	090508-165-KW	09 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH299	0.1-0.2	090508-168-KW	09 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
ABH299	1.2-1.3	090508-182-KW	09 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
RE1 Public Recreation													
AMW204	2.6-2.8	080508-120-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
AMW205	2-2.2	080508-157-KW	08 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
AMW207	0.5-0.7	120508-219-KW	12 May 2008	nt	nt	nt	nt	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH403	1.1-1.4	280408-12-KW	28 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH403	1.1-1.4	280408-13-KW Field Blind Replicate Sample of 280408-12-KW	28 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH403	1.1-1.4	280408-14-KW Split Field Duplicate of 280408-12-KW	28 Apr 2008	< 10	< 50	< 100	< 100	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BBH405	0.4-0.5	290408-49-KW	28 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH407	0.4-0.5	290408-44-KW	29 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH411	0.2-0.4	290408-36-KW	29 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH415	0.1-0.3	300408-78-KW	30 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH415	0.9-1	300408-79-KW	30 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
SP4 Enterprise													
BBH421	0-0.1	300408-105-KW	30 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
RE1 Public Recreation													
BBH423	0.7-0.8	300408-82-KW	30 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH409	0.2-0.5	290408-39-KW	29 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH409	0.2-0.5	290408-40-KW Field Blind Replicate Sample of 290408-39-KW	29 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH409	0.2-0.5	290408-41-KW Split Field Duplicate of 290408-39-KW	29 Apr 2008	< 10	< 50	< 100	< 100	< 0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BBH409	1.9-2	290408-42-KW	29 Apr 2008	nt	nt	nt	nt	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH417	1.1-1.2	290408-30-KW	29 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH429	0-0.1	010508-152-KW	01 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH429	2.4-2.5	010508-155-KW	01 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
SP4 Enterprise													
BBH430	2.4-2.6	300408-107-KW	30 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
RE1 Public Recreation													
BBH431	0.5-0.6	300408-85-KW	30 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
SP4 Enterprise													
BBH433	2.4-2.5	010508-159-KW	01 May 2008	< 25	< 50	250	250	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH434	0.5-0.6	300408-109-KW	30 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH435	1-1.1	300408-111-KW	30 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
RE1 Public Recreation													
BBH436	0.1-0.3	300408-87-KW	30 Apr 2008	< 25	< 50	130	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH440	1-1.1	010508-149-KW	01 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
SP4 Enterprise													
BBH442	0.1-0.4	300408-101-KW	30 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH442	0.1-0.4	300408-102-KW Field Blind Replicate Sample of 300408-101-KW	30 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
RE1 Public Recreation													
BBH445	0.1-0.4	010508-136-KW	01 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH445	0.1-0.4	010508-138-KW Split Field Duplicate Sample of 010508-136-KW	01 May 2008	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
SP4 Enterprise													
BBH446	0.4-0.5	010508-147-KW	01 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH447	0.1-0.2	010508-144-KW	01 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH447	0.7-0.8	010508-145-KW	01 May 2008	nt	nt	nt	nt	< 0.5	< 0.5	< 1	< 2	< 1	< 1
RE1 Public Recreation													
BBH450	0.4-0.5	010508-140-KW	01 May 2008	nt	nt	nt	nt	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH451	0-0.2	010508-142-KW	01 May 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
SP4 Enterprise													
BBH452	0.1-0.2	300408-96-KW	30 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
RE1 Public Recreation													
BBH453	0.2-0.3	300408-92-KW	30 Apr 2008	< 25	< 50	620	300	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH457	1.1-1.2	300408-95-KW	30 Apr 2008	< 25	< 50	< 100	< 100	< 0.5	< 0.5	< 1	< 2	< 1	< 1
BBH458	0.1-0.4	010508-122-KW	01 May 2008	nt	nt	nt	nt	< 0.5	< 0.5	< 1	< 2	< 1	< 1
HSL C Recreational / Open Space (SAND 0m to <1m)				-	-	-	-	**NL**	**NL**	**NL**	-	-	**NL**
HSL D Commercial / Industrial (SAND 0m to <1m)				-	-	-	-	**3**	**NL**	**NL**	-	-	**230**
ESL Urban Residential and Public Open Space				-	-	-	-	**50**	**85**	**70**	-	-	**45**
ESL Commercial and Industrial				-	-	-	-	**75**	**135**	**165**	-	-	**95**

Concentrations above this action level are shown in **bold** text.

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

Table 13: Soil Analytical Results - PAH[1]																				
Location	Sample Depth (m)	Sample ID	Date Sampled	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b)&(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Benzo(a)pyrene TEQ	Total Pah
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP4 Enterprise																				
BBH437	2.6-2.8	290408-77-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.07	0.1	0.1	0.1	0.244	1.59
ABH202	1.9-2.2	090508-202-KW	09 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.05	0.1	0.1	0.1	0.242	1.55
ABH204	0.1-0.4	070508-55-KW	07 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH204	0.1-0.4	070508-56-KW Field Blind Replicate Sample of 070508-55-KW	07 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.2	0.4	0.2	0.1	0.1	0.1	0.463	2.4
ABH204	0.1-0.4	070508-57-KW Split Field Duplicate of 070508-55-KW	07 May 2008	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	nt	0.25	0.25	0.25	0.25	nt	3.5
ABH206	1-1.2	090508-209-KW	09 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH207	0.2-0.4	090508-207-KW	09 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH208	1.2-1.4	070508-68-KW	07 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH209	0.15-0.25	070508-62-KW	07 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH210	0.1-0.2	060508-46-KW	06 May 2008	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.453	2.3
ABH2100	0.1-0.2	090508-171-KW	09 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH2101	0.4-0.5	090508-175-KW	09 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.06	0.1	0.1	0.1	0.244	1.58
ABH2102	0.7-0.8	090508-186-KW	09 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.22	0.07	0.1	0.1	0.1	0.344	1.79
ABH2104	0.3-0.5	090508-198-KW	09 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.1	0.1	0.1	0.1	0.244	1.62
ABH2106	1.1-1.2	090508-205-KW	09 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH2108	1.1-1.2	150508-345-KW	15 May 2008	30	0.1	0.6	1.2	5.1	1.5	4.8	4	1.4	1.3	1.4	**0.8**	0.5	0.1	0.3	4.446	53.1
ABH212	0.35-0.45	080508-161-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH213	0.5-0.6	120508-212-KW	12 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH214	0.4-0.5	070508-71-KW	07 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH218	0.4-0.5	060508-07-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.07	0.1	0.1	0.1	0.244	1.59
ABH220	0.2-0.3	060508-04-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH221	0.75-0.85	080508-159-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH297	0.9-1.0	090508-166-KW	09 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
AMW203	0.25-0.35	090508-188-KW	09 May 2008	0.1	0.1	0.1	0.1	0.3	0.1	0.8	1	0.5	0.5	0.8	0.5	0.3	0.1	0.3	1.268	5.6
AMW203	0.7-0.8	090508-189-KW	09 May 2008	0.1	0.1	0.1	0.1	0.7	0.1	0.4	0.4	0.2	0.4	0.3	0.1	0.1	0.1	0.1	0.565	3.3
RE1 Public Recreation																				
AMW203	1.9-2	090508-190-KW	09 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
BBH402	0.5-0.6	280408-06-KW	28 Apr 2008	0.1	0.2	0.4	0.5	7.1	1.7	9.3	8.3	3.4	3.6	5.5	**2.7**	0.2	2.6	2.2	**11.868**	47.8
BBH402	0.8-0.9	280408-07-KW	28 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.342	1.9
BBH426	0.5-0.6	290408-70-KW	29 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
SP4 Enterprise																				
ABH225	0.2-0.6	060508-34-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH226	0.1-0.2	060508-20-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH226	0.4-0.5	060508-21-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH227	0.2-0.6	060508-17-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.1	0.2	0.4	0.2	0.2	0.1	0.2	0.574	2.8
ABH227	0.2-0.6	060508-18-KW Field Blind Replicate Sample of 060508-17-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.22	0.1	0.1	0.1	0.1	0.344	1.82
ABH227	0.2-0.6	060508-19-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH228	0.2-0.3	060508-10-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.22	0.07	0.1	0.1	0.1	0.344	1.69
ABH229	0.1-0.3	060508-13-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.453	2.3
ABH229	0.5-0.8	060508-14-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	nt	0.25	0.25	0.25	0.25	nt	3.5
ABH231	0.6-0.7	080508-152-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH231	0.6-0.7	080508-153-KW Field Blind Replicate Sample of 080508-152-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH232	1.9-2.1	060508-54-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH238	1.5-1.6	060508-26-KW	06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH239	0.4-0.5	080508-122-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH240	0.1-0.4	080508-123-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH240	0.1-0.4	080508-124-KW Field Blind Replicate Sample of 080508-123-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH240	0.1-0.4	080508-125-KW Split Field Duplicate of 080508-123-KW	08 May 2008	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	nt	0.25	0.25	0.25	0.25	nt	3.5
ABH243	0.2-0.3	080508-142-KW	08 May 2008	0.1	0.1	0.1	0.1	0.2	0.1	0.6	0.6	0.3	0.4	0.9	0.5	0.4	0.1	0.4	0.868	4.9
RE1 Public Recreation																				
ABH247	0.1-0.4	070508-98-KW	07 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH247	0.1-0.4	070508-99-KW Field Blind Replicate Sample of 070508-98-KW	07 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH248	2.6-2.8	080508-108-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
SP4 Enterprise																				
ABH249	1-1.1	080508-110-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH249	1.2-1.4	080508-111-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH250	0.7-0.9	080508-114-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH250	1.5-1.6	080508-115-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH254	0.6-0.7	080508-137-KW	08 May 2008	0.1	0.1	0.1	0.1	0.3	0.1	0.8	1	0.3	0.4	0.9	0.5	0.3	0.1	0.3	1.257	5.4
RE1 Public Recreation																				
ABH260	0.6-0.8	120508-245-KW	12 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH260	0.6-0.8	120508-246-KW Field Blind Replicate Sample of 120508-245-KW	12 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
SP4 Enterprise																				
ABH261	0-0.2	120508-244-KW	12 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.22	0.09	0.1	0.1	0.1	0.344	1.71
RE1 Public Recreation																				
ABH271	0.4-0.5	130508-309-KW	13 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH276	0.8-1	130508-283-KW	13 May 2008	0.2	0.5	0.1	0.2	1.7	0.5	3.4	4	1.9	2.1	3.9	**2.5**	2	0.2	1.6	**5.017**	24.8
SP4 Enterprise																				
ABH277	2.1-2.2	130508-281-KW	13 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
RE1 Public Recreation																				
ABH281	0-0.2	130508-302-KW	13 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.2	0.1	0.2	0.255	1.925
ABH283	0-0.2	150508-381-KW	15 May 2008	0.1	0.1	0.1	0.1	0.2	0.1	0.6	0.6	0.3	0.4	0.7	0.4	0.3	0.1	0.3	0.837	4.4
ABH283	0.5-0.6	150508-382-KW	15 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
SP4 Enterprise																				
ABH286	0.1-0.3	150508-391-KW	15 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
RE1 Public Recreation																				
ABH289	0-0.3	150508-370-KW	15 May 2008	0.1	0.1	0.1	0.1	0.3	0.1	0.8	0.8	0.5	0.6	1	0.5	0.4	0.1	0.4	1.1	5.9
ABH289	0-0.3	150508-371-KW Field Blind Replicate Sample of 150508-370-KW	15 May 2008	0.1	0.1	0.1	0.1	0.2	0.1	0.7	0.7	0.4	0.5	1	0.5	0.4	0.1	0.4	0.989	5.4
SP4 Enterprise																				
ABH291	0.1-0.5	150508-352-KW	15 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH291	0.1-0.5	150508-353-KW Field Blind Replicate Sample of 150508-352-KW	15 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH291	0.1-0.5	150508-354-KW Split Field Duplicate of 150508-352-KW	15 May 2008	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	nt	0.25	0.25	0.25	0.25	nt	3.5
ABH291	2.7-2.8	150508-356-KW	15 May 2008	0.1	0.1	0.1	0.1	0.2	0.1	0.7	0.6	0.3	0.4	0.7	0.3	0.3	0.1	0.2	0.836	4.3
ABH291	4-4.2	150508-357-KW	15 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
RE1 Public Recreation																				
ABH293	0.4-0.5	130508-328-KW	13 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.09	0.1	0.1	0.1	0.244	1.61
ABH293	1.3-1.4	130508-329-KW	13 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.342	1.8
ABH293	2.1-2.2	130508-330-KW	13 May 2008	0.1	0.1	0.1	0.1	0.6	0.1	1.2	1.3	0.6	0.5	0.9	0.5	0.3	0.1	0.3	1.588	6.8
BBH404	0-0.1	280408-15-KW	28 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.342	1.8
BBH405	0.4-0.5	290408-49-KW	28 Apr 2008	0.1	0.6	0.1	0.2	2.7	0.6	4.7	4.9	2.3	2.2	3.7	**2.3**	1.2	0.1	1.3	**5.755**	27
BBH407	0.4-0.5	290408-44-KW	29 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
BBH411	0.8-0.9	290408-37-KW	29 Apr 2008	0.1	0.1	0.1	0.1	0.3	0.1	0.8	1	0.7	0.8	1.5	**0.9**	0.5	0.1	0.6	1.384	7.7
SP4 Enterprise																				
BBH421	0.5-0.6	300408-104-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.08	0.1	0.1	0.1	0.244	1.6
RE1 Public Recreation																				
BBH423	0.7-0.8	300408-82-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.22	0.06	0.1	0.1	0.1	0.244	1.68
BMW401	0.15-0.35	020508-187-KW	02 May 2008	0.1	0.2	0.1	0.1	0.6	0.1	1.4	1.6	0.9	0.8	1.4	**1**	0.7	0.1	0.6	2.014	9.7
BMW401	1.3-1.4	020508-188-KW	39570	0.1	0.1	0.1	0.1	1.2	0.2	2	2.4	1.2	1.3	1.9	**1.3**	0.9	0.2	0.9	3.022	13.9
BBH409	0.2-0.5	290408-39-KW	39567	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.2	0.2	0.5	0.3	0.2	0.1	0.2	0.594	3
BBH409	0.2-0.5	290408-40-KW Field Blind Replicate Sample of 290408-39-KW	39567	0.1	0.1	0.1	0.1	0.3	0.1	0.7	0.7	0.3	0.4	0.6	0.3	0.2	0.1	0.2	0.916	4.3
BBH409	0.2-0.5	290408-41-KW Split Field Duplicate of 290408-39-KW	39567	0.25	0.25	0.25	0.25	0.25	0.25	0.6	0.6	0.25	0.25	nt	0.25	0.25	0.25	0.25	nt	4.2
BBH417	0.2-0.4	290408-29-KW	29 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
BBH417	1.1-1.2	290408-30-KW	29 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.463	2.4
BBH429	0-0.1	010508-152-KW	01 May 2008	0.1	0.1	0.1	0.1	1.1	0.2	**3**	3.2	1.4	1.5	2.6	**1.4**	1.2	0.1	1.1	**3.846**	17.2
BBH429	2.4-2.5	010508-155-KW	01 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.09	0.1	0.1	0.1	0.342	1.79
SP4 Enterprise																				
BBH430	2.4-2.6	300408-107-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.1	0.2	0.5	0.2	0.2	0.1	0.2	0.584	2.9
RE1 Public Recreation																				
BBH431	0.5-0.6	300408-85-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
SP4 Enterprise																				
BBH433	2.4-2.5	010508-159-KW	01 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.352	1.9
BBH434	0.5-0.6	300408-109-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.09	0.1	0.1	0.1	0.244	1.61
BBH435	1-1.1	300408-111-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
RE1 Public Recreation																				
BBH439	0.2-0.4	010508-134-KW	01 May 2008	0.1	0.1	0.1	0.1	0.2	0.1	0.5	0.6	0.3	0.3	0.6	0.3	0.3	0.1	0.3	0.826	4
BBH440	1-1.1	010508-149-KW	01 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
SP4 Enterprise																				
BBH441	0-0.2	010508-150-KW	01 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
BBH443	0.4-0.5	300408-89-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
BBH443	0.4-0.5	300408-90-KW Field Blind Replicate Sample of 300408-89-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
RE1 Public Recreation																				
BBH445	0.1-0.4	010508-136-KW	01 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
BBH445	0.1-0.4	010508-138-KW Split Field Duplicate Sample of 010508-136-KW	01 May 2008	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.16	0
SP4 Enterprise																				
BBH447	0.1-0.2	010508-144-KW	01 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
BBH448	0.4-0.5	300408-99-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.3	0.1	0.4	0.3	0.2	0.2	0.4	0.3	0.2	0.1	0.2	0.484	3.1
RE1 Public Recreation																				
BBH450	0.4-0.5	010508-140-KW	01 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
BBH451	0.65-0.75	010508-143-KW	01 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.342	1.8
SP4 Enterprise																				
BBH452	0.1-0.2	300408-96-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.352	2
RE1 Public Recreation																				
BBH453	0.2-0.3	300408-92-KW	30 Apr 2008	0.1	0.1	0.1	0.1	9.6	2.1	14	25	16	19	12	**8.8**	3.4	1.1	4	**29.47**	115.4
BBH453	0.55-0.65	300408-93-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ALG205	1.1-1.2	150508-364-KW	15 May 2008	0.1	0.1	0.1	0.1	0.3	0.1	0.3	0.3	0.1	0.2	0.22	0.1	0.1	0.1	0.1	0.445	2.32
ALG205	2.6-2.8	150508-365-KW	15 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
AMW204	2.6-2.8	080508-120-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
AMW205	2-2.2	080508-157-KW	08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
AMW207	0.2-0.4	120508-218-KW	12 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
AMW207	0.5-0.7	120508-219-KW	12 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.08	0.1	0.1	0.1	0.244	1.6
AMW207	1.4-1.5	120508-220-KW	12 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
AMW207	1.9-2	120508-221-KW	12 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.2	0.4	0.2	0.2	0.1	0.2	0.474	2.6
			HIL-C Recreational	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**3**	**300**
			HIL-D Commercial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**40**	**4000**
			ESL Urban Residential and Public Open Space	-	-	-	-	-	-	-	-	-	-	-	**0.7**	-	-	-	-	-
			ESL Commercial and Industrial	-	-	-	-	-	-	-	-	-	-	-	**0.7**	-	-	-	-	-
			EIL - Urban residential / public open space	**170**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			EIL - Commercial/ Industrial	**370**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Concentrations above this action level are shown in **bold** text.

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

Table 14: Soil Analytical Results - OCP[1]																									
Location	Sample Depth (m)	Sample ID	Date Sampled	alpha-BCH	Hexachlorobenzene	b-BHC	gamma-BHC (Lindane)	d-BHC	Heptachlor	Aldrin	Heptachlor epoxide	Chlordane - trans	Chlordane - cis	Endosulfan alpha	Dieldrin	4,4-DDE	4,4-DDD	Endrin	Endosulfan II	Endrin aldehyde	Endosulfan sulphate	4,4-DDT	Methoxychlor	DDT+DDE+DDD	Aldrin+Dieldrin
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP4 Enterprise																									
ABH205	0.1-0.2	060508-49-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH206	0.1-0.2	090508-208-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH207	0.2-0.4	090508-207-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH2102	0.2-0.3	090508-185-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH2103	0.1-0.2	090508-194-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH2103	0.1-0.2	090508-195-KW Field Blind Replicate Sample of 090508-194-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH2106	0.1-0.2	090508-204-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	0.3	< 0.1
ABH211	0-0.1	120508-214-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH216	0-0.2	060508-40-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH218	0-0.1	060508-06-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH221	0.1-0.25	080508-158-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation																									
BBH401	0.2-0.4	280408-01-KW	28 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH404	0-0.1	280408-15-KW	28 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH425	0.2-0.4	290408-57-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH426	0.1-0.2	290408-69-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH438	0.2-0.3	290408-72-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise																									
ABH225	0-0.2	060508-33-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-14-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.2	< 0.2	< 0.1	< 0.1
ABH230	0.1-0.2	080508-148-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation																									
ABH235	0-0.1	070508-79-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise																									
ABH237	0-0.2	060508-27-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH239	0-0.1	080508-121-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH240	0.1-0.4	080508-123-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH240	0.1-0.4	080508-124-KW Field Blind Replicate Sample of 080508-123-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH240	0.1-0.4	080508-125-KW Split Field Duplicate of 080508-123-KW	08 May 2008	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.2	< 0.2	< 0.1	< 0.1
ABH243	0-0.1	080508-141-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation																									
ABH247	0.1-0.4	070508-98-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH247	0.1-0.4	070508-99-KW Field Blind Replicate Sample of 070508-98-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise																									
ABH251	0-0.1	080508-116-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH253	0-0.1	080508-133-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH255	0-0.2	080508-139-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation																									
ABH259	0-0.1	120508-248-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH260	0-0.2	120508-243-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise																									
ABH263	0-0.1	120508-235-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH264	0-0.1	120508-232-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH266	0.1-0.2	120508-226-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH267	0-0.2	120508-223-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation																									
ABH268	0-0.2	120508-275-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH271	0-0.2	130508-308-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH272	0.1-0.5	130508-304-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH272	0.1-0.5	130508-305-KW Field Blind Replicate Sample of 130508-304-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH274	0.1-0.3	130508-289-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH276	0.05-0.25	130508-282-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH282	0-0.2	130508-296-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH283	0-0.2	150508-381-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise																									
ABH285	0-0.2	150508-389-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	0.3	< 0.1
RE1 Public Recreation																									
ABH287	0-0.4	150508-378-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH287	0-0.4	150508-379-KW Field Blind Replicate Sample of 150508-378-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH288	0-0.2	150508-373-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH290	0-0.2	150508-358-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ALG205	0-0.15	150508-363-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
AMW205	0.1-0.2	080508-155-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH415	0.1-0.3	300408-78-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise																									
BBH421	0-0.1	300408-105-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation																									
BBH454	0-0.1	010508-126-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH406	0.1-0.2	290408-46-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH407	0.05-0.15	290408-43-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH409	0.2-0.5	290408-39-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH409	0.2-0.5	290408-40-KW Field Blind Replicate Sample of 290408-39-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH409	0.2-0.5	290408-41-KW Split Field Duplicate of 290408-39-KW	29 Apr 2008	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.2	< 0.2	0.1	< 0.1
BBH429	0-0.1	010508-152-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH432	0-0.1	010508-160-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise																									
BBH433	0.1-0.3	010508-156-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH433	0.1-0.3	010508-157-KW Field Blind Replicate Sample of 010508-156-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation																									
BBH436	0.1-0.3	300408-87-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH439	0.1-0.2	010508-133-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH440	0.2-0.4	010508-148-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise																									
BBH441	0-0.2	010508-150-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH442	0.1-0.4	300408-101-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH442	0.1-0.4	300408-102-KW Field Blind Replicate Sample of 300408-101-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation																									
BBH445	0.1-0.4	010508-136-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH445	0.1-0.4	010508-138-KW Split Field Duplicate Sample of 010508-136-KW	01 May 2008	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.2	< 0.2	0.1	< 0.1
SP4 Enterprise																									
BBH446	0.1-0.2	010508-146-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH447	0.1-0.2	010508-144-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH448	0.1-0.2	300408-98-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation																									
BBH451	0-0.2	010508-142-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH453	0.2-0.3	300408-92-KW	30 Apr 2008	< 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	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1
BBH455	0.1-0.2	010508-120-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH456	0.2-0.4	010508-118-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH457	0.45-0.6	300408-94-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
			HIL-C Recreational	-	**10**	-	-	-	**10**	-	-	-	**70**	**340**	-	-	-	**20**	-	-	-	-	**400**	**400**	**10**
			HIL-D Commercial	-	**80**	-	-	-	**50**	-	-	-	**530**	**2000**	-	-	-	**100**	-	-	-	-	**2500**	**3600**	**45**
			EIL - Urban residential / public open space	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**180**	-	-	-
			EIL - Commercial/ Industrial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**640**	-	-	-

Table 15: Soil Analytical Results - OPP										
Location	Sample Depth (m)	Sample ID	Date Sampled	Dimethoate	Diazinon	Chlorpyrifos-methyl	Ronnel	Fenitrothion	Chlorpyrifos	Ethion
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP4 Enterprise										
ABH205	0.1-0.2	060508-49-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH206	0.1-0.2	090508-208-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH207	0.2-0.4	090508-207-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH2102	0.2-0.3	090508-185-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH2103	0.1-0.2	090508-194-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH2103	0.1-0.2	090508-195-KW Field Blind Replicate Sample of 090508-194-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH2106	0.1-0.2	090508-204-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH211	0-0.1	120508-214-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH216	0-0.2	060508-40-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH218	0-0.1	060508-06-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH221	0.1-0.25	080508-158-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation										
BBH401	0.2-0.4	280408-01-KW	28 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH454	0-0.1	010508-126-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH425	0.2-0.4	290408-57-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH426	0.1-0.2	290408-69-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH438	0.2-0.3	290408-72-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise										
ABH225	0-0.2	060508-33-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-14-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 0.05	< 0.05	< 0.05	nt	nt	< 0.05	< 0.05
ABH230	0.1-0.2	080508-148-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation										
ABH235	0-0.1	070508-79-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise										
ABH237	0-0.2	060508-27-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH239	0-0.1	080508-121-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH240	0.1-0.4	080508-123-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH240	0.1-0.4	080508-124-KW Field Blind Replicate Sample of 080508-123-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH240	0.1-0.4	080508-125-KW Split Field Duplicate of 080508-123-KW	08 May 2008	< 0.05	< 0.05	< 0.05	nt	nt	< 0.05	< 0.05
ABH243	0-0.1	080508-141-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation										
ABH247	0.1-0.4	070508-98-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH247	0.1-0.4	070508-99-KW Field Blind Replicate Sample of 070508-98-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise										
ABH251	0-0.1	080508-116-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH253	0-0.1	080508-133-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH255	0-0.2	080508-139-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation										
ABH259	0-0.1	120508-248-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH260	0-0.2	120508-243-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise										
ABH263	0-0.1	120508-235-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH264	0-0.1	120508-232-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH266	0.1-0.2	120508-226-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH267	0-0.2	120508-223-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation										
ABH268	0-0.2	120508-275-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH271	0-0.2	130508-308-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH272	0.1-0.5	130508-304-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH272	0.1-0.5	130508-305-KW Field Blind Replicate Sample of 130508-304-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH274	0.1-0.3	130508-289-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH276	0.05-0.25	130508-282-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH282	0-0.2	130508-296-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH283	0-0.2	150508-381-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise										
ABH285	0-0.2	150508-389-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation										
ABH287	0-0.4	150508-378-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH287	0-0.4	150508-379-KW Field Blind Replicate Sample of 150508-378-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH288	0-0.2	150508-373-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH290	0-0.2	150508-358-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ALG205	0-0.15	150508-363-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
AMW205	0.1-0.2	080508-155-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH404	0-0.1	280408-15-KW	28 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH415	0.1-0.3	300408-78-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise										
BBH421	0-0.1	300408-105-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation										
BBH406	0.1-0.2	290408-46-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH407	0.05-0.15	290408-43-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH409	0.2-0.5	290408-39-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH409	0.2-0.5	290408-40-KW Field Blind Replicate Sample of 290408-39-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH409	0.2-0.5	290408-41-KW Split Field Duplicate of 290408-39-KW	29 Apr 2008	< 0.05	< 0.05	< 0.05	nt	nt	< 0.05	< 0.05
BBH429	0-0.1	010508-152-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH432	0-0.1	010508-160-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise										
BBH433	0.1-0.3	010508-156-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH433	0.1-0.3	010508-157-KW Field Blind Replicate Sample of 010508-156-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation										
BBH436	0.1-0.3	300408-87-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH439	0.1-0.2	010508-133-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH440	0.2-0.4	010508-148-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise										
BBH441	0-0.2	010508-150-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH442	0.1-0.4	300408-101-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH442	0.1-0.4	300408-102-KW Field Blind Replicate Sample of 300408-101-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation										
BBH445	0.1-0.4	010508-136-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH445	0.1-0.4	010508-138-KW Split Field Duplicate Sample of 010508-136-KW	01 May 2008	< 0.05	< 0.05	< 0.05	nt	nt	< 0.05	< 0.05
SP4 Enterprise										
BBH446	0.1-0.2	010508-146-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH447	0.1-0.2	010508-144-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH448	0.1-0.2	300408-98-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Public Recreation										
BBH451	0-0.2	010508-142-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH453	0.2-0.3	300408-92-KW	30 Apr 2008	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
BBH455	0.1-0.2	010508-120-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH456	0.2-0.4	010508-118-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH457	0.45-0.6	300408-94-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
			HIL-C Recreational	-	-	-	-	-	250	-
			HIL-D Commercial	-	-	-	-	-	2000	-

Concentrations above this action level are shown in **bold** text.

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

Table 16: Soil Analytical Results - PCB[1]										
Location	**Sample Depth (m)**	**Sample ID**	**Date Sampled**	**Aroclor 1016**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP4 Enterprise										
ABH205	0.1-0.2	060508-49-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH206	0.1-0.2	090508-208-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH207	0.2-0.4	090508-207-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH211	0-0.1	120508-214-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH216	0-0.2	060508-40-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH218	0-0.1	060508-06-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH221	0.1-0.25	080508-158-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH229	0.5-0.8	060508-14-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	nt	nt	nt	nt	nt	nt	< 0.1
ABH2102	0.2-0.3	090508-185-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH2103	0.1-0.2	090508-194-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH2103	0.1-0.2	090508-195-KW Field Blind Replicate Sample of 090508-194-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH2106	0.1-0.2	090508-204-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
RE1 Public Recreation										
BBH401	0.2-0.4	280408-01-KW	28 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH426	0.1-0.2	290408-69-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH438	0.2-0.3	290408-72-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH425	0.2-0.4	290408-57-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
ABH225	0-0.2	060508-33-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
SP4 Enterprise										
ABH230	0.1-0.2	080508-148-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
RE1 Public Recreation										
ABH235	0-0.1	070508-79-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
SP4 Enterprise										
ABH237	0-0.2	060508-27-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH239	0-0.1	080508-121-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH240	0.1-0.4	080508-123-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH240	0.1-0.4	080508-124-KW Field Blind Replicate Sample of 080508-123-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH240	0.1-0.4	080508-125-KW Split Field Duplicate of 080508-123-KW	08 May 2008	nt	nt	nt	nt	nt	nt	< 0.1
ABH243	0-0.1	080508-141-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
RE1 Public Recreation										
ABH247	0.1-0.4	070508-98-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH247	0.1-0.4	070508-99-KW Field Blind Replicate Sample of 070508-98-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
SP4 Enterprise										
ABH251	0-0.1	080508-116-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH253	0-0.1	080508-133-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH255	0-0.2	080508-139-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
RE1 Public Recreation										
ABH259	0-0.1	120508-248-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH260	0-0.2	120508-243-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
SP4 Enterprise										
ABH263	0-0.1	120508-235-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH264	0-0.1	120508-232-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH266	0.1-0.2	120508-226-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH267	0-0.2	120508-223-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
RE1 Public Recreation										
ABH268	0-0.2	120508-275-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH271	0-0.2	130508-308-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH272	0.1-0.5	130508-304-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH272	0.1-0.5	130508-305-KW Field Blind Replicate Sample of 130508-304-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH274	0.1-0.3	130508-289-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH276	0.05-0.25	130508-282-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH282	0-0.2	130508-296-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH283	0-0.2	150508-381-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
SP4 Enterprise										
ABH285	0-0.2	150508-389-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
RE1 Public Recreation										
ABH287	0-0.4	150508-378-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH287	0-0.4	150508-379-KW Field Blind Replicate Sample of 150508-378-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH288	0-0.2	150508-373-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH290	0-0.2	150508-358-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ALG205	0-0.15	150508-363-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
AMW205	0.1-0.2	080508-155-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
BBH404	0-0.1	280408-15-KW	28 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH415	0.1-0.3	300408-78-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
SP4 Enterprise										
BBH421	0-0.1	300408-105-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
RE1 Public Recreation										
BBH406	0.1-0.2	290408-46-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH407	0.05-0.15	290408-43-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH409	0.2-0.5	290408-39-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH409	0.2-0.5	290408-40-KW Field Blind Replicate Sample of 290408-39-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH409	0.2-0.5	290408-41-KW Split Field Duplicate of 290408-39-KW	29 Apr 2008	nt	nt	nt	nt	nt	nt	< 0.1
BBH429	0-0.1	010508-152-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH432	0-0.1	010508-160-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
SP4 Enterprise										
BBH433	0.1-0.3	010508-156-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH433	0.1-0.3	010508-157-KW Field Blind Replicate Sample of 010508-156-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
RE1 Public Recreation										
BBH436	0.1-0.3	300408-87-KW	30 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	nt
BBH439	0.1-0.2	010508-133-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH440	0.2-0.4	010508-148-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
SP4 Enterprise										
BBH441	0-0.2	010508-150-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH442	0.1-0.4	300408-101-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH442	0.1-0.4	300408-102-KW Field Blind Replicate Sample of 300408-101-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
RE1 Public Recreation										
BBH445	0.1-0.4	010508-136-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH445	0.1-0.4	010508-138-KW Split Field Duplicate of 010508-136-KW	01 May 2008	nt	nt	nt	nt	nt	nt	< 0.1
SP4 Enterprise										
BBH446	0.1-0.2	010508-146-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH447	0.1-0.2	010508-144-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH448	0.1-0.2	300408-98-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
RE1 Public Recreation										
BBH451	0-0.2	010508-142-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH453	0.2-0.3	300408-92-KW	30 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	nt
BBH455	0.1-0.2	010508-120-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH456	0.2-0.4	010508-118-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH457	0.45-0.6	300408-94-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BLG404	0-0.2	020508-178-KW	02 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BMW404	0.1-0.2	020508-175-KW	02 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
			HIL-C Recreational	**-**	**-**	**-**	**-**	**-**	**-**	**1**
			HIL-D Commercial	**-**	**-**	**-**	**-**	**-**	**-**	**7**

Concentrations above this action level are shown in **bold** text.

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

Table 17: Soil Analytical Results - Phenols[1]				
Location	Sample Depth (m)	Sample ID	Date Sampled	Total Phenolics
			Units	mg/kg
SP4 Enterprise				
ABH202	1.9-2.2	090508-202-KW	09 May 2008	< 5
ABH210	0.1-0.2	060508-46-KW	06 May 2008	< 5
ABH212	0.35-0.45	080508-161-KW	08 May 2008	< 5
ABH219	0-0.2	060508-08-KW	06 May 2008	< 5
ABH220	0.2-0.3	060508-04-KW	06 May 2008	< 5
ABH299	0.1-0.2	090508-168-KW	09 May 2008	< 5
ABH2103	1.3-1.4	090508-199-KW	09 May 2008	< 5
ABH2106	1.1-1.2	090508-205-KW	09 May 2008	< 5
RE1 Public Recreation				
BBH426	1.7-1.8	290408-71-KW	29 Apr 2008	< 5
SP4 Enterprise				
ABH226	0.1-0.2	060508-20-KW	06 May 2008	< 5
ABH229	0.5-0.8	060508-14-KW	06 May 2008	< 5
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	< 5
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 0.5
ABH231	0.6-0.7	080508-152-KW	08 May 2008	< 5
ABH231	0.6-0.7	080508-153-KW Field Blind Replicate Sample of 080508-152-KW	08 May 2008	< 5
ABH239	0.4-0.5	080508-122-KW	08 May 2008	< 5
ABH240	0.8-1	080508-126-KW	08 May 2008	< 5
ABH243	0.2-0.3	080508-142-KW	08 May 2008	< 5
ABH249	1-1.1	080508-110-KW	08 May 2008	< 5
ABH265	0-0.1	120508-228-KW	12 May 2008	< 5
RE1 Public Recreation				
ABH289	2-2.2	150508-372-KW	15 May 2008	< 5
AMW207	1.4-1.5	120508-220-KW	12 May 2008	< 5
SP4 Enterprise				
BBH421	0-0.1	300408-105-KW	30 Apr 2008	< 5
BBH407	0.4-0.5	290408-44-KW	29 Apr 2008	< 5
BBH424	1.4-1.6	290408-55-KW	29 Apr 2008	< 5
RE1 Public Recreation				
BBH429	2.4-2.5	010508-155-KW	01 May 2008	< 5
BBH437	2.6-2.8	290408-77-KW	30 Apr 2008	< 5
BBH443	0.4-0.5	300408-89-KW	30 Apr 2008	< 5
BBH443	0.4-0.5	300408-90-KW Field Blind Replicate Sample of 300408-89-KW	30 Apr 2008	< 5
BBH445	0.1-0.4	010508-136-KW	01 May 2008	< 5
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	< 5
BBH445	0.1-0.4	010508-138-KW Split Field Duplicate Sample of 010508-136-KW	01 May 2008	<5
SP4 Enterprise				
BBH447	0.1-0.2	010508-144-KW	01 May 2008	< 5
BBH447	0.7-0.8	010508-145-KW	01 May 2008	< 5
RE1 Public Recreation				
BBH450	0.4-0.5	010508-140-KW	01 May 2008	< 5
			HIL-C Recreational	**40000**
			HIL-D Commercial	**240000**

Concentrations above this action level are shown in **bold** text

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

Table 18: Soil Analytical Results - Nutrients and Salinity[1]

Location	Sample Depth (m)	Sample ID	Date Sampled	Ammonia as N	Total Nitrogen	Nitrite as N	Nitrate as N	Total Phosphorous	pH	Texture	Electrical Conductivity	EC_E	Salinty as NACL	Resistivity	Sulphate as SO_4	Sulphite as SO_3	Sulphate as SO_3	Choride	Choride
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH	-	us/cm	dS/m	mg/kg	ohm m	mg/kg	mg/kg	%	mg/kg	%
RE1 Recreational																			
ALG205	0.0-0.15	150508-363-KW	15 May 2008	nt	nt	nt	nt	nt	7.3	nt	180	nt	120	56	<25	nt	nt	<100	nt
SP4 Enterprise																			
ABH201	0-0.2	050508-01-KW	05 May 2008	7.3	1100	0.1	5.1	230	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH203	0-0.1	070508-59-KW	07 May 2008	7.3	2100	< 0.1	1.7	630	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH206	0.1-0.2	090508-208-KW	09 May 2008	< 0.5	2300	< 0.1	4.9	220	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH217	0-0.2	060508-43-KW	06 May 2008	11	3300	< 0.1	< 0.5	350	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH221	0.1-0.25	080508-158-KW	08 May 2008	3.5	1500	< 0.1	0.8	160	7.8	nt	61	nt	39	160	29	nt	nt	<100	nt
ABH222	0.0-0.1	070508-76-KW	07 May 2008	nt	nt	nt	nt	nt	6.2	nt	580	nt	370	17	63	nt	nt	820	nt
ABH224	0.0-0.3	060508-30-KW	06 May 2008	nt	nt	nt	nt	nt	5.6	nt	94	nt	60	110	48	nt	nt	<100	nt
ABH229	0.5-0.8	060508-14-KW	06 May 2008	1.2	240	< 0.1	0.6	20	7.5	nt	88	nt	56	110	31	nt	nt	<100	nt
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	1.4	200	< 0.1	0.7	19	7.3	nt	95	nt	61	110	30	nt	nt	130	nt
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 20	140	0.199	0.1	24	6.7	nt	105	nt	nt	nt	50	nt	nt	100	nt
ABH233	0-0.15	070508-93-KW	07 May 2008	19	2900	1.8	5.9	440	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
RE1 Recreational																			
ABH235	0-0.1	070508-79-KW	07 May 2008	14	4600	0.2	2.9	250	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
SP4 Enterprise																			
ABH237	0-0.2	060508-27-KW	06 May 2008	4.5	2700	0.3	2.9	150	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH241	0-0.1	080508-127-KW	08 May 2008	14	2000	0.5	1.8	550	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH242	0.5-0.7	080508-145-KW	08 May 2008	2.5	320	< 0.1	0.8	120	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH242	0.5-0.7	080508-146-KW Field Blind Replicate Sample of 080508-145-KW	08 May 2008	2.5	220	< 0.1	0.7	72	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH243	0-0.1	080508-141-KW	08 May 2008	5.2	4100	< 0.1	2.5	430	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
RE1 Recreational																			
ABH247	0.1-0.4	070508-98-KW	07 May 2008	1.5	840	< 0.1	2.1	400	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
SP4 Enterprise																			
ABH252	0.0-0.1	080508-130-KW	08 May 2008	nt	nt	nt	nt	nt	8.1	nt	290	nt	190	35	31	nt	nt	380	nt
ABH256	0-0.1	120508-264-KW	12 May 2008	0.9	710	< 0.1	0.7	1500	7.1	nt	90	nt	58	110	<25	nt	nt	<100	nt
RE1 Recreational																			
ABH260	0-0.2	120508-243-KW	12 May 2008	2.5	2000	< 0.1	0.8	210	6.8	nt	130	nt	83	77	<25	nt	nt	<100	nt
ABH262	0.3-0.5	120508-238-KW	12 May 2008	0.7	240	< 0.1	< 0.5	77	8.6	nt	70	nt	45	140	<25	nt	nt	<100	nt
SP4 Enterprise																			
ABH267	0-0.2	120508-223-KW	12 May 2008	1.3	1700	< 0.1	< 0.5	84	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
RE1 Recreational																			
ABH272	0.1-0.5	130508-304-KW	13 May 2008	< 0.5	480	< 0.1	< 0.5	340	7.7	nt	110	nt	70	91	<25	nt	nt	<100	nt
ABH272	0.1-0.5	130508-305-KW Field Blind Replicate Sample of 130508-304-KW	13 May 2008	0.6	560	< 0.1	< 0.5	340	7.7	nt	110	nt	70	91	<25	nt	nt	<100	nt
ABH275	0.0-0.2	130508-285-KW	13 May 2008	nt	nt	nt	nt	nt	7.3	nt	110	nt	70	91	<25	nt	nt	<100	nt
ABH276	0.05-0.25	130508-282-KW	13 May 2008	1.6	610	< 0.1	< 0.5	380	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH280	0.0-0.2	130508-299-KW	13 May 2008	nt	nt	nt	nt	nt	8.4	nt	90	nt	58	110	<25	nt	nt	<100	nt
ABH282	0-0.2	130508-296-KW	13 May 2008	5.1	530	< 0.1	2.3	200	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH284	0-0.15	150508-384-KW	15 May 2008	2.8	2400	< 0.1	6.2	420	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH288	0-0.2	150508-373-KW	15 May 2008	8.3	1500	< 0.1	3.2	430	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH294	0-0.2	150508-367-KW	15 May 2008	4.5	3000	< 0.1	6	540	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH295	0-0.2	130508-322-KW	13 May 2008	2.2	300	< 0.1	< 0.5	64	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH296	0-0.2	120508-261-KW	12 May 2008	2.9	17000	< 0.1	< 0.5	1000	4.8	nt	99	nt	63	100	<25	nt	nt	<100	nt
ALG202	0.2-0.4	120508-270-KW	12 May 2008	2.4	520	< 0.1	< 0.5	200	6.3	nt	84	nt	54	120	<25	nt	nt	<100	nt
AMW201	0.1-0.2	120508-257-KW	12 May 2008	0.8	5100	< 0.1	< 0.5	1700	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
BBH401	0.2-0.4	280408-01-KW	28 Apr 2008	0.6	440	0.1	< 0.5	74	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
BBH402	0.1-0.3	280408-05-KW	28 Apr 2008	nt	nt	nt	nt	nt	6.9	sandy loam	43	0.6	28	230	<25	< 20	< 0.002	<100	< 0.01
BBH405	0.0-0.2	290408-48-KW	29 Apr 2008	nt	nt	nt	nt	nt	9.1	loam	75	0.75	48	130	<25	< 20	< 0.002	<100	< 0.01
BBH406	0.1-0.2	290408-46-KW	29 Apr 2008	0.9	460	0.4	4.2	2800	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
BBH411	0.2-0.4	290408-36-KW	29 Apr 2008	1.4	380	0.3	< 0.5	75	7.7	light clay	92	0.78	59	110	62	49.6	0.00496	<100	< 0.01
BBH423	0.1-0.3	300408-81-KW	30 Apr 2008	1.3	250	< 0.1	< 0.5	120	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
BBH427	0.1-0.3	290408-59-KW	29 Apr 2008	0.7	690	0.1	< 0.5	260	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
SP4 Enterprise																			
BBH430	0.1-0.3	300408-106-KW	30 Apr 2008	< 0.5	680	< 0.1	< 0.5	68	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
RE1 Recreational																			
BBH432	0-0.1	010508-160-KW	01 May 2008	17	2500	0.4	0.8	700	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
BBH440	0.2-0.4	010508-148-KW	01 May 2008	0.7	280	< 0.1	0.6	100	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
SP4 Enterprise																			
BBH442	0.1-0.4	300408-101-KW	30 Apr 2008	1.8	830	< 0.1	1.9	160	8.4	sandy loam	67	0.94	150	43	<25	< 20	< 0.002	<100	< 0.01
BBH442	0.1-0.4	300408-102-KW Field Blind Replicate Sample of 300408-101-KW	30 Apr 2008	1.7	1200	< 0.1	1.5	120	8.2	sandy loam	51	0.94	160	39	<25	< 20	< 0.002	<100	< 0.01
RE1 Recreational																			
BBH445	0.1-0.4	010508-136-KW	01 May 2008	nt	nt	nt	nt	nt	8.2	sand	51	0.94	200	33	<25	< 20	< 0.002	<100	< 0.01
BBH445	0.1-0.4	300408-137-KW Field Blind Replicate Sample of 300408-136-KW	01 May 2008	nt	nt	nt	nt	nt	8.2	sand	55	0.94	180	35	<25	< 20	< 0.002	<100	< 0.01
SP4 Enterprise																			
BBH446	0.1-0.2	010508-146-KW	01 May 2008	4.5	1300	1	4.1	1700	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
BBH448	0.4-0.5	300408-99-KW	30 Apr 2008	nt	nt	nt	nt	nt	7.5	sandy loam	3100	43.4	3.2	2000	6700	5360	0.536	200	0.02
BBH458	0.1-0.4	010508-122-KW	01 May 2008	< 0.5	240	< 0.1	< 0.5	27	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
BBH458	0.1-0.4	010508-123-KW Field Blind Replicate Sample of 010508-122-KW	01 May 2008	< 0.5	280	< 0.1	< 0.5	43	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
BBH458	0.1-0.4	010508-124-KW Split Field Duplicate Sample of 010508-122-KW	01 May 2008	<20	720	< 0.1	< 0.1	268	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
BBH460	0-0.15	010508-114-KW	01 May 2008	3	450	< 0.1	1.8	210	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
RE1 Recreational																			
BMW401	0.15-0.35	020508-187-KW	02 May 2008	0.8	260	< 0.1	0.6	67	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt

Concentrations above this action level are shown in **bold** text.

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

Table 19: Soil Analytical Results - VOC[1]

Location	Sample Depth (m)	Sample ID	Date Sampled	Styrene	Cumene (isopropylbenzene)	n-Propylbenzene	1,3,5-Trimethylbenzene	sec-butylbenzene	1,2,4-Trimethylbenzene	tert-Butylbenzene	p-isopropyltoluene	n-Butylbenzene	2,2-Dichloropropane	1,2-dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	1,2-Dibromoethane	Dichlorodifluoromethane	Chloromethane	Vinyl chloride	Bromomethane	Chloroethane	Trichlorofluoromethane	1,1-Dichloroethylene	trans-1,2-Dichloroethylene	1,1-Dichloroethane	cis-1,2-Dichloroethylene	1,1,1-Trichloroethane
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP4 Enterprise																												
ABH202	1.9-2.2	090508-202-KW	09 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH210	0.1-0.2	060508-46-KW	06 May 2008	< 1	< 1	< 1	1.5	< 1	3.1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH2103	0.9-1	090508-197-KW	09 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH2105	1.4-1.5	150508-333-KW	15 May 2008	< 1	1.5	5.5	7.8	< 1	43	< 1	< 1	1.9	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH2105	3.8-4	150508-600-KW	15 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH2106	1.1-1.2	090508-205-KW	09 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH2107	1-1.1	150508-341-KW	15 May 2008	< 10	< 10	19	40	< 10	160	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 100	< 100	< 100	< 100	< 100	< 100	< 10	< 10	< 10	< 10	< 10
ABH2108	4.2-4.5	150508-348-KW	15 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH212	0.35-0.345	080508-161-KW	08 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH299	0.1-0.2	090508-168-KW	09 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
RE1 Recreational																												
BBH402	0.8-0.9	280408-07-KW	28 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
BBH438	1.9-2	290408-73-KW	30 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
SP4 Enterprise																												
ABH226	0.1-0.2	060508-20-KW	06 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH229	0.5-0.8	060508-14-KW	06 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 5	< 5	< 5	< 5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
ABH231	0.6-0.7	080508-152-KW	08 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH231	0.6-0.7	080508-153-KW Field Blind Replicate Sample of 080508-152-KW	08 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH240	0.8-1	080508-126-KW	08 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH249	1-1.1	080508-110-KW	08 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH265	0-0.1	120508-228-KW	12 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
RE1 Recreational																												
ABH275	0.8-1.2	130508-286-KW	13 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH275	0.8-1.2	130508-287-KW Field Blind Replicate Sample of 130508-286-KW	13 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH275	0.8-1.2	130508-288-KW Split Field Duplicate of 130508-286-KW	13 May 2008	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 5	< 5	< 5	< 5	< 5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
ABH276	0.8-1	130508-283-KW	13 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
ABH288	0.7-0.8	150508-374-KW	15 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
AMW207	0.5-0.7	120508-219-KW	12 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
BBH409	1.9-2	290408-42-KW	29 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	< 1	< 1	< 1
BBH429	2.4-2.5	010508-155-KW	01 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	nt	< 1	< 1
BBH431	0.5-0.6	300408-85-KW	30 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	nt	< 1	< 1
SP4 Enterprise																												
BBH433	2.4-2.5	010508-159-KW	01 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	nt	< 1	< 1
RE1 Recreational																												
BBH447	0.7-0.8	010508-145-KW	01 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	nt	< 1	< 1
BBH450	0.4-0.5	010508-140-KW	01 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 1	nt	< 1	< 1

Concentrations above this action level are shown in **bold** text.

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

Table 19(continued): Soil Analytical Results - VOC1

Location	Sample Depth (m)	Sample ID	Date Sampled	1,1-Dichloropropene	Carbon tetrachloride	1,2-Dichloroethane	Trichloroethene	Dibromomethane	1,1,2-trichloroethane	1,3-dichloropropane	Tetrachloroethene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	1,2,3-Trichloropropane	1,2-Dibromo-3-chloropropane	Hexachlorobutadiene	Bromocholoromethane	Chlorobenzene	Bromobenzene	o-Chlorotoluene	4-chlorotoluene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,2-Dichlorobenzene	1,2,4-trichlorobenzene	1,2,3-trichlorobenzene	Chloroform	Bromodichloromethane	Chlorodibromomethane	Bromoform	Naphthalene
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP4 Enterprise																															
ABH202	1.9-2.2	090508-202-KW	09 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH210	0.1-0.2	060508-46-KW	06 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH2103	0.9-1	090508-197-KW	09 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH2105	1.4-1.5	150508-333-KW	15 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	8.1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH2105	3.8-4	150508-600-KW	15 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH2106	1.1-1.2	090508-205-KW	09 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH2107	1-1.1	150508-341-KW	15 May 2008	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	nt
ABH2108	4.2-4.5	150508-348-KW	15 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH212	0.35-0.345	080508-161-KW	08 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH299	0.1-0.2	090508-168-KW	09 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
RE1 Recreational																															
BBH402	0.8-0.9	280408-07-KW	28 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.1
BBH438	1.9-2	290408-73-KW	30 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SP4 Enterprise																															
ABH226	0.1-0.2	060508-20-KW	06 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH229	0.5-0.8	060508-14-KW	06 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 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	nt	< 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	nt
ABH231	0.6-0.7	080508-152-KW	08 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH231	0.6-0.7	080508-153-KW Field Blind Replicate Sample of 080508-152-KW	08 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH240	0.8-1	080508-126-KW	08 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH249	1-1.1	080508-110-KW	08 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH265	0-0.1	120508-228-KW	12 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
RE1 Recreational																															
ABH275	0.8-1.2	130508-286-KW	13 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH275	0.8-1.2	130508-287-KW Field Blind Replicate Sample of 130508-286-KW	13 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH275	0.8-1.2	130508-288-KW Split Field Duplicate of 130508-286-KW	13 May 2008	< 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	nt	< 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	nt
ABH276	0.8-1	130508-283-KW	13 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
ABH288	0.7-0.8	150508-374-KW	15 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
AMW207	0.5-0.7	120508-219-KW	12 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	nt
BBH416	1.5-1.6	290408-35-KW	29 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BBH424	1.4-1.6	290408-55-KW	29 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BBH409	1.9-2	290408-42-KW	29 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BBH429	2.4-2.5	010508-155-KW	01 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.1
BBH431	0.5-0.6	300408-85-KW	30 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.1
SP4 Enterprise																															
BBH433	2.4-2.5	010508-159-KW	01 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.1
RE1 Recreational																															
BBH447	0.7-0.8	010508-145-KW	01 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BBH450	0.4-0.5	010508-140-KW	01 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.1

Concentrations above this action level are shown in **bold** text.

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

Table 20: Soil Analytical Results - PAAH[1]

Location	Sample Depth (m)	Sample ID	Date Sampled	2,4-DB	Dicamba	2-(2-Methyl-4-chlorophenoxy) propionic acid	2-Methyl-4-chlorophenoxyacetic acid	2,4-DP (Dichloroprop)	2,4-D	Triclopyr	2-(2,4,5-Trichlorophenoxy) propionic acid	2,4,5-T
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP4 Enterprise												
ABH205	0.1-0.2	060508-49-KW	06 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH206	0.1-0.2	090508-208-KW	09 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH215	0-0.2	060508-36-KW	06 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH221	0.1-0.25	080508-158-KW	08 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH2102	0.2-0.3	090508-185-KW	09 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-14-KW	06 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 0.04	< 0.04	nt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
ABH230	0.1-0.2	080508-148-KW	08 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH237	0-0.2	060508-27-KW	06 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH242	0.5-0.7	080508-145-KW	08 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH242	0.5-0.7	080508-146-KW Field Blind Replicate Sample of 080508-145-KW	08 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH251	0-0.1	080508-116-KW	08 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH253	0-0.1	080508-133-KW	08 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Recreational												
ABH259	0-0.1	120508-248-KW	12 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise												
ABH261	0-0.2	120508-244-KW	12 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH264	0-0.1	120508-232-KW	12 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Recreational												
ABH268	0-0.2	120508-275-KW	12 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH272	0.1-0.5	130508-304-KW	13 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH272	0.1-0.5	130508-305-KW Field Blind Replicate Sample of 130508-304-KW	13 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH275	0-0.2	130508-285-KW	13 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise												
ABH285	0-0.2	150508-389-KW	15 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Recreational												
ABH288	0-0.2	150508-373-KW	15 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH290	0-0.2	150508-358-KW	15 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH423	0.1-0.3	300408-81-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH454	0-0.1	010508-126-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise												
BBH407	0.05-0.15	290408-43-KW	29 Apr 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH430	0.1-0.3	300408-106-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Recreational												
BBH432	0-0.1	010508-160-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise												
BBH441	0-0.2	010508-150-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Recreational												
BBH445	0.1-0.4	010508-136-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH445	0.1-0.4	010508-138-KW Split Field Duplicate Sample of 010508-136-KW	01 May 2008	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
BBH446	0.1-0.2	010508-146-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enterprise												
BBH452	0.1-0.2	300408-96-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Recreational												
BBH455	0.1-0.2	010508-120-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Concentrations above this action level are shown in **bold** text.

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

Table 21: Asbestos Results						
Location	**Sample Depth**	**Sample Id**	**Date Sampled**	**Material Type**	**Sample Description**	**Asbestos ID in material**
ABH283	0-0.2	150508-381-KW	15 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH206	0.1-0.2	090508-208-KW	09 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH207	0.2-0.4	090508-207-KW	09 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH210	0.1-0.2	060508-46-KW	06 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH212	0.35-0.45	080508-161-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH214	0-0.1	070508-70-KW	07 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH217	0.0-0.2	060508-43-KW	06 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH220	0.2-0.3	060508-04-KW	06 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH221	0.1-0.25	080508-158-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH222	0-0.1	070508-76-KW	07 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH225	0.0-0.2	060508-33-KW	06 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH228	0.2-0.3	060508-10-KW	06 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH231	0-0.3	080508-151-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH232	0-0.2	060508-52-KW	06 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH236	0-0.1	080508-102-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH243	0-0.1	080508-141-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH246	0-0.2	070508-84-KW	07 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH248	0-0.1	080508-105-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH251	0-0.1	080508-116-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH254	0-0.1	080508-136-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH257	0-0.2	120508-254-KW	12 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH265	0-0.1	120508-228-KW	12 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH271	0-0.2	130508-308-KW	13 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH274	0.1-0.3	130508-289-KW	13 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH276	0.05-0.25	130508-282-KW	13 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH281	0-0.2	130508-302-KW	13 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH286	0.1-0.3	150508-391-KW	15 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH287	0-0.4	150508-378-KW	15 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH291	0.1-0.5	150508-352-KW	15 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH293	0.4-0.5	130508-328-KW	13 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH294	0-0.2	150508-367-KW	15 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH296	0-0.2	120508-261-KW	12 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH296	2.6-2.8	120508-263-KW	12 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ALG203	0-0.2	130508-317-KW	13 May 2008	FILL	No asbestos detected	Respirable fibres not detected
Area A1-A	Surface	130508-A1-KW	13 May 2008	MATERIAL	60x80x4mm fibre cement sheet fragm	Chrysotile asbestos detected.
Area A1-B	Surface	120508-A1-KW	12 May 2008	MATERIAL	200g fibre cement sheet fragments	Chrysotile asbestos detected. Amosite asbestos detected. Crocidolite asbestos detected
Area A2	Surface	120508-A2-KW	12 May 2008	MATERIAL	15g fibre cement sheet fragments	Chrysotile asbestos detected
Area A3	Surface	120508-A3-KW	12 May 2008	MATERIAL	15g fibre cement sheet fragments	Chrysotile asbestos detected
BBH407	0.05-0.15	290408-43-KW	29 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH408	0-0.2	290408-50-KW	29 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH412	0-0.2	280408-21-KW	29 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH415	0.1-0.3	300408-78-KW	30 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH428	0.1-0.2	010508-162-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH430	0.1-0.3	300408-106-KW	30 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH432	0.1-0.2	010508-160-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH435	0.1-0.3	300408-110-KW	19 Jun 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH438	0.2-0.3	290408-72-KW	30 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH439	0.1-0.2	010508-133-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH442	0.1-0.4	300408-101-KW	30 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH446	0.1-0.2	010508-146-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH451	0.0-0.1	010508-A1-KW	01 May 2008	FILL	Fibre cement sheet	Chrysotile asbestos detected
BBH452	0.1-0.2	300408-96-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH453	0.2-0.3	300408-92-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH454	0-0.1	010508-126-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH455	0.1-0.2	010508-120-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BMW401	0.6-0.7	020508-A2-KW	02 May 2008	FILL	Fibre cement sheet	Chrysotile asbestos detected

- = not collected

Table 22: Soil analytical results - POCAS

Parameters	EQL	ABH203(1.9-2.0)	ABH209(1.7-1.9)	ABH210(2.6-2.8)	ABH214(1.8-2.0)	ABH228(1.9-2.2)	ABH230(1.8-2.0)	BH231(1.6-1.8)	ABH238(1.9-2.0)	ABH237(2.3-2.4)	ABH242(1.6-1.7)	ABH255(2.4-2.6)	ABH258(1.6-1.7)	ABH266(2.02.2)	ABH269(2.1-2.2)	ABH270(2.4-2.6)	Action Criteria (1 - 1000 tonnes)			Action Criteria (>1000 tonnes)		
		7-May-08	7-May-08	6-May-08	7-May-08	6-May-08	8-May-08	8-May-08	7-May-08	6-May-08	8-May-08	8-May-08	12-May-08	12-May-08	13-May-08	13-May-08	Sands to loamy sands	Sandy loams to light clays	Medium to heavy clays	Sands to loamy sands	Sandy loams to light clays	Medium to heavy clays
		Sand	Sand	Sand	Sand	Silty sand	Silty sand	Silty sand	Sand	Sand	Sand	Sand	Sand	Silty sand	Silty sand	Silty sand						
Field ph (H_2O)	0.1	5.5	5.5	5.5	5.5	5.5	6	7	5.5	6	6	7	6	6	6.5	6.5						
Field ph (H_2O_2)	0.1	1	1	1	5.5	0	5	8	2	0	5	0	3	2	1	0						
TAA (mol H+/tonne)	5	12	-	<5	-	12	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-
TPA (mol H+/tonne)	5	**130**	-	5	-	**165**	-	-	-	-	-	**213**	-	-	-	-	**18**	**36**	**62**	**18**	**18**	**18**
S-KCl (%)	0.01	0.02	-	0.008	-	0.039	-	-	-	-	-	0.072	-	-	-	-	-	-	-	-	-	-
S-P (%)	0.01	0.33	-	0.053	-	0.48	-	-	-	-	-	0.58	-	-	-	-	-	-	-	-	-	-
S-POS (%)	0.01	**0.31**	-	**0.045**	-	**0.44**	-	-	-	-	-	**0.51**	-	-	-	-	**0.03**	**0.06**	**0.1**	**0.03**	**0.03**	**0.03**
TSA (mol H+/tonne)	5	**118**	-	<5.0	-	**153**	-	-	-	-	-	**213**	-	-	-	-	-	-	-	-	-	-

Note: Concentrations over action criteria are highlighted and shown in **bold** text.

Parameters	EQL	ABH(2.2-2.4)	ABH272(2.4-2.6)	ABH273(2.4-2.6)	ABH274(2.5-2.7)	ABH275(2.6-2.8)	ABH276(2.6-2.8)	ABH277(1.2-1.4)	ABH278(2.6-2.8)	ABH281(2.4-2.6)	ABH286(2.0-2.2)	ABH291(2.6-2.7)	ABH295(2.4-2.6)	ALG202(2.0-2.4)	ALG203(2.2-2.4)	ALG204(2.0-2.4)	Action Criteria (1 - 1000 tonnes)			Action Criteria (>1000 tonnes)		
		13-May-08	13-May-08	13-May-08	13-May-08	13-May-08	13-May-08	13-May-08	13-May-08	13-May-08	15-May-08	13-May-08	13-May-08	12-May-08	13-May-08	15-May-08	Sands to loamy sands	Sandy loams to light clays	Medium to heavy clays	Sands to loamy sands	Sandy loams to light clays	Medium to heavy clays
		Sand	Silty sand	Silty clay	Silty clay	Silty sand	Silty sand	Silty sand	Silty sand	Silty clay	Silty sand	Silty clay	Silty clay	Silty sand	Silty clay	Silty sand						
Field ph (H_2O)	0.1	7	6	6.5	7	6.5	6.5	6	6.2	6	6.5	6.5	6.5	5	6.5	6.5						
Field ph (H_2O_2)	0.1	6	3	0	1	0	0	4	0	3	3.5	6.5	6	4	6	6.5						
TAA (mol H+/tonne)	5	-	-	<5	<5	-	<5	-	<5	-	<5	-	-	-	-	-	-	-	-	-	-	-
TPA (mol H+/tonne)	5	-	-	**505**	**338**	-	**418**	-	**240**	-	**463**	-	-	-	-	-	**18**	**36**	**62**	**18**	**18**	**18**
S-KCl (%)	0.01	-	-	0.034	0.031	-	0.058	-	0.038	-	0.036	-	-	-	-	-	-	-	-	-	-	-
S-P (%)	0.01	-	-	1.1	0.81	-	1.2	-	0.68	-	0.72	-	-	-	-	-	-	-	-	-	-	-
S-POS (%)	0.01	-	-	**1**	**0.78**	-	**1.1**	-	**0.65**	-	**0.69**	-	-	-	-	-	**0.03**	**0.06**	**0.1**	**0.03**	**0.03**	**0.03**
TSA (mol H+/tonne)	5	-	-	**505**	**338**	-	**418**	-	**240**	-	**463**	-	-	-	-	-	**18**	**36**	**62**	**18**	**18**	**18**

Note: Concentrations over action criteria are highlighted and shown in **bold** text.

Parameters	EQL	BBH401(2.6-2.8)	BBH403(2.0-2.2)	BBH406(1.8-1.9)	BBH408(2.0-2.2)	BBH411(2.2-2.3)	BBH412(2.2-2.4)	BBH415(2.6-2.8)	BBH421(1.8-2.0)	BBH422(2.6-2.8)	BBH427(2.6-2.8)	BBH440(2.3-2.4)	BBH442(2.6-2.8)	BBH447(2.6-2.8)	BBH453(2.5-2.6)	BBH458(3.8-4.0)	Action Criteria (1 - 1000 tonnes)			Action Criteria (>1000 tonnes)		
		28-Apr-08	28-Apr-08	29-Apr-08	29-Apr-08	29-Apr-08	28-Apr-08	30-Apr-08	30-Apr-08	30-Apr-08	29-Apr-08	1-May-08	30-Apr-08	1-May-08	30-Apr-08	1-May-08	Sands to loamy sands	Sandy loams to light clays	Medium to heavy clays	Sands to loamy sands	Sandy loams to light clays	Medium to heavy clays
		Sand	Silty sand	Sand	Sand	Sand	Sand	Silty sand	Silty clay	Silty sand	Clayey silt	Silty clay	Silty clay	Silty clay	Silt	Silty sand						
Field ph (H_2O)	0.1	7.5	6.5	6	6	6	7	6	6.5	6	7	6.5	6	6.5	5.5	6						
Field ph (H_2O_2)	0.1	6.5	1	4.5	5	2	1	4.5	5	6	3	3	3.5	6.5	1.5	1						
TAA (mol H+/tonne)	5	-	<5	7.5	-	5	<5	-	-	-	<5	<5	-	-	<5	<5	-	-	-	-	-	-
TPA (mol H+/tonne)	5	-	**333**	**108**	-	<5	**338**	-	-	-	**1010**	**253**	-	-	**195**	**1185**	**18**	**36**	**62**	**18**	**18**	**18**
S-KCl (%)	0.01	-	0.047	0.016	-	0.009	0.039	-	-	-	0.13	0.024	-	-	0.043	0.13	-	-	-	-	-	-
S-P (%)	0.01	-	0.76	0.22	-	0.12	0.78	-	-	-	3.9	0.52	-	-	0.56	2.5	-	-	-	-	-	-
S-POS (%)	0.01	-	**0.71**	**0.21**	-	**0.11**	**0.74**	-	-	-	**3.7**	**0.49**	-	-	**0.52**	**2.4**	**0.03**	**0.06**	**0.1**	**0.03**	**0.03**	**0.03**
TSA (mol H+/tonne)	5	-	**333**	**100**	-	<5	**335**	-	-	-	**1010**	**253**	-	-	**198**	**1188**	**18**	**36**	**62**	**18**	**18**	**18**

Note: Concentrations over action criteria are highlighted and shown in **bold** text.

Table 23: Ground Water Field Parameters and Analytical Results

Location	Sample ID	Date Sampled	Standing Water Level	Temperature (field)	Redox (field)	Dissolved Oxygen (field)	pH (field)	Electrical Conductivity (field)	Chloride	Sulphate	Total Dissolved Solids	Resistivity	Salinity	Carbonate Alkalinity as	Bicarbonate Alkalinity as	Total Alkalinity	Calcium (II) Ion	Potassium (I) Ion	Sodium (Na)	Magnesium (II) Ion	Phenols
		Units	mBTOC	deg c	mV	mg/l	pH units	uS/cm	mg/L	mg/l	mg/l	ohm m	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
AMW203	290508-01-LJ	29 May 2008	1.59	20.1	-180	0.18	7.12	9640	3300	360	7500	nt	7	<0.1	630	nt	320	63	2000	220	<0.05
	AMW203	17 Feb 2017	1.48	25.5	-131.7	0.08	4.78	25134	10000	1500	nt	nt	nt	<5	370	370	300	230	7200	660	nt
	QAQC1	17 Feb 2017	1.48	25.5	-131.7	0.08	4.78	25134	9700	1400	nt	nt	nt	<5	370	370	310	240	7300	670	nt
	QAQC2	17 Feb 2017	1.48	25.5	-131.7	0.08	4.78	25134	9440	1110	nt	nt	nt	<1	323	323	437	205	5580	622	nt
ABH2105	290508-02-LJ	29 May 2008	1.59	19	-162	0.23	6.44	1071	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH2105	17 Feb 2017	1.5	24.7	-110.2	0.14	5.02	1013	140	54	nt	nt	nt	<5	270	270	97	8.8	84	16	nt
ABH202	290508-03-LJ	29 May 2008	1.4	21.1	-5	0.25	6.83	1092	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH202	17 Feb 2017	1.48	25.3	-113.3	0.16	6.57	1658	320	110	nt	nt	nt	<5	270	270	150	10	140	24	nt
AMW205	290508-04-LJ	29 May 2008	0.49	17.6	-246	0.17	7.04	4200	1300	410	3600	nt	3.3	<0.1	540	nt	260	43	760	89	nt
	AMW205	17 Feb 2017	0.41	23.3	220.1	0.12	5.67	3791	880	410	2500	2.6	2500	<5	530	530	230	36	630	66	nt
AMW201	290508-05-LJ	29 May 2008	0.41	18.4	-69	0.16	6.22	1082	210	140	800	nt	<1	<0.1	150	nt	81	19	120	24	nt
	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	0.41	18.4	-69	0.16	6.22	1082	230	130	900	nt	<1	<0.1	150	nt	78	19	120	24	nt
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	0.41	18.4	-69	0.16	6.22	1082	234	129	726	nt	0.62	<1	153	153	76	20	122	24	nt
AMW202	300508-12-LJ	30 May 2008	0.67	18.9	2	0.22	6.33	8140	3300	390	8600	nt	6.4	<0.1	110	nt	110	68	2100	230	nt
AMW204	290508-08-LJ	29 May 2008	0.72	18.6	-94	0.12	6.41	4150	1100	650	3600	nt	2.9	<0.1	490	nt	230	47	620	110	nt
AMW207	300508-09-LJ	30 May 2008	1.5	18.1	-31	2.13	6.59	1832	8900	1300	16000	nt	15	<0.1	470	nt	600	130	4600	450	nt
AMW206	300508-10-LJ	30 May 2008	0.85	18.7	-100	0.54	6.77	7810	2000	2300	8900	nt	6.2	<0.1	810	nt	610	93	1600	330	nt
	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	0.67	18.9	2	0.22	6.33	8140	2100	2400	7600	nt	6.1	<0.1	810	nt	610	92	1500	320	nt
ABH2110	300508-13-LJ	30 May 2008	1.69	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH2100	300508-14-LJ	30 May 2008	1.59	22.8	-40	0.21	6.25	7350	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH2100	17 Feb 2017	1.64	25.3	-105.3	0.76	6.59	5263	1400	340	nt	nt	nt	<5	360	360	97	33	960	42	nt
BBH304	180608-06-LJ	18 Jun 2008	0.43	18	-211	-0.23	7.05	6440	1400	1400	5100	1.6	4100	<0.1	590	nt	680	60	1000	110	nt
BMW401	170608-01-LJ	17 Jun 2008	3.96	21.1	85	-0.16	6.3	944	27	110	660	10	610	<0.1	420	nt	160	10	38	22	nt
	BMW401	17 Feb 2017	4.14	22.5	-150.2	0.3	6.54	804	30	3	nt	nt	nt	<5	460	460	110	12	36	14	nt
BMW402	170608-05-LJ	17 Jun 2008	2.13	19.3	-167	-0.25	6.77	2780	330	880	2100	3.6	1800	<0.1	560	nt	370	23	220	71	nt
BMW403	170608-02-LJ	17 Jun 2008	3.48	20.5	-93	0.01	6.77	2460	500	<5	1400	4	1600	<0.1	620	nt	130	25	320	3	nt
	BMW403	17 Feb 2017	3.5	22.4	-185.2	0.35	6.28	1721	320	17	920	6	1100	<5	450	450	82	23	250	24	nt
BMW404	170608-03-LJ	17 Jun 2008	2.38	19.7	-299	-0.33	6.83	15800	5900	830	11000	<1	10000	<0.1	280	nt	170	130	3500	30	nt
	170608-04-LJ Field Blind Replicate of170608-03-LJ	17 Jun 2008	2.38	19.7	-299	-0.33	6.83	15800	6140	696	11000	62	9350	nt	nt	272	163	130	3160	336	nt
	BMW404	17 Feb 2017	2.24	22.4	-313.9	0.14	6.92	14142	5300	350	nt	nt	nt	<5	320	320	230	120	3500	300	nt
Limit of Reporting			**0.01**	**0.1**	**1**	**0.01**	**0.01**	**0.1**	**0.1**	**1**	**10**	**1**	**1**	**0.1**	**1**	**1**	**1**	**1**	**1**	**1**	**0.05**
NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**400**

nt = not analysed

-- = Action Level not established

BR = blind replicate

SPD = split duplicate

Table 24: Groundwater Analytical Results - Dissolved metals

Location	Sample ID	Date Sampled	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
		Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
AMW203	290508-01-LJ-	29 May 2008	9.5	0.2	<1	**3.9**	<1	<0.5	5.9	<1
	AMW203	17 Feb 2017	32	<0.1	<1	<1	<1	<0.05	<1	<1
	QAQC1 Field blind replicate of AMW203	17 Feb 2017	32	<0.1	<1	<1	<1	<0.05	<1	<1
	QAQC2 Field split replicate of AMW204	17 Feb 2017	22	<0.1	<1	<1	<1	<0.1	<1	<5
ABH2105	290508-02-LJ	29 May 2008	nt	nt	nt	nt	<1	nt	nt	nt
	ABH2105	17 Feb 2017	4	<0.1	<1	<1	<1	<0.05	<1	5
ABH202	290508-03-LJ	29 May 2008	nt	nt	nt	nt	<1	nt	nt	nt
	ABH202	17 Feb 2017	9	<0.1	6	1	<1	<0.05	**83**	14
AMW205	290508-04-LJ	29 May 2008	5.6	<0.1	2.7	**2.1**	<1	<0.5	2.6	1.2
	AMW205	17 Feb 2017	4	<0.1	1	<1	<1	<0.05	2	<1
AMW201	290508-05-LJ	29 May 2008	11	<0.1	<1	<1	<1	<0.5	1.1	<1
	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	11	<0.1	1.1	<1	<1	<0.5	1	<1
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	10	<0.1	<0.1	<0.1	<0.1	<0.01	<0.1	<0.5
AMW202	300508-12-LJ	30 May 2008	4.9	0.1	1.6	<1	<1	<0.5	<1	<1
AMW204	290508-08-LJ	29 May 2008	6.1	0.3	5.3	<1	<1	<0.5	4.4	5.9
AMW207	300508-09-LJ	30 May 2008	14	0.2	11	<1	<1	<0.5	**64**	**82**
AMW206	300508-10-LJ	30 May 2008	5.7	0.2	1.5	<1	<1	<0.5	**11**	5.9
	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	5.5	0.1	1.5	<1	<1	<0.5	**11**	5.7
ABH2110	300508-13-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt
ABH2100	300508-14-LJ	30 May 2008	nt	nt	nt	nt	<1	nt	nt	nt
	ABH2100	17 Feb 2017	14	0.4	4	3	**7**	<0.05	**17**	8
BBH304	180608-06-LJ	18 Jun 2008	4.9	<0.1	2.5	**2.1**	<1	<0.5	1.7	1.5
BMW401	170608-01-LJ	17 Jun 2008	2.2	<0.1	<1	**1.8**	<1	<0.5	<1	6.3
	BMW401	17 Feb 2017	14	<0.1	<1	**3**	<1	<0.05	<1	4
BMW402	170608-05-LJ	17 Jun 2008	5.6	<0.1	<1	<1	<1	<0.5	1.7	3.1
BMW403	170608-02-LJ	17 Jun 2008	4.9	<0.1	2	<1	<1	<0.5	3.1	<1
	BMW403	17 Feb 2017	3	<0.1	<1	1	<1	<0.05	1	1
BMW404	170608-03-LJ	17 Jun 2008	1.6	0.2	23	**6.6**	<1	<0.5	2.5	4.1
	170608-04-LJ Field Blind Replicate of170608-03-LJ	17 Jun 2008	<1	<0.01	24	**2**	4	<1	6	<0.1
	BMW404	17 Feb 2017	8	<0.1	3	<1	<1	<0.05	1	1
Limit of Reporting			**1**	**0.1**	**1**	**1**	**1**	**0.1**	**1**	**5**
NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters			**-**	**0.7**	**-**	**1.3**	**4.4**	**0.1**	**7**	**8**

Note 1: ANZG 2018 Marine 95% (Concentrations above this action level are shown in **bold** text.)

nt = Not Tested

-- = Action Level not established

BR = blind replicate

Table 25: Groundwater Analytical Results - TPH and BTEX

Location	Sample ID	Date Sampled	TPH C6 - C9	TPH C6 - C10	TPH C6 - C10 less BTEX (F1)	TPH C10 - C14	TPH C15 - C28	TPH C29 - C36	TRH >C10 - C16	TRH >C10 - C16 less Naphthalene (F2)	TRH >C16 - C34	TRH >C34 - C40	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Napthalene
		Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
AMW203	290508-01-LJ	29 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
	AMW203	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	<1	<1	<1	<2	<1	<1
	QAQC1 Field blind replicate of AMW203	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	<1	<1	<1	<2	<1	<1
	QAQC2 Field split replicate of AMW204	17 Feb 2017	<20	<20	<20	<50	<100	<50	<100	<100	<100	<100	<1	<2	<2	<2	<2	<5
ABH2105	290508-02-LJ	29 May 2008	650	nt	nt	550	<100	<100	nt	nt	nt	nt	190	70	60	150	30	nt
	ABH2105	17 Feb 2017	260	260	54	<50	<100	<100	<50	<50	<100	<100	200	2	<1	<2	<1	<1
ABH202	290508-03-LJ	29 May 2008	72	nt	nt	<50	<100	<100	nt	nt	nt	nt	3.8	<1	1	18	8	nt
	ABH202	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	<1	<1	<1	<2	<1	<1
AMW205	290508-04-LJ	29 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
	AMW205	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	<1	<1	<1	<2	<1	<1
AMW201	290508-05-LJ	29 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	<20	nt	nt	<50	<100	<50	nt	nt	nt	nt	<1	<5	<2	<2	<2	nt
AMW204	290508-08-LJ	29 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
AMW207	300508-09-LJ	30 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
AMW206	300508-10-LJ	30 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
AMW202	300508-12-LJ	30 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
ABH2110	300508-13-LJ	30 May 2008	<10	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
ABH2100	300508-14-LJ	30 May 2008	<10	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
	ABH2100	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	<1	<1	<1	<2	<1	<1
BBH304	180608-06-LJ	18 Jun 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
BMW401	170608-01-LJ	17 Jun 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
	BMW401	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	<1	<1	<1	<2	<1	<1
BMW402	170608-05-LJ	17 Jun 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
BMW403	170608-02-LJ	17 Jun 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
	BMW403	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	<1	<1	<1	<2	<1	<1
BMW404	170608-03-LJ	17 Jun 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	1.5	<1	<2	<1	nt
	170608-04-LJ Field Blind Replicate of170608-03-LJ	17 Jun 2008	<20	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<5	<2	<2	<2	nt
	BMW404	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	<1	<1	<1	<2	<1	<1
Limit of Reporting			**10**	**10**	**10**	**50**	**100**	**100**	**50**	**50**	**100**	**100**	**1**	**1**	**1**	**1**	**1**	**1**
NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters			-	-	-	-	-	-	-	-	-	-	**500**	-	-	-	-	**50**
NEPM (2013) Health Screening Levels (HSLs) - HSL C - Sand, 2m-<4m.			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM (2013) Health Screening Levels (HSLs) - HSL D - Sand, 2m-<4m.			-	-	**600**	-	-	-	-	-	-	-	**500**	-	-	-	-	-

Concentrations above this action level are shown in **bold** text

nt = Not Tested

-- = Action Level not established

BR = blind replicate

Table 26 : Groundwater Analytical Results - Polycyclic Aromatic Hydrocarbons

Location	Sample ID	Date Sampled	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene
		Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
AMW203	290508-01-LJ	29 May 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
	AMW203	17 Feb 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
	QAQC1 Field blind replicate of AMW203	17 Feb 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
	QAQC2 Field split replicate of AMW204	17 Feb 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
ABH2105	290508-02-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH2105	17 Feb 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
ABH202	290508-03-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH202	17 Feb 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
AMW205	290508-04-LJ	29 May 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
	AMW205	17 Feb 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
AMW201	290508-05-LJ	29 May 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1
AMW202	300508-12-LJ	30 May 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
AMW204	290508-08-LJ	29 May 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
AMW207	300508-09-LJ	30 May 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
AMW206	300508-10-LJ	30 May 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
ABH2110	300508-13-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH2100	300508-14-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH2100	17 Feb 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
BBH304	180608-06-LJ	18 Jun 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
BMW401	170608-01-LJ	17 Jun 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
	BMW401	17 Feb 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
BMW402	170608-05-LJ	17 Jun 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
BMW403	170608-02-LJ	17 Jun 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
	BMW403	17 Feb 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
BMW404	170608-03-LJ	17 Jun 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
	170608-04-LJ Field Blind Replicate of170608-03-LJ	17 Jun 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
	BMW404	17 Feb 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
Limit of Reporting			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters			50	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Concentrations above this action level are shown in **bold** text

nt = Not Tested

-- = Action Level not established

BR = blind replicate

Table 27: Ground Water Analytical Results - Nutrients					
Location	Sample ID	Date Sampled	Ammonia as N	Total Nitrogen	Total Phosphorous
		Units	mg/L	mg/L	mg/L
AMW203	290508-01-LJ	29 May 2008	**4.1**	5	0.87
	AMW203	17 Feb 2017	**1.1**	1.4	nt
	QAQC1 Field blind replicate of AMW203	17 Feb 2017	**1.1**	1.3	nt
	QAQC2 Field split replicate of AMW204	17 Feb 2017	**0.96**	1.5	0.62
ABH2105	290508-02-LJ	29 May 2008	nt	nt	nt
	ABH2105	17 Feb 2017	**3**	4.1	nt
ABH202	290508-03-LJ	29 May 2008	nt	nt	nt
	ABH202	17 Feb 2017	0.73	1.8	nt
AMW205	290508-04-LJ	29 May 2008	**2.4**	5.1	0.81
	AMW205	17 Feb 2017	**1**	2.2	nt
AMW201	290508-05-LJ	29 May 2008	**2**	3.4	1.3
	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	**2.1**	3.4	1.1
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	**0.971**	2.7	2.7
AMW202	300508-12-LJ	30 May 2008	**1.9**	2.7	<0.05
AMW204	290508-08-LJ	29 May 2008	**7.2**	6	0.28
AMW207	300508-09-LJ	30 May 2008	**5.1**	7.8	0.24
AMW206	300508-10-LJ	30 May 2008	**3.1**	7	1.1
AMW206	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	**3.1**	6.9	1.3
ABH2110	300508-13-LJ	30 May 2008	nt	nt	nt
ABH2100	300508-14-LJ	30 May 2008	nt	nt	nt
	ABH2100	17 Feb 2017	0.29	1.2	nt
BBH304	180608-06-LJ	18 Jun 2008	**2.9**	5.3	0.63
BMW401	170608-01-LJ	17 Jun 2008	<0.1	9.5	0.06
	BMW401	17 Feb 2017	**0.92**	1.2	nt
BMW402	170608-05-LJ	17 Jun 2008	**3**	4.3	0.18
BMW403	170608-02-LJ	17 Jun 2008	**14**	21	0.19
	BMW403	17 Feb 2017	**8**	9.2	nt
BMW404	170608-03-LJ	17 Jun 2008	**4.4**	5.6	1
	170608-04-LJ Field Blind Replicate of170608-03-LJ	17 Jun 2008	**4.69**	7	0.76
	BMW404	17 Feb 2017	**1.7**	2.8	nt
Limit of Reporting			**0.01**	**0.01**	**0.01**
NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters			**0.91**	**-**	**-**

Concentrations above this action level are shown in **bold** text

nt = Not Tested

-- = Action Level not established

BR: Blind replicate

SPD: Split duplicate

Table 28: Groundwater Analytical Results - Volatile Organic Compounds

			Location	AMW203				AMW205		AMW201			AMW204	AMW207	AMW206		AMW202	ABH202	ABH2110	ABH2100		ABH2105	BBH304	BMW401		BMW402	BMW403		BMW404		
			Sample ID	290508-01-LJ	AMW203	QAQC1 Field blind replicate of AMW203	QAQC2 Field split replicate of AMW204	290508-04-LJ	AMW205	290508-05-LJ	290508-06-LJ Field blind replicate of 290508-05-LJ	290508-07-LJ Field split replicate of 290508-05-LJ	290508-08-LJ	300508-09-LJ	300508-10-LJ	300508-11-LJ Field blind replicate of 300508-10-LJ	300508-12-LJ	ABH202	300508-13-LJ	300508-14-LJ	ABH2100	ABH2105	180608-06-LJ	170608-01-LJ	BMW401	170608-05-LJ	170608-02-LJ	BMW403	170608-03-LJ	170608-04-LJ Field Blind Replicate of170608-03-LJ	BMW404
			Date Sampled	29 May 2008	17 Feb 2017	17 Feb 2017	17 Feb 2017	29 May 2008	17 Feb 2017	29 May 2008	29 May 2008	29 May 2008	29 May 2008	30 May 2008	30 May 2008	30 May 2008	30 May 2008	17 Feb 2017	30 May 2008	30 May 2008	17 Feb 2017	17 Feb 2017	18 Jun 2008	17 Jun 2008	17 Feb 2017	17 Jun 2008	17 Jun 2008	17 Feb 2017	17 Jun 2008	17 Jun 2008	17 Feb 2017
Parameter	**LOR**	**NEPM (2013 Groundwater Investigation Levels (GILs) - Marine Waters**	**Units**																												
Dichlorodifluoromethane	**50**	-	ug/l	<10	<10	<10	<50	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	nt	nt	<10	<10	<10	<10	<10	<10	<10	<10	<10	<50	<10
Chloromethane	**50**	-	ug/l	<10	<10	<10	<50	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	nt	nt	<10	<10	<10	<10	<10	<10	<10	<10	<10	<50	<10
Vinyl Chloride	**50**	-	ug/l	<10	<10	<10	<50	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	nt	nt	<10	<10	<10	<10	<10	<10	<10	<10	<10	<50	<10
Bromomethane	**50**	-	ug/l	<10	<10	<10	<50	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	nt	nt	<10	<10	<10	<10	<10	<10	<10	<10	<10	<50	<10
Chloroethane	**50**	-	ug/l	<10	<10	<10	<50	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	nt	nt	<10	<10	<10	<10	<10	<10	<10	<10	<10	<50	<10
Trichlorofluoromethane	**50**	-	ug/l	<10	<10	<10	<50	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	nt	nt	<10	<10	<10	<10	<10	<10	<10	<10	<10	<50	<10
1,1-Dichloroethene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Trans-1,2-dichloroethene	**50**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,1-dichloroethane	**50**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Cis-1,2-dichloroethene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Bromochloromethane	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Chloroform	**50**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
2,2-dichloropropane	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,2-dichloroethane	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,1,1-trichloroethane	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,1-dichloropropene	**5**	-	ug/l	<1	<1	<1	nt	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Cyclohexane	**1**	-	ug/l	nt	<1	<1	nt	nt	<1	nt	nt	nt	nt	nt	nt	nt	nt	<1	nt	nt	<1	5	nt	nt	<1	nt	nt	<1	nt	nt	<1
Carbon tetrachloride	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Benzene	**5**	**500**	ug/l	nt	<1	<1	<1	nt	<1	nt	nt	nt	nt	nt	nt	nt	nt	<1	nt	nt	<1	200	<1	<1	<1	<1	<1	<1	<1	<5	<1
Dibromomethane	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,2-dichloropropane	**1**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Trichloroethene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Bromodichloromethane	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
trans-1,3-dichloropropene	**5**	-	ug/l	<1	<1	<1	nt	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
cis-1,3-dichloropropene	**5**	-	ug/l	<1	<1	<1	nt	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,1,2-trichloroethane	**5**	**1900**	ug/l	<1	<1	<1	nt	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Toluene	**50**	**180**	ug/l	nt	<1	<1	<2	nt	<1	nt	nt	nt	nt	nt	nt	nt	nt	<1	nt	nt	<1	2	<1	<1	<1	<1	<1	<1	1.5	<5	<1
1,3-dichloropropane	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Dibromochloromethane	**1**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,2-dibromoethane	**5**	-	ug/l	<1	<1	<1	nt	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Tetrachloroethene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,1,1,2-tetrachloroethane	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Chlorobenzene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Ethylbenzene	**5**	**5**	ug/l	nt	<1	<1	<2	nt	<1	nt	nt	nt	nt	nt	nt	nt	nt	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Bromoform	**50**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
m+p-xylene	**5**	**380**	ug/l	nt	<2	<2	<2	nt	<2	nt	nt	nt	nt	nt	nt	nt	nt	<2	nt	nt	<2	<2	<2	<2	<2	<2	<2	<2	<2	<5	<2
Styrene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,1,2,2-tetrachloroethane	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
o-xylene	**2**	**350**	ug/l	nt	<1	<1	<2	nt	<1	nt	nt	nt	nt	nt	nt	nt	nt	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,2,3-trichloropropane*	**50**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Isopropylbenzene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	3	<1	<1	<1	<1	<1	<1	<1	<5	<1
Bromobenzene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
n-propyl benzene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	3	<1	<1	<1	<1	<1	<1	<1	<5	<1
2-chlorotoluene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
4-chlorotoluene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,3,5-trimethyl benzene	**2**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Tert-butyl benzene	**2**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,2,4-trimethyl benzene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,3-dichlorobenzene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Sec-butyl benzene	**2**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,4-dichlorobenzene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
4-isopropyl toluene	**5**	-	ug/l	<1	<1	<1	nt	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,2-dichlorobenzene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
n-butyl benzene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	nt	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,2-dibromo-3-chloropropane	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,2,4-trichlorobenzene	**5**	**20**	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
Hexachlorobutadiene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1
1,2,3-trichlorobenzene	**5**	-	ug/l	<1	<1	<1	<5	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	<1	nt	nt	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1

Concentrations above this action level are shown in **bold** text

nt = Not Tested

-- = Action Level not established

BR: Blind replicate

Table 29: Groundwater Analytical Results - OCP

Location	Sample ID	Date Sampled	HCB	alpha-BHC	gamma-BHC	beta-BHC	Heptachlor	delta-BHC	Aldrin	Heptachlor Epoxide	gamma-Chlordane	alpha-Chlordane	Endosulfan I	pp-DDE	Dieldrin	Endrin	pp-DDD	Endosulfan II	DDT	Endrin Aldehyde	Endosulfan Sulphate	Methoxychlor
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
AMW203	290508-01-LJ	29 May 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	AMW203	17 Feb 2017	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	QAQC1 Field blind replicate of AMW203	17 Feb 2017	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	QAQC2 Field split replicate of AMW204	17 Feb 2017	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	nt	nt	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ABH2105	290508-02-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH2105	17 Feb 2017	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ABH202	290508-03-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH202	17 Feb 2017	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
AMW205	290508-04-LJ	29 May 2008	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	AMW205	17 Feb 2017	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
AMW201	290508-05-LJ	29 May 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	nt	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<2
AMW202	300508-12-LJ	30 May 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
AMW204	290508-08-LJ	29 May 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
AMW207	300508-09-LJ	30 May 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
AMW206	300508-10-LJ	30 May 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ABH2110	300508-13-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH2100	300508-14-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH2100	17 Feb 2017	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BBH304	180608-06-LJ	18 Jun 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BMW401	170608-01-LJ	17 Jun 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	BMW401	17 Feb 2017	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BMW402	170608-05-LJ	17 Jun 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BMW403	170608-02-LJ	17 Jun 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	BMW403	17 Feb 2017	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BMW404	170608-03-LJ	17 Jun 2008	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	170608-04-LJ Field Blind Replicate of170608-03-LJ	17 Jun 2008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5	<2
	BMW404	17 Feb 2017	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Limit of Reporting			**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**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters			-	-	-	-	-	-	-	-	-	-	**0.005**	-	-	**0.004**	-	-	-	-	-	-

Concentrations above this action level are shown in **bold** text

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

BR = blind replicate

Table 30: Groundwater Analytical Results - OPP

Location	Sample ID	Date Sampled	Azinphos-methyl (Guthion)	Bromophos ethyl	Chlorpyriphos	Chlorpyriphos-methyl	Diazinon	Dichlorovos	Dimethoate	Ethion	Fenitrothion	Malathion	Parathion	Ronnel
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
AMW203	290508-01-LJ	29 May 2008		<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
	AMW203	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	QAQC1 Field blind replicate of AMW203	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	QAQC2 Field split replicate of AMW204	17 Feb 2017	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5
ABH2105	290508-02-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH2105	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ABH202	290508-03-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH202	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
AMW205	290508-04-LJ	29 May 2008	nt	<2	<2	<2	<2	nt	<2	<2	<2	nt	nt	<2
	AMW205	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
AMW201	290508-05-LJ	29 May 2008	nt	<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	nt	<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	nt	<0.5	<0.5	<0.5	<0.5	nt	<0.5	<0.5	nt	nt	nt	nt
AMW204	290508-08-LJ	29 May 2008	nt	<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
AMW207	300508-09-LJ	30 May 2008	nt	<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
AMW206	300508-10-LJ	30 May 2008	nt	<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	nt	<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
AMW202	300508-12-LJ	30 May 2008	nt	<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
ABH2110	300508-13-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH2100	300508-14-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH2100	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BBH304	180608-06-LJ	18 Jun 2008	nt	<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
BMW401	170608-01-LJ	17 Jun 2008	nt	<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
	BMW401	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BMW402	170608-05-LJ	17 Jun 2008	nt	<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
BMW403	170608-02-LJ	17 Jun 2008	nt	<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
	BMW403	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
BMW404	170608-03-LJ	17 Jun 2008	nt	<0.2	<0.2	<0.2	<0.2	nt	<0.2	<0.2	<0.2	nt	nt	<0.2
	170608-04-LJ Field Blind Replicate of170608-03-LJ	17 Jun 2008	nt	<0.5	<0.5	<0.5	<0.5	nt	<0.5	<0.5	<0.5	nt	nt	nt
	BMW404	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Limit of Reporting			-	**0.2**	**0.2**	**0.2**	**0.2**	-	**0.2**	**0.2**	**0.2**	-	-	**0.2**
NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters			-	-	**0.009**	-	-	-	-	-	-	-	-	

Concentrations above this action level are shown in **bold** text

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

BR = blind replicate

Table 31: Groundwater Analytical Results - PCB

Location	Sample ID	Date Sampled	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Total PCB
		Units	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
AMW203	290508-01-LJ	29 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
	AMW203	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
	QAQC1 Field blind replicate of AMW203	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
	QAQC2 Field split replicate of AMW204	17 Feb 2017	nt	nt	nt	nt	nt	nt	nt	nt
ABH2105	290508-02-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt
	ABH2105	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
ABH202	290508-03-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt
	ABH202	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
AMW205	290508-04-LJ	29 May 2008	<20	nt	<20	<20	<20	<20	<20	<20
	AMW205	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
AMW201	290508-05-LJ	29 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW201	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW201	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt
AMW204	290508-08-LJ	29 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW207	300508-09-LJ	30 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW206	300508-10-LJ	30 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW206	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW202	300508-12-LJ	30 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
ABH2110	300508-13-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt
ABH2100	300508-14-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt
	ABH2100	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
BBH304	180608-06-LJ	18 Jun 2008	<2	nt	<2	<2	<2	<2	<2	<2
BMW401	170608-01-LJ	17 Jun 2008	<2	nt	<2	<2	<2	<2	<2	<2
	BMW401	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
BMW402	170608-05-LJ	17 Jun 2008	<2	nt	<2	<2	<2	<2	<2	<2
BMW403	170608-02-LJ	17 Jun 2008	<2	nt	<2	<2	<2	<2	<2	<2
	BMW403	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
BMW404	170608-03-LJ	17 Jun 2008	<2	nt	<2	<2	<2	<2	<2	<2
	170608-04-LJ Field Blind Replicate of170608-03-LJ	17 Jun 2008	-	nt	-	-	-	-	-	nt
	BMW404	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
Limit of Reporting			**2**	**2**	**2**	**2**	**2**	**2**	**2**	**1**
NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters			-	-	-	-	-	-	-	-

Concentrations above this action level are shown in **bold** text

<### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

-- = Action Level not established

BR = blind replicate

Table 32: Sub-surface Gas Monitoring Results

Well ID	Ambient reading (ppm)	Initial well pressure above atmospheric (kPa)	Initial vent	Flow Rate L/hr	Initial well concentrations			Maximum vacuum on well (psi)	Recovery time (min)	Total volume purged (L)	Time vented (Minutes)	Well concentrations following purging		
					CH_4 (%)	CO_2 (%)	O_2 (%)					CH_4 (%)	CO_2 (%)	O_2 (%)
ALG201	0	0	Nil	0	0.3	8.4	14.9	Unable to purge as groundwater was sucked into the vacuum tank during monitoring						
ALG202	0	0	Nil	0	0.2	2.6	18.4	-20	2	40	-	0.2	0.2	20.8
ALG203	0	0	Nil	0	0.1	0.3	20.0	-20	1	40	-	0.2	0.2	20.8
ALG204	0	0	Nil	0	0.2	10.2	4.0	Unable to purge as groundwater was sucked into the vacuum tank during monitoring						
ALG205	0	0	Nil	0	0.2	3.5	14.3	-20	1	40	-	0.2	3.7	13.6
ALG206	0	0	Nil	0	0.1	0.9	18.6	Unable to purge as groundwater was sucked into the vacuum tank during monitoring						
BLG401	0	0	Nil	0	0.1	2.7	18.6	-20	1	50	-	0.1	11.9	6.1
BLG402	0	0	Nil	0	0.2	0.4	20.3	-20	1	50	-	0.2	0.2	20.8
BLG403	0	0	Nil	0	0.2	1.5	19.7	-20	1	40	-	0.1	1.4	19.4
BLG404	0	0	Nil	0	0.1	1.2	19.4	-20	1	40	-	0.1	1.2	19.5

BOLD Represents detection levels above the NSW EPA (2016) detection limit of 1.0% v/v in subsurface gas monitoring wells

Appendix 1
Sampling Analysis and Quality Plan

CONSULTING EARTH SCIENTISTS

SAMPLING, ANALYSIS AND QUALITY PLAN:
ENVIRONMENTAL SITE ASSESSMENT, AREA A – PROPOSED BUSINESS AND TECHNOLOGY PARK, COOKS COVE DEVELOPMENT SITE PREPARED FOR BOYD COOK COVE.

REPORT ID: CES050706-BCC-01-F

Written by: Y. Carden
Field Scientists: N/A
Reviewed by: M. Petrozzi

Authorised by:
Dr. Michael Petrozzi
Date:
28 June 2006

Client:
Boyd Cook Cove
Suite 305, 35 Lime Street
Sydney NSW 2000

Telephone: 02 8585 4888 • Fax: 02 9550 9566 • 1/111 Moore St • Leichhardt, NSW 2040 • Australia

SAMPLING, ANALYSIS AND QUALITY PLAN: ENVIRONMENTAL SITE ASSESSMENT, AREA A - PROPOSED BUSINESS AND TECHNOLOGY PARK, COOKS COVE DEVELOPMENT SITE. PREPARED FOR BOYD COOK COVE.

Report ID: CES050706-BCC-01-F

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Report ID: CES050706-BCC-01-F

1 INTRODUCTION

Consulting Earth Scientists (CES) was commissioned by Boyd Cook Cove (BCC) to provide environmental consulting services associated with the investigation phase of the Cooks Cove Development (CCD) site, located to the south of Sydney International Airport in southern Sydney (Figure 1). The total development area consists of an approximately 100 Ha parcel of land that is bound by Marsh Street to the north, the Cooks River and Muddy Creek to the east, Bestic Street to the south and West Botany Street and residential properties to the west.

The Cooks Cove Development involves the partial relocation of Kogarah Golf Course to accommodate the development of a Business and Technology Park in the northern portion of the CCD site. Land in the southern portion of the CCD site was previously used by Rockdale Council for landfilling activities and is currently used as public open space by a variety of recreational and sporting users.

Due to the large area of the CCD site it has been divided into five areas (Areas A to E) based upon future land use and physical features (figure 2). These areas are:

- Area A (Proposed business and technology park): The northern portion of the CCD site located between the East-West Link to the south and Northern Pocket Park to the north (~21 ha);
- Area B: The golf course area between the East-West Link to the north and the SWSOOS to the south (~9.5 ha);
- Area C: The playing fields located between the SWSOOS to the north and the Spring Creek Channel to the south. These fields are located on a former putrescible waste landfill (~33 ha);
- Area D: The areas adjacent to the St George Soccer Stadium between the Spring Creek Channel to the north and Bestic Park to the south. These areas are located on a former waste landfill (~13 ha); and

- Area E: The area occupied by Firmstone Gardens located between Area C and West Botany Street (~1 ha). Information sources suggest that this area was also subject to landfilling.

This document refers to Area A, the northernmost portion of the CCD site, here within referred to as 'the site' or 'Area A' (Figure 2). Area A covers an area of approximately 21 Ha and is currently occupied by the northern portion of Kogarah Golf Club. It is proposed that this portion of the CCD site will undergo a change of land use to commercial and industrial as part of the development of the business and technology park.

This document outlines the proposed Sampling, Analysis and Quality Plan (SAQP) for the conduct of an Environmental Site Assessment (ESA) on Area A. The ESA will include the investigation of soil and groundwater conditions at the site in order to assess its suitability for the proposed commercial and industrial land use.

2 OBJECTIVE AND SCOPE OF WORK

The objectives of the investigation are to:

- Address existing information gaps on soil and groundwater conditions across the site;
- Undertake a preliminary Acid Sulfate Soil (ASS) Assessment of the site;
- Undertake a preliminary Salinity Assessment of the site; and
- Assess whether the site is suitable for the proposed commercial and industrial land use.

To achieve this objective, CES propose to undertake the following scope of works for Area A:

- Preparation of Sampling, Analysis and Quality Plan (SAQP);
- Drill sampling locations in a grid pattern across Area A so that statistical analysis can be used (if required) to assess whether the site is suitable for the proposed commercial/industrial use without any or major remediation works and to be able to assess the size of contamination hotspots (approximately 53 m in diameter) which may be encountered during the investigation. A total of 108 sample locations (which equates to a sample density of 5 sample points per hectare or a sampling grid of approximately 45 m) are proposed for the investigation;
- This sample density is less than the minimum sampling points required for site characterisation outlined in the NSW EPA (1996) *Sampling Design Guidelines*. A reduced sampling density has been proposed considering that the area will be developed for a less sensitive land use (*ie*. from open space to commercial/industrial) and that historical filling is likely to have occurred in one single episode;
- Six (6) of the boreholes will be converted into groundwater monitoring wells and six (6) into shallow subsurface gas monitoring wells;
- Soil/fill samples will be analysed for metals and metalloids (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg), Total Petroleum Hydrocarbons (TPH) the monocyclic aromatic hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), Organochlorine Pesticides (OCPs), Organophosphate Pesticides (OPPs), Volatile Organic Compounds (VOCs), Phenoxyacetic Acid Herbicides (PAAHs), nutrients (ammonia, total kjeldahl nitrogen, nitrate, nitrite and total phosphorus), phenols and potential Asbestos Containing Materials (ACMs). In addition, pieces of potential ACMs will be analysed as appropriate;

- Soil samples collected as part of the ASS assessment will be field screened, with select samples analysed for the Suspension Peroxide Oxidation Combined Acidity and Sulfate (SPOCAS) analysis;
- Soil samples collected as part of the salinity assessment will be analysed for pH, electrical conductivity, salinity, resistivity, texture, soluble sulfate and chloride;
- Wells will be installed using Geoprobe prepacked screens, which will be developed prior to sampling. Groundwater sampling will be undertaken using low-flow methods with minimum drawdown;
- Groundwater samples will be analysed for field parameters (depth to water table, temperature, pH, electrical conductivity, dissolved oxygen and redox potential) dissolved metals and metalloids, major ions, nutrients, TPH, BTEX, PAHs, OCPs, OPPs, VOCs, PAAHs and phenols;
- As part of the salinity assessment, groundwater samples will also be analysed for pH, electrical conductivity, salinity, total dissolved solids, resistivity, saturation index, alkalinity, ammonia, sulfate and chloride;
- Gas wells will be monitored to assess concentrations of methane, carbon dioxide, oxygen and combustible gasses as well as formation gas pressures and gas flow rates; and
- The results of the environmental assessment works for Area A will be prepared into a report which will outline the results of the former investigations along with the results of the current investigation. A conclusion will be made as to whether Area A is suitable for the proposed use or recommend any further investigations or remediation which may be required in order to render the area suitable for the proposed use.

3 DATA QUALITY OBJECTIVES

Step 1 - State the Problem

The problem is that the limited investigations undertaken on the site to date do not provide sufficient information to adequately characterise soil and groundwater quality. Further, there has been no assessment of whether the site has been impacted by landfill gas migrating from the landfills located to the south of the site.

Step 2 - Identify the Decision Statement

The aim of this step is to identify what questions this program will attempt to resolve and to discuss what actions may result.

The primary question that this programme will attempt to resolve is:

- What is the extent of soil, groundwater and landfill gas contamination on the site, if any, as a result of previous land uses on both this and adjacent sites?

It is expected that by resolving this question, it will be possible to develop more focussed remediation options for the site.

Step 3 - Identify inputs to the decision

The following data are required to resolve the decision question(s):

- The key contaminants of concern as identified from the findings from previous consultant investigations and more recently by CES;
- The installation of 108 boreholes across the site, with six boreholes converted to groundwater monitoring wells and six boreholes converted to gas monitoring wells;
- Collection of soil samples at regular depth intervals in each borehole;
- Collection of groundwater samples from each of the groundwater monitoring wells following development and purging in accordance with appropriate methods;
- Standing water levels to be recorded in each monitoring well prior to sampling;
- Monitoring of landfill gas characteristics in each of the sub-surface gas monitoring wells;
- Analysis of both soil and groundwater sample for the contaminants of concern and other analytes which will assist in developing remediation techniques;

- Comparison of the results with relevant site assessment criteria (*ie.* NEPM, (1998); ANZECC (2000) water quality guidelines and EPA NSW (1994) *Guidelines for Assessing Service Station Site* threshold concentrations for "Waters - Protection of Aquatic Ecosystems"); and
- Obtain survey data, including the position and relative heights, for each of the monitoring wells. When combined with the water level data and analytical results this will enable a determination of the spatial and vertical extent of the contaminant plumes and direction of groundwater flow.

Step 4 - Define the boundaries of the study

The site has been referred to as Area A of the Cooks Cove Development site. It is bound by Marsh Street to the north and west, the Cooks River to the east. There is currently no obvious southern boundary, although it will be defined prior to undertaking the field component of this investigation. The area is generally referred to as the Development Zone and consists of developable land with an area of approximately 21 Ha. The legal description of the developable land is Part of Lots 10 and 11 in Deposited Plan (DP) 570900, while the roadway allocation is Part of Lot 14 DP 213314. It is located within the Local Government Area (LGA) of Rockdale, Parish of St George, County of Cumberland.

A site survey plan including the site and individual allotment boundaries, building locations and other relevant detail is provided as Figure 3.

It is anticipated that the vertical extent of the study will be the top approximately 10 m, with this depth considered sufficient to provide an assessment of natural soil as well as intercept the shallow groundwater zone.

Step 5 - Develop a decision rule

The purpose of this step is to define the parameters of interest, specify the action levels and combine the outputs of the previous DQO steps into an "if…then…" decision rule that defines the conditions that would cause the decision maker to choose alternative actions.

The parameters of interest (or contaminants of concern) in the soil for this investigation are metals and metalloids, TPH, BTEX, PAHs, OCPs, OPPs, VOCs, PAAHs, phenols, nutrients and asbestos. For the groundwater investigation, the contaminants of concern are metals and metalloids, nutrients, TPH, BTEX, PAHs, OCPs, OPPs, VOCs, PAAHs and phenols. In addition to soil and groundwater, landfill gas is also a contaminant of concern.

The action level which will be used to decide if the parameter represents an unacceptable risk for the proposed commercial and industrial land-use are provided as Investigation Criteria in Section 10 of this document.

The types of data quality required during the fieldwork component of the investigation and for the laboratory analyses are specified in Sections 10.1 and 10.2 respectively. The acceptable limits for this data are defined in Table 1.

Based on these data quality types and limits the following decision rules will apply:

- Impacted soil will be identified by concentrations exceeding the assessment criteria;

- Impacted groundwater will be identified by concentrations exceeding the assessment criteria;

- The presence of elevated concentrations of landfill gas will be identified by concentrations exceeding the assessment criteria;

- If contaminants of concern are detected in the trip blanks, then potential cross contamination may have occurred during sample transport. To assess whether this is the case, CES will check the trip blank results with the laboratory and compare the results with other blanks provide by the same laboratory. It is possible that detections in trip blanks may reflect background concentrations in laboratory-supplied water or analytical error. If it is concluded that decontamination procedures were inadequate CES will assess the severity of the cross contamination and subsequent impacts on the ability to resolve the decision question. Possible actions may include the raising of working detection limits or the collection of replacement data.

- If RPDs for blind replicates or split samples are outside the acceptable limits, then there may be errors in laboratory analysis process. When assessing duplicate pairs with elevated RPDs, CES will check the results with the laboratory(ies) and examine the nature of the sample being assessed, since heterogeneous samples can often provide high RPDs. If it is believed that irreversible errors have occurred during the laboratory process then additional investigation will be required to resolve the decision question.

- If any of the laboratory data quality tests do not meet the acceptable limits, the laboratory will be requested to retest samples or provide justification for the results.

Step 6 - Specify acceptable limits on decision errors
There are two types of errors:

a) Deciding that the site is acceptable for commercial and industrial land use when it actually is not (Type I error). The consequence of this error may be unacceptable ecological or health risk for future users of the site.

b) Deciding that the site is unacceptable for commercial and industrial land use when it is acceptable (Type II error). The consequence of this error is that the client will pay for further investigation / remediation that is not necessary.

The more severe consequence is with decision error (a) since the risk of jeopardising human health outweighs the consequences of paying more for remediation.

It will not be possible to conduct statistical hypothesis tests as the proposed sampling programme consists of the collection of one round of samples only. Unlike soils, it is not generally appropriate to compare guideline levels with Upper Confidence Limits (UCLs) for the mean of measured concentrations. The level of impact on groundwater and from landfill gas will need to be assessed at each monitoring well.

Step 7 - Optimising the Design for Obtaining Data
The purpose of this step is to identify a resource-effective data collection design for generating data that are expected to satisfy the DQOs.

The resource effective data collection design that is expected to satisfy the DQOs is described in detail in Section 10. To ensure the design satisfies the DQOs a comprehensive Quality Assurance and Quality Control plan will be implemented as described in Section 10.

4 SITE INFORMATION

4.1 SITE IDENTIFICATION

The site is referred to as Area A of the Cooks Cove Development site, Cooks Cove, NSW. It is located in the northern portion of the CCD site and covers an approximate area of 21 Ha. The area is generally referred to as the Development Zone. The legal description of the developable land is Part of Lots 10 and 11 in Deposited Plan (DP) 570900, while the roadway allocation is Part of Lot 14 DP 213314. It is located within the Local Government Area (LGA) of Rockdale, Parish of St George, County of Cumberland.

A plan showing the site layout is presented in Figure 3. A registered survey plan showing the boundaries of each Lot and DP will be provided in the report.

4.2 SITE ZONING AND LAND USE

The overall site is currently zoned for open space/recreational land use and is currently occupied by the Kogarah Golf Club for its golf course. It is proposed to rezone the site to commercial and industrial land use as part of the development.

4.3 TOPOGRAPHY

The Botany Bay 1:25000 Topographic map (9130-3-S) indicates that the site elevation ranges from 0 to 10 m above Australian Height Datum (AHD). The site topography has been significantly modified through the placement of fill material over the original swamp and delta. An undulating surface has been created to form the golf course including several small lakes as shown on Figure 3.

The site generally drains in an easterly direction towards the Cooks River, although localised flow paths occur across the golf course, including an un-named intermittent stream draining the golf course shown on the 1:25000 Topographic Map. In addition, the central portion of the golf course drains internally towards a series of lakes.

4.4 GEOLOGY

The Sydney 1:100 000 Geological Series map indicates that the site is underlain by silty to peaty quartz sand, silt and clay. Ferruginous and humic cementation occurs in places with common shell layers also reported. This material is most likely of alluvial origin, deposited as sub-aerial and sub-aqueous components of the Cooks River delta. This deposit has been reworked significantly last century as part of river diversion and training works. These works would have involved significant dredging operations.

An outcrop of Hawkesbury Sandstone is also shown in the location of the existing Kogarah Golf Club House. The Sydney 1: 100 000 Soil Landscape Sheet 9130 indicates that the site is underlain by anthropogenic fill material.

4.5 HYDROGEOLOGY

4.5.1 Regional Hydrogeology

The groundwater at this site is expected to lie within a shallow unconfined aquifer, although localised layers of low permeability (*eg.* clay, peat and layers of localised iron-cemented sand) may act as local confining layers. Groundwater at the site is expected to flow in an easterly direction towards the Cooks River.

The Cooks River, Muddy Creek and the Spring Street Canal are tidal in the study area. It is expected that saline or brackish intrusion in the form of a Ghyben-Herzberg lens occurs around the periphery of the site. Diurnal fluctuations in groundwater levels in the peripheral areas are also expected to occur in response to tidal cycles.

4.5.2 Local Hydrogeology

CES (2001) undertook a search of the groundwater database at the DLWC (now DIPNR). A total of 66 registered groundwater wells were identified within a 2 km radius of the centre of the Cooks Cove Development site. Work summaries are presented in Appendix 1. Twenty five wells are registered for “General Use” with a further seventeen registered for “Domestic Use”. Wells for general use were registered between 1950 and 1969 while wells for domestic use were registered between 1991 and 2000. It is proposed that general and domestic wells refer to use by private persons for non-potable use. The different classes are attributed to a change in well classification methods by the DLWC.

Three wells are registered for recreational or irrigation use. All of these wells are registered to local sporting facilities, including the Kogarah Golf Club (installed in 1966). Twenty one of the wells are registered for environmental monitoring or testing. Sixteen of these wells are registered in association with the M5 East Motorway.

The only well registered in Area A of the CCD site is GW027664 which is registered to Kogarah Golf Club for irrigation purposes. It is located in the north western corner of the golf course and was drilled to a depth of 6 m, which was equal to the depth of bedrock.

Inspection of DLWC work summaries reveals reported well yields of up to 3.0 L s^{-1}, with most yields of the order of 0.5 L s^{-1}. The salinity of wells installed is reported as "good". These data indicate that the study area is surrounded and underlain by relatively permeable strata. Low ("good") salinity of water extracted from the wells indicates that saline or brackish intrusion is likely to be limited to peripheral areas adjacent to the Cooks River and tidal reaches of tributaries thereof.

4.6 ACID SULFATE SOIL RISK

The Botany Bay Acid Sulfate Soil Risk Map (2nd Ed, 1997) produced by the DLWC indicates that the site is located in an area of "high probability of occurrence of acid sulfate soil materials. The environment of deposition has been suitable for the formation of acid sulfate soil materials. Acid sulfate soils materials are widespread or sporadic and may be buried by alluvium or windblown sediments". If present the depth is expected to be between 1 and 3 m below the ground surface.

Although extensive filling has occurred across the site, the fill material is most likely to consist of sediments dredged from the Cooks River. Therefore, this material, although technically fill, has the potential to be acid sulfate in nature.

5 SITE HISTORY

5.1 *HISTORICAL AERIAL PHOTOGRAPHS*

Historical aerial photographs from the Department of Land and Water Conservation were examined. Aerial surveys have typically been conducted every 8-10 years with the earliest photographs being taken in 1930. The following photographs were examined for this report: 1930; 1951; 1961; 1970; 1978; 1986 and 1999. In addition, the 1943 aerial photograph acquired by the Department of Main Roads (DMR), now the Roads and Traffic Authority (RTA), was also examined. The findings of air photo investigations are as presented below.

5.1.1 1930 (DLWC)

Cooks River is more torturous than at present day and does not adjoin the north-eastern section of the site as it does today. Muddy Creek and lower Cooks River are very thin and appear to be small tributaries off the main river only. The Cooks River outlet to Botany Bay is further north than presently located.

The study area has been subdivided. The northern half of the area presently occupied by Kogarah Golf Club, appears to be comprised of paddocks (possibly market gardens). The house in the north north eastern part of the site presently utilised as the clubhouse has been built and may be surrounded by a few smaller buildings and a number of large trees. The southern half of the present day golf course and area to the south have been subdivided and appear sandy with some scrubby vegetation.

The water main easement running across the Cooks River from the western to the eastern banks is present. Although property to the northwest of the site adjoining the river appears to be comprised of sand it does seem to have been landscaped. River bank is in the present day location. Neighbouring areas to the west and northwest are predominantly paddocks although some industrial buildings are present. Land southwest of the site has been urbanised. East of the site across the lower Cooks River and Muddy Creek, the land is comprised of large subdivided blocks of dunes with some grass. White sand dunes occur on the northeastern side of the Cooks River.

5.1.2 1943 (DMR)

The 1943 aerial photograph indicates that the Cooks River is still fairly torturous in comparison to the aligned state of the present day. The golf club is present on the site, with what appears to be the present day club house in position. The site is generally covered in vegetation with some patches of sandy areas and some sealed sections around the clubhouse.

Market Gardens are present to the south of the site, residential property to the west, open space to the north and the Kingsford Smith International Airport to the east.

5.1.3 1951 (DLWC)

The shape of Cooks River has been altered extensively with the lower parts of the river now bounding the property. Muddy Creek has been considerably widened and channelised. Spring Street canal has been constructed, as has the present day channel opening of the Cooks River into Botany Bay. Dredges and sand stockpiles in the photo indicate that these works were still in progress at the time.

The entire area of the present day Kogarah Golf Club appears to have reverted back to grass-and scrub-covered sand dunes, with the southern half being sandier.

There is a continued build up of industry in the neighbouring area to the northwest and airport developments on the eastern side of the river are continuing.

5.1.4 1961 (DLWC)

The Cooks River has been reshaped and repositioned since the 1951 photograph. The northeastern side of the property now bounds the river. In addition Muddy Creek has been significantly narrowed.

The northern part of the site is now occupied by the golf course and is close to the present day layout. Numerous vehicles were noted around the golf club.

To the north of the site, land on the rivers edge has been landscaped and some small buildings erected. Additional factories and houses have been built on properties to the northwest of the site and numerous trucks and smaller vehicles are visible around these buildings. Airport runways and aircraft hangers have been completed on the eastern bank of the Cooks River and are in operation with numerous planes visible in this area.

5.1.5 1970 (DLWC)

Additional alterations to the Cooks River have been performed since the 1961 photograph with the river essentially as in its present day form. Further industrial development has occurred to the northwest of the site as well as superficial changes to other buildings in this area.

The construction of the airport overpass at the northeastern end of Marsh Street has commenced. Numerous construction site sheds are visible in on the northeastern corner of the Kogarah Golf Club. The golf course area is essentially the same as in the 1961 photograph although looking a little more grassy and with the addition of numerous small ponds.

5.1.6 1978 (DLWC)

The Kogarah Golf Club has been further landscaped with areas having been built up and additional ponds put in place. The western-most section of this area, previously occupied by market gardens is now included as part of the golf course.

To the north of the site demolition and construction of industrial buildings have occurred. The main span of the Marsh Street airport overpass has been constructed. Remaining neighbouring property appear essentially the same.

5.1.7 1986 (DLWC)

The site in general has not undergone many changes since the 1978 photograph.

To the northwest of the site across Marsh Road, tennis courts have been built, as has the Airport Hilton in the place of the demolition area noted in the last photo. In addition superficial changes have been made to other buildings in this area. A central section to the Marsh Street overpass to the airport has been constructed.

5.1.8 1999 (DLWC)

On the Kogarah Golf Course a large maintenance shed has been constructed on the northern most part of the property next to Marsh Street. In addition a small building has been built in the middle of the golf course.

On neighbouring properties to the north small-scale construction and demolition works have been carried out. Houses on the corner of Marsh and West Botany Streets have been demolished. Directly north of the site across the river, some construction works or redevelopment activities are being carried out. The central section of the Marsh Street overpass to the airport has been completed.

A summary of the aerial photographs indicates that the site was part of the Cooks River floodplain prior to its reclamation and development. The golf course has been required to move over time in concert with reclamation activities of former mangrove areas. Therefore, although the golf course has been present in the area since circa 1930, it has not always been in its existing location.

The following potentially contaminating activities have been carried out on the site:

- Introduction of contaminants in fill material. The most probable source of fill material is dredged spoil from the Cooks River and its delta; and
- Chemical inputs associated with the golf course such as fertilisers and pesticides.

In addition, the site is located to the immediate north of a number of former municipal landfill sites. These former landfills are located on Areas C and D of the Cooks Cove Development Site, both located to the south of Area A. It is understood that neither leachate nor gas management systems were constructed on these landfills and as such the potential exists for either leachate or landfill gas to have migrated onto Area A.

6 SITE CONDITION AND SURROUNDING ENVIRONMENT

Descriptions of site and background information are presented in the Phase 1 Environmental Site Assessment (ESA) undertaken by CES (2001) on the entire CCD site. It is not intended to fully replicate this information herein. However, a summary is provided below.

6.1 CURRENT OWNER, OCCUPIER AND OPERATIONS

Area A of the Cooks Cove Development Site is currently on land owned by Kogarah Golf Club Limited, with a section along Marsh Street on the western boundary owned by The Municipality of the Council of Rockdale. The entirety of Area A is currently occupied by Kogarah Golf Club for their golf course, with the section owned by Rockdale Council under lease to the Kogarah Golf Club.

6.2 SITE DESCRIPTION

The following description of the site is based upon a recent site inspection and information provided in previous reports.

Current access to the site is from Marsh Street via an underpass that crosses beneath the bridge that traverses the Cooks River. A car park, Club House and maintenance facilities are located at the northern end of the site. The remainder of the site consists of features typical of a golf course such as greens, fairways, sand bunkers and surface water bodies.

With the exception of the car park and access roads, the majority of the site is unsealed.

6.3 TANKS AND ASSOCIATED SERVICES

It is understood that one Underground Storage Tank (UST) is present in the north western corner of the site. It is located adjacent to the workshop and is used to fuel the various items of plant operated by the course curators.

6.4 SURROUNDING LAND-USE

Without gaining access, the properties immediately surrounding the site are as follows.

- *North* – Marsh Street forms the northern boundary of the site. To the north of Marsh Street are the Hilton Hotel and St George Rowing Club;
- *South* – To the south of Area A is Area B of the CCD site. Area B is the southern portion of the Kogarah Golf Course;
- *East* – The Cooks River forms the eastern boundary of the site. To the east of the Cooks River is the International Terminal of Kingsford Smith Airport; and
- *West* – Marsh Street also forms the western boundary of the site. Residential properties are located on the western side of Marsh Street.

6.5 SUMMARY OF PREVIOUS INVESTIGATIONS

6.5.1 Cooks Cove Development Site

The following environmental and geotechnical investigation reports have been prepared for the entire Cooks Cove Development Site.

- Consulting Earth Scientists (April 2001). *"Site Contamination Issues Paper: Cooks Cove Development Site.* Prepared for Trafalgar Properties Pty Ltd and Page Kirkland Management Pty Ltd";
- Keighran Geotechnics (August 2001). *"Preliminary Site Investigation, Cook Cove Industrial Development, Kogarah Golf Club, Arncliffe";*
- Consulting Earth Scientists (August 2001). *"Phase 1 Environmental Site Assessment: Cooks Cove Development Site.* Prepared for Trafalgar Properties Pty Ltd and Page Kirkland Management Pty Ltd";
- Consulting Earth Scientists (September 2001). *"Report on Wetland Sampling Conducted 26 August 2001"*;
- Consulting Earth Scientists (October 2001). *"Report on Well Installation and Groundwater Sampling Programme: Cooks River Development Site.* Prepared for Trafalgar Properties Pty Ltd and Page Kirkland Management Pty Ltd"; and
- Golder Associates (January 2002). *"Contamination Investigation and Conceptual Remediation Approach for Cooks River Development, Arncliffe"*.

The main conclusions drawn from these reports with respect to contamination and other environmental constraints associated with the proposed development are outlined below:

- The CCD site has been subjected to extensive filling. The type and depth of filling varies across the CCD site;

- The subsurface conditions underlying Areas A and B generally consist of fill sands to depths of 0.2 to 0.8 metres below ground level (mBGL) underlying alluvial sands and clays. Sandstone bedrock was encountered at depth ranging from 0.9 mBGL near the clubhouse in Area A to 10.5 mBGL in the flatter sections of Areas A and B;
- Contaminating activities currently and historically known to have occurred on the CCD site include landfilling, reclamation works adjacent to adjoining water bodies, disposal of dredged material and canal sediments; use as a night sullage depot, market gardens and activities/operations associated with the maintenance of the golf course and playing fields;
- The former Unhealthy Building and notice registry (repealed by the *Contaminated Land Management Act)* managed by the NSW EPA noted the presence of "garbage and industrial waste disposal areas " across the CCD site";
- The CCD site adjoins several environmentally sensitive receptors including wetlands, surface water bodies and residential premises;
- No leachate controls have been constructed within any of the areas subjected to landfilling;
- Contamination typically associated with the landfilling of waste materials (putrescible and uncontrolled landfilling) has been detected in soils and groundwater beneath the site and in adjoining wetlands areas and surface water bodies;
- Landfill gas (containing methane) has been detected at concentrations above the Lower Explosive Limit (LEL) beneath the CCD site (Areas B, C and D) and at the CCD site boundaries. Buildings, tunnels and services present beneath and adjacent to the site could potentially be impacted by the migration of landfill gas from the CCD site;
- Virtually the entire CCD site is thought to be underlain by Potential Acid Sulfate Soils (PASS). Acid Sulfate Soils (ASS) could also be present within the stockpile of material generated during the construction of the M5 Tunnel located adjacent to the eastern boundary of Area C; and
- The capping material identified within Areas C and D during the investigations was highly variable and would be unlikely to comply with NSW EPA guidelines for the closure of landfills. Inconsideration of the heterogenous nature of the capping material encountered, it is likely that the capping works were uncontrolled and it is possible that other contamination above the respective guidelines are present in other areas not investigated. In most areas, the capping encountered does not contain engineered materials (ie. compacted clay) and therefore would not be adequate in reducing the infiltration of surface water from rainfall events and periodic irrigation which could in turn increase the generation of leachate from the buried waste materials.

6.5.2 Area A: Cooks Cove Development Site

From the information review, Area A has been subjected to a number of potentially contaminating activities including agricultural activities (entire area), reclamation of land using dredged sediments (eastern boundary), miscellaneous filling (entire area) and activities/operations associated with the maintenance of the golf course. It appears that Area A has not been subjected to the waste landfilling activities undertaken within other areas of the CCD site. It is possible that the southern portion of Area B has been subjected to, and/or affected by, the landfilling activities known to have occurred on the adjoining Area C. A summary of the reports relevant to the soil and groundwater quality at the site is provided below.

6.5.2.1 CES (August, 2001)

CES (August 2001) prepared a Phase 1 Environmental Site Assessment (ESA) for the CCD site on behalf of Trafalgar Properties, the developer at the time. The Phase 1 ESA consisted of a desktop review of site history and land use as well as a limited investigation programme.

The main findings of the assessment relevant to Area A were as follows:

- Site stratigraphy consisted of sand and clay fill deposited over natural alluvium or Hawkesbury Sandstone Bedrock fill material;
- No contaminant concentrations in samples collected from Area A exceeded the adopted commercial and industrial land use assessment criteria; and
- Alluvium underlying fill material at the site was classified as Potential Acid Sulfate Soil.

6.5.3 Data Quality Review of Previous Investigations

6.5.3.1 CES (August, 2001)

Although the formal seven step Data Quality Objectives (DQOs) were not prepared prior to undertaking the investigation, the CES (August, 2001) investigation met the majority of the critical components of the DQO approach. This included:

- The objectives and scope of the investigation were stated;
- The appropriate type of samples were collected for the purposes of the investigation;
- Appropriate site investigation criteria were adopted for the proposed future land-use;
- Chain of Custody documentation was used to track all samples during transport to the laboratory;
- Samples were appropriately preserved and maintained during transport to the laboratory;

- Samples were analysed within the recommended holding times by a NATA accredited laboratory using NATA accredited methodologies;
- Detection limits for the chemicals of potential concern were appropriate for the site investigation criteria;
- Field duplicates, rinsate blanks, trip blanks and trip spikes were collected during the investigation; and
- The laboratory QA/QC included analysis of laboratory duplicates, matrix spikes, surrogates, laboratory control samples and laboratory blanks.

The above QA/QC programme is generally acceptable for the purposes of the investigation. The only major QA/QC component not undertaken or addressed was the collection of split sample(s) for inter-laboratory analysis.

7 CONCEPTUAL MODEL OF POTENTIAL CONTAMINATION

The conceptual model of potential contamination has been developed to provide an understanding of the critical parameters required to understand the contamination status of the site. Its purpose is to develop a hypothesis on the contamination of the site which can be tested through a programme of soil, groundwater and landfill gas testing.

The model has been developed from a review of background information, historical documents and a detailed site inspection. It includes potential sources of contamination and their associated Contaminants of Potential Concern (CoPC), characteristics of the CoPC, site conditions and a summary of the approach of the investigation.

7.1 POTENTIAL SOURCES OF CONTAMINATION AND ASSOCIATED COPC

A review of background information, historical documents and a detailed site inspection indicate that the following potential sources of contamination are present at the site or its immediate surrounds.

7.1.1 Market Gardens

Prior to 1978 the western part of the site was used for market gardens, which may have included the addition of fertilisers and pest control agents to the soil.

The CoPCs include metals and metalloids, nutrients, OCPs, OPPs and PAAHs.

7.1.2 Reclaimed Land

The Cooks River has been extensively altered over the past century. River training works may have utilised dredged sediments or imported fill material. Therefore, an investigation is required in order to assess the type of material used in the reclamation.

The CoPC includes metals and metalloids, nutrients, TPH, BTEX, PAHs, VOCs, phenols and ACMs.

7.1.3 Landfill Activities

Although the site was not an official landfill, anecdotal evidence form members of the Kogarah Golf Club indicate that waste material has been exposed during on-site excavations.

The CoPC includes metals and metalloids, nutrients, TPH, BTEX, PAHs, OCPs, OPPs, PAAHs, VOCs, phenols, ACMs and landfill gas.

7.1.4 Golf Course

The sites historical and current use as a golf course may have resulted in the application of fertilisers and pest control agents.

The CoPCs include metals and metalloids, nutrients, OCPs, OPPs and PAAHs.

7.1.5 Presence of Unlined Landfills on Adjacent Blocks

The presence of an unlined landfill on Area C of the CCD site indicate that leachate-impacted groundwater or landfill gas has the potential to migrate onto the site.

The CoPC includes metals and metalloids, nutrients, TPH, BTEX, PAHs, OCPs, OPPs, PAAHs, VOCs, phenols and landfill gas.

7.1.6 Summary of Chemicals of Potential Concern

Based on the above, the following CoPC have been identified for the entire site:

- Metals and metalloids;
- Nutrients, including ammonia, nitrate, nitrite, total kjeldahl nitrogen and total phosphorus;
- Total Petroleum Hydrocarbons (TPH), monocyclic aromatic hydrocarbons (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Organochlorine Pesticides (OCPs);
- Organophosphate Pesticides (OPPs);
- Volatile Organic Compounds (VOCs);
- Phenols;
- Phenoxyacetic Acid Herbicides; and
- Asbestos Containing Materials (ACMs).

7.2 CHARACTERISTICS OF CHEMICALS OF POTENTIAL CONCERN

7.2.1 Metals and Metalloids

The metals and metalloids analytical suite generally consists of arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury. They all tend to bind strongly to soil particles and with the exception of zinc will dissolve in water. Both mercury and zinc accumulate in animal tissue while the others will not. The mobility of all metals increases with increasing acidity.

Additional considerations include detecting for the presence for hexavalent chromium and methyl mercury where land use indicates that this is prudent. These two forms of the metals have a much greater toxicity than that analysed for in a standard metals and metalloids analysis.

7.2.2 Nutrients

Nitrogen and phosphorus species are the main nutrients of concern, with ammonia the most likely to be present as a result of the former landfill activities both on the site and on adjacent sites.

The concentrations of the nitrogen species will vary depending on site conditions, especially the oxidative environment. For example, ammonia is a main indicator of landfill leachate which is a low oxygen or reducing environment. Nitrate is highly mobile in water and will rarely adsorb to particular matter.

Phosphorus is readily adsorbed to soil particles and as such is often not detected in groundwater.

7.2.3 Total Petroleum Hydrocarbons (TPHs) and BTEX Compounds

TPH and BTEX compounds are mostly associated with petroleum products. TPHs are divided into the C_6-C_9, C_{10}-C_{14}, C_{15}-C_{28} and C_{29}-C_{36} fractions based upon the number of carbon atoms within the compound. The C_6-C_9 fraction is considered to be the volatile fraction, with volatility and density decreasing with increasing number of carbon atoms. As a result, the C_6-C_9 fraction is generally the most mobile and will be present within the upper component of the aquifer, whereas the C_{29}-C_{36} fraction is the leats mobile and will tend to accumulate at the bottom of an aquifer or on top of less permeable layers within the aquifer.

The BTEX compounds are volatile and less dense than water and as such will behave in a similar fashion to the TPH C_6-C_9 fraction.

7.2.4 Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs are essentially a byproduct of incomplete combustion, either by natural or anthropogenic sources. Common sources are coal, soot, charcoal and bitumen. The PAH analytical suite consists of the 16 USEPA priority PAHs which are listed in order of decreasing volatility, with naphthalene being the most volatile. There are hundreds of PAHs in existence.

PAHs are very stable and persistent in the environment as well as being carcinogenic. Most PAHs adsorb strongly to soil particles, although some are capable of migrating into groundwater. They do not dissolve easily in water and are most likely to be associated with particulate matter.

7.2.5 Organochlorine Pesticides (OCPs) and Organophosphate Pesticides (OPPs)

OCPs are chlorine-based pesticides which are now generally banned from use in most parts of the world due to their environmental impact and bioaccumulative potential within fatty tissue. They are generally rapidly broken down by sunlight within about two days and adsorb strongly to soil. Only minor concentrations of OCPs would be expected to be detected in groundwater as they do not dissolve easily.

The OPPs are phosphate-based pesticides used widely in agricultural activities. They tend to dissolve easily in water and are degraded rapidly in the environment into harmless breakdown products. They do not tend to accumulate within animal or plant foods.

7.2.6 Volatile Organic Compounds (VOCs)

The VOCs in question have a density greater than 1 and thus are termed Dense Non-Aqueous Phase Liquids (DNAPLs). Due to their greater density they are expected to accumulate at the bottom of the aquifer or in areas of lower permeability. Thus it becomes important to understand the location and extent of low permeability layers (*ie.* peat) across the site.

The VOCs present are degraded under reducing conditions such as those found in groundwater across the site. Therefore, it is expected that breakdown products of the original contaminants will be present. Of interest will be whether any VOCs detected on the site are the original solvent products or the products of the reductive dehalogenation breakdown process such as chloroethane.

VOCs are generally not adsorbed onto the soil matrix so it is unlikely that they will be present within soil samples.

7.2.7 Phenoxyacetic Acid Herbicides

The Phenoxyacetic Acid Herbicide group is mostly used in agriculture and horticulture for their selective action against broad-leaved weeds. It includes herbicides such as 2,4-D (Agent Orange), Dicamba and MCPA.

They will degrade in soil through microbial action and will adsorb to soils with higher organic content. Residence time in soils is generally short-lived and in the order of weeks to months. Leaching into groundwater may occur in coarse sandy environments although the residence time is generally similar to that of soils.

7.2.8 Phenols

Phenols are produced during a number of industrial processes (*eg* coke processing, wood and iron/steel industry), in cigarette smoke and in smoked food products. Phenols have an objectionable smell and taste so human exposure is often limited by these early warning symptoms.

Phenols are highly mobile in soil and are not likely to persist in the environment or bioaccumulate.

7.2.9 Asbestos Containing Materials (ACMs)

ACMs are man-made fibres that consist of asbestos. They include fibro sheeting, fire retardants and lagging of piping and other features.

Any degradation will result in the release of microscopic fibres which can be harmful to human health and potentially result in lung diseases. ACMs can be detected either as fibres within a soil sample or by submitting larger pieces of material to the laboratory for analysis.

7.3 SITE CONDITIONS

Based on the results of previous investigations of the larger redevelopment site and knowledge of regional geology and hydrogeology, the following is understood about the site conditions likely to be encountered during the investigation:

- The CES (2001) investigation indicated that the general stratigraphy of the golf course consisted of sand and clay fill material underlain by natural alluvium of Hawkesbury Sandstone bedrock. Bedrock was encountered in BH108 at a depth of 1.5 m, although this borehole was located onto a bedrock outcrop. Depth to bedrock would be expected to extend to 20-30 m across the site; and

- Groundwater conditions were not assessed during the CES (2001) investigation. However, it is expected that groundwater would flow to the east and discharge into the Cooks River. Further, groundwater along the eastern portion of the site would be expected to be influenced by tidal variations in the Cooks River.

The site conditions described above indicate that any contamination on the site could easily migrate both vertically downwards and horizontally as there is little evidence of the presence of impervious or low permeability layers. Further, as the site has surface water receptors along it's eastern boundary, any horizontal migration would be likely to migrate off-site and into the Cooks River.

7.4 APPROACH OF INVESTIGATION

The investigation outlined in the remainder of this SAQP is designed to provide a delineation of the lateral and vertical extent of impacted soil and groundwater across the site, as well as provide an assessment of whether landfill gas is being generated.

As the major source of potential contamination is considered to be the adjacent landfilling activities, the investigation will focus on assessing whether the adjacent landfill has impacted on local soil and groundwater conditions. Boreholes will be drilled across the site with soil and groundwater samples analysed for the COPCs. The analytical suite selected will also include any additional COPCs identified in Section 7.1 of this document.

8 PROPOSED SOIL, GROUNDWATER AND GAS INVESTIGATION

8.1 SOIL

The following proposed soil sampling programme has been designed on the basis of a review of the site history.

8.1.1 Sampling Pattern, Location and Number of Sampling Points

A triangular or herringbone systematic (or grid) pattern will be used to locate boreholes across the site.

Summaries of the proposed sample locations and analytical programmes for soil and groundwater are provided in Tables 1, 2 and 3 respectively. The proposed sampling locations are shown on the attached site plan (Figure 3), with the exact locations to be determined during the sampling programme. Not all of the 108 sampling locations are shown in Figure 3. Five sampling locations have been reserved for targeted sampling of areas not adequately covered by the proposed grid and any potential contaminant sources that may be identified during the drilling programme.

A total of 108 sampling locations, which equates to a sample density of 5 sample points per hectare or a sampling grid of approximately 45 m, are proposed for the investigation. This is less than the minimum sampling points required for site characterisation as outlined in NSW EPA *Sampling Design Guidelines* (NSW EPA, 1995). A reduced sampling density has been proposed considering that the area will be developed for a less sensitive land use (*ie.* from open space to commercial and industrial) and that historical filling is likely to have occurred in a single episode. This provides a circular hotspot with a diameter of approximately 53 m that can be detected with 95 % confidence (Procedure F, NSW EPA, 1995). The exact depths of samples will be determined in the field based on FID readings and any adverse aesthetics indicating the presence of contamination (*eg.* odour or discoloured soil).

8.1.2 Sampling Depths

8.1.2.1 Boreholes

Boreholes will be extended to at least one metre into natural soil or drill rig refusal as this depth is expected to be the lower limit of the inferred vertical migration zone of contaminants associated with fill material.

In accordance with NEPC (1999) *Data Collection, Sample Design and Reporting*, samples will be collected from the near surface between 0-150 mm unless there is evidence of a thin superficial layer of impacted material. At greater depths, samples will be collected at 0.5-1.0 m intervals or at changes in fill or soil type and so that soil is also collected at depths where the presence of contamination is indicated (*eg*. based on unusual odour, colour, substances, liquids etc).

8.1.3 Method of Sample Collection

Care will be taken to ensure that representative samples are obtained and that the integrity is maintained, particularly when dealing with potentially volatile and semi-volatile components.

Samples will be collected in accordance with documented CES procedures by experienced staff. Samples will be collected using a track mounted rig with direct push tubes.

The soil will be transferred from the sample liners to the laboratory-supplied glass sample jar or resealable plastic bag using a new pair of disposable gloves for each sample. Samples will be stored in the manner outlined in Section 8.1.5.

Where there is sufficient sample volume, part of the sample will be placed in a re-sealable polyethylene bag for measurement of volatile soil gases using the closed headspace Photo Ionisation Detector (PID) or Flame Ionisation Detector (FID) method. The procedure for soil screening using a PID/FID is summarised as follows:

1. A corresponding sample to that selected for possible laboratory analysis is placed into a “snap-lock” or re-sealable plastic bag until half filled, then sealed;
2. The bag is then hand warmed (or left in sunlight) for ten minutes with occasional agitation to maximise the release of volatile compounds into the bag;
3. Calibrate the PID/FID instrument;
4. Measure background VOC concentrations in ambient air prior to each reading in order to account for sensor drift. Record on a field data sheet along with date, location details, depth and method (HS for headspace method);
5. Use the point of the PID/FID or a knife to punch a small hole in the top the plastic bag. Place the tip of the PID/FID in the bag and monitor the readout and note the maximum and minimum concentration during the recording period;
6. Make entries in field data sheets;

7. Repeat process outlined above for each sample (ie, background reading followed by sample reading);
8. Check instrument calibration against span gas at the conclusion of monitoring. A check should be undertaken after every 20 samples if more than 20 samples are to be tested. Calibration checks are to be recorded on field data sheets; and
9. Check that samples with high concentrations of volatile compounds in headspace gases have been included for laboratory analysis.

The PID/FID is a non-specific detector, as such, the instrument provides a measure of concentrations of total combustible and ionisable compounds reported as equivalents of a calibration span gas. Therefore, the data are used to compare concentrations of volatile compounds between samples without an understanding of the specific compounds present. PIDs/FIDs are generally calibrated using zero (ambient) air and methane/isobutylene span gases.

FIDs are capable of detecting a wide range of organic compounds from C_1 upwards including a number of chlorinated solvents. For this reason, samples of organic-rich sediments sampled from anoxic environments may display elevated concentrations of combustible gases. This is due to the ability of the FID to detect compounds such as methane.

Volatile concentrations detected by PIDs/FIDs are dependent on a number of factors including:

- The concentration and type of volatile compound present in the soil sample;
- Soil texture and compaction largely influence the potential for volatiles to be released from samples;
- Time since sample collection; and
- Temperature. This strongly affects the level of volatilisation of volatile compounds from soil and fill samples. In fact, temperature changes may result in differences of up to one order of magnitude in levels of volatiles detected using PIDs/FIDs. Consequently, field screening for volatiles should be undertaken at the same time for all samples in order to produce representative results. Generally, it is recommended that samples be stored on ice and returned to base. Screening should be carried out after allowing samples to equilibrate to ambient air temperatures.

As the site consists largely of dredged sediments, soil samples collected as part of the ASS assessment will be sampled from both above and below the water table. Samples will be placed in a resealable plastic bag and frozen prior to transport to the laboratory. Field testing for PASS will be undertaken by the laboratory.

8.1.4 Decontamination Procedures.

The following decontamination procedures will be adopted for drilling and sampling equipment.

8.1.4.1 Boreholes

The boreholes will be established using a track mounted rig using a direct push tube sampling method. In order to minimise potential cross-contamination of the boreholes, all drilling equipment will be thoroughly cleaned between sampling points (set-ups) using a steam cleaner or pressure washer. Initially using Decon 90 and finally rinsed with clean water. Samples taken using the track mounted rig and the direct push tube sampling method do not require decontamination as dedicated liners are used to collect samples.

8.1.4.2 Sampling Equipment

Sampling equipment, such as trowels, will be washed between sampling locations using Decon 90 initially followed by adequate rinsing with clean water. To check the adequacy of the decontamination protocol, rinsate samples will be collected for analysis.

8.1.4.3 Sample Containers

The soil sample jars (Table 3) will comprise glass with a Teflon lined lid and be supplied by either the primary or secondary laboratory. The jars will be completely filled with soil, labelled with the job number, date, unique sampling point identification and initials of CES staff.

Resealable plastic bags will be used for the collection of samples for the ASS assessment.

8.1.5 Method of Sample Storage and Handling

The soil jars, once filled with sample, will immediately be placed in an esky / cool box in which ice has been added to keep the samples below a temperature of approximately 4^{o}C. At the end of each day the samples in the cool box will be transported to the CES Sydney office where more ice will be added until delivery to the laboratory (within one day).

Samples collected for the ASS assessment will be frozen prior to transport to the laboratory.

8.1.6 Sample Logging

A borehole log will be completed during drilling by a qualified environmental engineer/scientist. The log records the following data:

- Sample number and depth;
- Soil classification, colour, consistency or density, odour and moisture content;
- Depth of boring / excavation;
- Auger / bucket refusal;
- Method of drilling / excavation;
- The depth of first encountered free water; and
- Presence or absence of odour and potential asbestos containing materials.

A copy of a blank borehole log is provided in Appendix 1.

All samples, including QA samples, will be transported to the primary and check laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COC will detail the following information:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date;
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch courier(s).

8.1.7 QA/QC Documentation

While on site, the supervising engineer/scientist will be required to fill out a copy of CES 'sample register', which documents:

- Time of sample collection;
- Weather;
- Unique sample identification number; and
- Sample location and depth.

All samples will be classified in the field based on soil/fill characteristics and obvious signs of contamination such as discolouration or odour will be noted on the borehole log.

All samples, including QA samples, will be transported to the primary and check laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COC will detail the following information:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date;
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch courier(s)

8.2 GROUNDWATER

8.2.1 Location and Number of Sampling Points

Six groundwater-monitoring wells will be installed across the site in order to ensure adequate site coverage. The proposed location of the groundwater monitoring wells is provided in Figure 3.

8.2.2 Well Construction

The groundwater investigation will comprise the installation of six shallow groundwater monitoring wells at various locations across the site using a Geoprobe 6620DT drill rig. Groundwater wells are to be constructed using factory-decontaminated, 40 mm internal diameter Schedule 40 PVC machine slotted pre-packed screen sections, 1 mm sand pack, bentonite seal, steel monument set in concrete block at the surface. The use of pre-packed wells allows a gravel pack to be reliably installed around screens in collapsing formations.

Well construction will consist of the following:

- Probe rods fitted with an expendable drive point are driven to the desired depth ensuring approximately 0.5 m of screen is installed above the water table to allow sampling of LNAPLs and free-phase product;
- The well assembly (with end cap) is then lowered into the probe rod string with threaded PVC riser pipe. Once the well assembly is lowered to the bottom of the probe rod string, the probe rods are retracted to a point (approximately 1 metre) above the screen;

- In natural sands, where natural formation collapse (occurring during the initial probe rod retraction) occurs, using pre-pack screens negates the need to add sand. However CES propose to place additional fine-grade (1mm) sand through the rod annulus effectively placing sand from the base of the well to approximately one metre above the screen;
- Granular bentonite is to then be installed in the annulus above the sand pack to form a well seal;
- A PVC cap (screw, push-in or push-on) is to be installed on each well; and
- The well will be finished at the surface by the installation of a flush mounted steel gatic cover set in concrete.

8.2.3 Well Development and Sample Collection

Fieldwork will be undertaken in accordance with documented CES procedures by experienced staff. Depending on the volumes of water present, wells will be developed with a foot valve and using a Waterra Power Pack PP1 Pump. Following development of the wells, they will then be allowed to recharge before purging and sampling. The purging process will be undertaken using a low-flow method with drawdown control to limit drawdown to less than 0.05m. This will be done using either a peristaltic pump with inlet tubing set in the middle of the well screen or a bladder pump.

A calibrated water quality meter placed within a flow cell will be used during the purging process to assess chemical equilibrium by measuring pH, redox potential (Eh), electrical conductivity, dissolved oxygen and temperature. The parameters will be considered stable and at equilibrium when two consecutive readings (during the removal of each well volume) are within ±10%. The water quality meter will be calibrated at the beginning and end of each sampling day by trained CES staff. Calibration standards are kept in the CES office and are appropriate for the water quality meter used.

8.2.4 Decontamination Procedures

The pumps used to re-develop each well will be decontaminated in between sample locations by washing in a solution of phosphate-free detergent followed by rinsing with distilled water. The peristaltic pump will not require decontamination since CES propose to use dedicated tubing for each well. Bladders will be disposable and used only once.

8.2.5 Sample Containers

Laboratory supplied sample containers will be used to contain the groundwater samples (Table 4). Sample containers will be filled in order of volatility, with the most volatile substances collected first. Care will be taken to minimise disturbance of the sample to avoid aeration by minimising the distance between the outlet tubing and the container, tilting the container so that discharge flows gently down the inner walls, and ensuring containers have no airspace, are capped tightly and placed in an ice cooler immediately.

8.2.6 Method of Sample Collection, Storage and Handling

All sample containers will be labelled with the sample number, project number, date obtained and site name. This information will be repeated on the Chain-of-Custody (COC) record form.

Sample containers will be filled in order of the most volatile substances. Care will be taken to minimise disturbance of the sample to avoid aeration by minimising the distance between the outlet tubing and the container and tilting the container so that discharge flows gently down the inner walls.

Once filled, the caps will be checked to ensure that they are secure (and that there are no air bubbles/head space) then placed within an esky / cool box in which a cooling medium has been added to keep the samples below a temperature of approximately 4°C. At the end of each sampling day the samples in the cool box will be transported to the CES office where ice will be added until delivered to the laboratory (within one day). Custody seals will be placed on the esky / cool box for delivery to the laboratory.

8.2.7 Documentation

While on site, the supervising engineer/scientist will be required to fill out a copy of CES "Groundwater Sampling Field Data Sheet" and "Sample Register', which document:

- Time of sample collection;
- Weather;
- Unique sample identification number;
- Sample location and depth;
- Static Water Level;
- Water quality screening results (DO, Temperature, Redox potential, pH and conductivity);
- Presence or absence of odour (nature and intensity);

- Colour of the water;
- Presence or absence of sediment in the well; and
- Well condition and purging volumes.

Copies of these forms are provided in Appendix 1.

All samples, including QA samples, will be transported to the primary and check laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COC will detail the following information:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date;
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch couriers.

8.3 LANDFILL GAS

8.3.1 Location and Number of Sampling Points

Six sub-surface gas monitoring wells will be installed across the sites southern boundary to assess whether landfill gas may be migrating onto the site. The proposed location of the sub-surface gas monitoring wells is provided in Figure 3.

8.3.2 Well Construction

Wells will be constructed in accordance with the following specifications:

- Well casing will be Class 18, PVC with 25 to 50 mm internal diameter. Matching male and female threads fitted with O-ring seals were machined onto each length of screen;
- Well screens will be factory slotted and match the specifications as outlined above for casing;
- Wells will be installed to approximately one metre into the unconfined aquifer and be screened to approximately one metre from the surface;

- The annulus around well screens will be filled with washed, graded river gravel (filter pack);
- A bentonite seal will be installed above the filter pack;
- Push-on or threaded caps will be fitted to the base of each well;
- Caps with vapour monitoring ports shall be fitted to each of the sub-surface gas monitoring wells. The fittings will ensure that an "air tight" seal is maintained on the well between sampling events; and
- The wells will be finished using either galvanised steel monuments set in a concrete base or gatic covers concreted at ground level.

8.3.3 Well Development and Gas Monitoring

Depending on the volumes of water present, wells will be developed with a foot valve and using a Waterra Power Pack PP1 Pump.

Monitoring will be undertaken in accordance with procedures developed by CES based on techniques for soil-gas studies and landfill surface gas surveys. These procedures are currently used by CES on a number of landfill sites in the Sydney metropolitan region. An outline of sub-surface gas monitoring methods is provided below. The procedure for monitoring landfill gas wells involves the following stages:

- Initial measurements and observations;
- Purge well by the application of vacuum; and
- Gas measurements in well.

The following initial measurements and observations will be made upon arrival at each gas well:

1. Measure concentrations of combustible gases in the ambient air using a calibrated Flame Ionisation Detector (FID) or landfill gas analyser;
2. Inspect the well for damage;
3. Estimate the air volume in the gas monitoring well;
4. Measure formation pressure (gas pressure in well before venting) using a pressure gauge;
5. Vent gas while taking care not to breathe in the emissions. Note the response of the well to venting (*eg*, no response; brief initial pulse (typically 1-2 s), long pulse (>5 s) or continuous gas emission); and
6. Measure initial concentrations in the well. Use a gas sampling bag if the well discharges gas continuously when vented to atmospheric pressure.

The procedure for purging gas wells is summarised as follows:

1. Generate a vacuum in a pressure vessel fitted with compressor motor;
2. Open the vacuum to the well while noting the initial vacuum applied;
3. Measure recovery time, defined as the time required for the well to return to atmospheric pressure after vacuum has been applied;
4. Measure gas concentrations in the well upon return to atmospheric pressure; and
5. Repeat purging and measurement cycle until concentrations stabilise to within +/-10% or three well volumes have been purged.

It should be noted that recovery times of greater than 10 minutes should be considered to be suspect as the effect of sample train leakages is increased with long recovery times. If recovery times of greater than 10 minutes occur, the operator should conclude that the formation has a low permeability to gas, record the final vacuum (small gauge) and take no further action.

In addition to the monitoring discussed above, samples of landfill gas will be collected for analysis of Volatile Organic Compounds (VOCs). Samples will be collected by drawing a volume of air under pressure through activated carbon tubes. Samples will only be collected from wells that equilibrate to atmospheric pressure during the purging process. The tubes of activated carbon will then be submitted to the laboratory for VOC analysis. The tubes will be placed within eskies/coolers and transported to the laboratory within twenty four hours of collection.

9 PROPOSED ANALYTICAL PLAN

9.1 CHOICE OF ANALYTES

9.1.1 Soil

The analytes selected for soil testing have been determined based on our knowledge of past land-use and the results of previous investigations and will comprise:

- Metals and metalloids (arsenic, cadmium, chromium, copper, nickel, lead, mercury and zinc);
- Total Petroleum Hydrocarbons (TPH);
- Monocyclic Aromatic Hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Organochlorine Pesticides (OCPs);
- Polychlorinated Biphenyls (PCBs);
- Potential Asbestos Containing Materials (ACMs), as required;
- SPOCAS; and
- Salinity indicators such as pH, electrical conductivity, salinity, resistivity, texture, soluble sulfate and chloride.

9.1.2 Groundwater

9.1.2.1 Field Parameters

Standard field measurements will be taken during purging of the wells, to ascertain when equilibrium is reached, prior to the collection of each groundwater sample. Measurements to be taken will be:

- Dissolved oxygen;
- Electrical conductivity;
- Temperature;
- Redox potential; and

- pH.

Field measurements will be taken using a calibrated water quality meter. Calibration will be checked by measuring known standard solutions at the end of each day.

9.1.2.2 Laboratory Testing

The analytes selected for testing have been determined based on the results of previous investigations and with a view to future remediation. CES propose to analyse groundwater for:

- Dissolved metals and metalloids (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury);
- Major anions (chloride, sulfate and alkalinity) and cations (sodium, potassium, calcium and magnesium).
- Nutrients - ammonia, nitrogen and phosphorous;
- Total Petroleum Hydrocarbon (TPH);
- Monocyclic Aromatic Hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs); and
- Salinity indicators such as salinity, total dissolved solids, corrosion potential (resistivity and saturation index), alkalinity, ammonia, sulfate and chloride.

9.1.3 Landfill Gas

The parameters selected for monitoring have been determined based on CES experience with sub-surface landfill gas monitoring of putrescible landfills in the Sydney metropolitan area. CES propose to monitor sub-surface gas wells for:

- Methane, carbon dioxide and oxygen concentrations;
- Formation pressures; and
- Flow rates.

Methane, carbon dioxide and oxygen concentrations will be measured using a Landfill Gas Analyser (LGA) which will be calibrated at the beginning and end of each work day using manufacturer supplied calibration gases.

Landfill gas will also be analysed for VOCs as part of the human health risk assessment.

9.2 LABORATORY

CES propose to use either Australian Laboratory Services (ALS) Pty Ltd or Labmark Pty Ltd (Labmark) as the primary and secondary 'check' laboratories for the soil and groundwater investigations. Both laboratories are NATA accredited for the above analyses.
Bio-Track Pty Ltd will be used for the ASS assessment.

9.3 ANALYTICAL METHODS

9.3.1 Soil

Soil samples will be analysed in accordance with ANZECC (1996) Guidelines for the Laboratory Analysis of Contaminated Soils using USEPA and APHA approved analytical methods as described in Table 5. The laboratory Practical Quantitation Limits (PQLs) are also summarised in Table 5.

The SPOCAS analysis will be undertaken utilising the procedure outlined in the ASSMAC (1998) manual.

9.3.2 Groundwater

The water samples will be analysed using analytical methods based on US EPA and APHA methods as described in Table 6. The corresponding laboratory PQLs are also provided in Table 6.

9.3.3 Landfill Gas

The gas samples will be analysed using analytical methods based on US National Institute of Occupational Health and Safety (NIOSH) methods 1003, 1300, 1301, 1500 and 1501. The laboratory PQL is 1 µg $tube^{-1}$.

10 PROPOSED SITE ASSESSMENT CRITERIA

10.1 SOIL

When determining the significance of any contaminants detected in the soil, it is important to define site assessment criteria. For recreational open space land use this should include aesthetics (including soil colour and odour), ecological and potential human health issues. That is, the site assessment criteria should be set at a level that provides confidence that contaminant concentrations below the criteria will not adversely impact the environment, human health or be aesthetically adverse.

10.1.1 Aesthetics

Aesthetics relates to the generation of odours from the site and any discolouration of the soil as a result of contamination. Aesthetic issues will continually be addressed during the investigation and reported on the borehole logs.

10.1.2 Ecologically Based Investigation Levels

Potential ecological impacts have to be assessed for soils to be retained on site, which are not underneath buildings or slabs. To address potential ecological impacts of these soils, CES will compare the analytical testing results against the lower of the health based investigation levels a set of Ecological based Investigation Levels (EILs) that provides confidence that contaminant concentrations below these levels will not adversely impact specific flora proposed for the site.

Specific flora proposed for the site is not known therefore CES propose to adopt the interim urban Ecological Investigation Levels (EILs) as published in NEPC (1999), which are equivalent to the provisional Phytotoxicity-based Investigation Levels (PBIL) published in NSW EPA (1998). With respect to hydrocarbons, CES will adopt the ecologically based threshold concentrations as published in NSW EPA (1994) Guidelines for Assessing Service Station Sites.

The EILs are generally based on threshold levels for phytotoxicity or other impact to flora. As such, they are framed to protect the most sensitive environmental receptor. Both the NEPC EILs and the NSW EPA PBIL are provisional and only intended as a screening guide. Furthermore, the published levels specifically relate to sandy loams with a pH of between 6 and 8. If the proposed exposed soil does not fit this description, then field observations in conjunction with results of CEC, pH, clay content and organic content testing will be relied upon rather than the EILs.

A summary of the adopted EIL criteria is provided in Table 7.

10.1.3 Health-Based Soil Investigation Levels

To address potential health impacts at the site, CES will compare the analytical testing results against a set of Health Based Soil Investigation Levels (HIL) appropriate for the proposed land-use. That is, the HIL will be set at a level that provides confidence that contaminant concentrations below the HIL will not adversely affect human health.

It is understood that Area A will be redeveloped for commercial and industrial land use, while open space land use will be present around the perimeter of the site. Therefore, CES has adopted the following HIL criteria:

- NEPC (1999) Health Based Investigation Levels (HIL) recommended for exposure setting 'F' which includes commercial and industrial land use;
- NEPC (1999) Health Based Investigation Levels (HIL) recommended for exposure setting 'E' which includes recreational open space land use; and
- With respect to hydrocarbons (TPH and BTEX), the NSW EPA (1994) Threshold Levels.

For contaminants with no relevant Australian guidelines, CES will examine guideline levels from overseas which are appropriate for the future intended land-use (*eg*. USEPA Region 9 Preliminary Remediation Goals).

A summary of the soil assessment criteria is provided in Table 7.

10.1.4 Asbestos in Soil

The current EPA policy is that sites should not contain any Asbestos Containing Material (ACM) or asbestos fibres at the surface. For this project, CES propose that there must be no visible ACM and each soil sample collected must not contain any respirable asbestos fibres above the lower detection limit of the analytical method used by Australian Safer Environment and Technology Pty Ltd (ie 0.1 grams per kilogram).

10.1.5 Acid Sulfate Soils

ASSMAC (1998) criteria were selected to identify the presence of Acid Sulfate Soils on the site. These guidelines provide a series of trigger levels or action criteria, above which an ASS management plan should be prepared and development consent obtained prior to excavation works (Table 8). The trigger levels are based on the percentage of oxidisable sulfur (or equivalent TPA, TAA) for broad categories of soil types. For projects that disturb more than 1000 tonnes of soil with ≥0.03% oxidisable sulfur or equivalent existing acidity, a detailed management plan and development consent will be required (Ahern *et al.*, 1998).

10.2 GROUNDWATER

Assessment criteria for groundwater will be derived from the ANZECC (2000) water quality guidelines.

Trigger values for marine water will be adopted for this study rather than freshwater guidelines, on the basis that the ultimate receiving system for groundwater at the site is the estuarine section of the Cooks River and ultimately Botany Bay.

The ANZECC (2000) water quality guidelines specify four sets of trigger values corresponding with different levels of protection for ecosystem conditions. Trigger values, derived using the statistical distribution method, relate to the protection of 99%, 95%, 90% and 80% of species in an aquatic ecosystem. Three "categories of ecosystem conditions" are developed in the guidelines. The guidelines advocate that the level of protection afforded to a particular ecosystem should be determined following consideration of site conditions in consultation with key stakeholders. The guidelines recommend that, in most cases, the 95% protection trigger values should be applied to "slightly to moderately disturbed" ecosystems. Consequently, the 95% protection trigger values have been adopted, following discussions with the Auditor. However, the ANZECC (2000) guidelines require that for chemicals which are bioaccumulative, such as mercury, that the 99 % protection trigger values be adopted. Therefore, the 99 % protection trigger value will be adopted for mercury.

In the absence of appropriate marine water levels, the 95% trigger values for freshwater will be utilised for o-xylenes. Additionally, ANZECC (2000) Low Reliability and Environmental Concern Levels (ECLs) will be utilised for TPH C_6-C_{40}. In the absence of any appropriate site assessment criteria for the remaining analytes detected, the EPA NSW (1994) *Guidelines for Assessing Service Station Site* threshold concentrations for "Waters – Protection of Aquatic Ecosystems" will be adopted for toluene, ethylbenzene and total xylenes. Assessment criteria for relevant parameters are summarised in Table 9.

10.3 LANDFILL GAS

EPA NSW (1996) specifies that a detection of methane above 1.25% *v*/*v* in sub-surface gas monitoring wells will require notification to EPA and an increase in the frequency of monitoring. This criterion will be adopted for the purposes of this investigation.

11 PROPOSED QUALITY CONTROL PLAN

Fieldwork will be undertaken by experienced staff in accordance with documented CES procedures as outlined in Section 7. Field and laboratory QA/QC requirements compliant with National Environmental Protection Council (1999) requirements are outlined below.

11.1 FIELD QA/QC PROGRAMME

Field QA/QC for this project consists of blind replicates, split samples, rinsate samples, trip spikes and trip blanks. A description of each of these samples and their proposed frequency of testing is provided below.

Rinsate samples are unlikely to be included in this investigation as the Geoprobe 6620DT drill rig utilises location specific core liners for the collection of soil samples. In addition, groundwater sampling will be undertaken using site specific tubing and equipment. However, a description of their collection and purpose has been provided below in the event that different sampling equipment becomes required.

11.1.1 Environmental Samples

Environmental samples or field samples are the representative samples of, groundwater or soil (in this case groundwater and soil) collected for analysis to determine aspects of their chemical composition.

11.1.2 Blind Replicate Samples

Blind replicate samples are provided by the collection of two environmental samples from the same location or successively from the same monitoring bore. These samples are preserved, stored, transported, prepared and analysed in an identical manner. As a minimum, the results of analyses on the blind replicate sample pair are assessed by calculating the Relative Percentage Differences (RPDs) between the results. The RPD is calculated as the difference between the results divided by their mean value and expressed as a percentage. If the RPD exceeds the value adopted for any analytes, additional investigation will be required, or justification provided for not conducting additional investigation.

One blind replicate will be collected for every ten environmental samples or one for each batch larger than five samples (Table 10). This equates to two blind replicates samples for this investigation.

11.1.3 Split Samples

Split samples provide a check on the analytical proficiency of the laboratories. Split samples are collected from the same location or successively from the same monitoring bore. Split samples must be taken from the same location as the blind replicate, thus becoming a triplicate sample. However, split samples are not taken as often as blind replicates. Split samples will generally be collected at a rate of one split sample for every 20 environmental samples or 5% of samples. For small batches split samples are collected subject to project requirements (Table 10). This equates to one split sample for this investigation

Spilt samples (triplicates) are preserved, stored, transported, prepared and analysed in an identical manner to environmental samples.

11.1.4 Rinsate (Equipment) Samples

Rinsate (equipment) blanks consist of pre-preserved bottles filled with laboratory-prepared water that has been passed over decontaminated field equipment. Rinsate blanks are prepared on site, labelled with a unique CES sample identification number and transported to the principle laboratory for analysis as regular environmental samples. The purpose of the rinsate blank is to assess the efficiency of decontamination procedures.

For inorganic compounds and semi-volatile organic compounds (SVOCs), rinsate water must consist of milli-Q water (distilled tap water passed through a resin de-ioniser). This water is unsuitable for the analysis of volatile organic compounds (VOC) due to the inclusion of volatiles in the milli-Q water. Only purged water is to be used for volatiles (VOC) rinsate blanks. This water is produced at the laboratory by purging spring water that has not been adulterated by VOCs as with tap water. Purged water is unsuitable for the production of rinsate samples for inorganics due to the presence of trace levels of inorganic compounds.

While the number of equipment blanks varies between projects, the following strategy is generally adopted (Table 10): a rate of one rinsate blank for each field collection (>5 samples). Rinsate sampling will be subject to project requirements for smaller batches (<5 samples).

Rinsate samples are not required if field equipment is dedicated for the specific sampling location.

11.1.5 Trip Blanks

Trip blanks consisting of pre-washed bottles containing distilled or de-ionised water and appropriate preservatives will be supplied by the analytical laboratory. The role of trip blanks is to detect potential contamination during sample transport. These samples reside in transport vessels during sampling activities and are not opened in the field. Trip blanks are analysed at the laboratory as regular samples or only for volatile organic compounds, as deemed appropriate.

One trip blank will be prepared for each field collection day as is the standard.

11.1.6 Laboratory Prepared Trip Spikes

Laboratory-prepared VOC spikes consisting of distilled, de-ionised water or sand spiked with known concentrations of BTEX should be included in QA/QC programmes where TPH and BTEX concentrations are being measured. Laboratory-prepared VOC spikes should be included at a rate of one per sample batch. These samples are to be submitted for BTEX analysis with results compared with the known additions. Generally, samples are spiked with concentrations of 10, 10, 10 and 30 ppm of benzene, toluene, ethylbenzene and total xylenes respectively. The purpose of these samples is to monitor VOC losses during transit.

Care will be taken to ensure that only freshly-prepared spiked samples are used. Spikes more than 2 days old at the time of receipt from the laboratory should be discarded. All trip spikes received will be checked for leakage or bubbles. Any spikes containing bubbles or any other defects will be discarded. Furthermore, only spikes delivered under laboratory COC will be accepted. COCs will be stored in the project file for reference.

11.2 LABORATORY QA/QC PROGRAMME

The reliability of test results from the analytical laboratories will be monitored according to the QA/QC procedures used by the NATA accredited laboratory. The QA/QC programme employed by ALS (the primary laboratory) will specify holding times, extraction dates, method descriptions, Chain of Custody (COC) requirements, analysis, PQLs and acceptance criteria for the results. Laboratory QA/QC requirements to be undertaken by ALS are based on NEPM requirements and are outlined below (NEPC, 1999).

11.2.1 Laboratory Duplicate Samples

Laboratory duplicates provide data on analytical precision for each batch of samples. Where required and in order to provide sufficient sample for analysis of laboratory duplicate, two batches of samples are collected at the first site listed on the Chain of Custody form. This is done in order to ensure that sufficient sample is collected.

Laboratory duplicates are performed at a rate of one duplicate for batches of 6-14 samples with an additional duplicate for each subsequent ten samples.

11.2.2 Laboratory Control Samples

Laboratory control samples consist of a clean matrix (de-ionised water or clean sand) spiked with a known concentration of the analyte being measured. These samples monitor method recovery in clean samples and can also be used to evaluate matrix interference by comparison with matrix spikes. Laboratory control samples may be certified reference materials.

11.2.3 Surrogates

For organic analyses, a surrogate is added at the extraction stage in order to verify method effectiveness. The surrogate is then analysed with the batch of samples. Percent recovery is calculated.

11.2.4 Matrix Spike

A matrix spikes consist of samples spiked with a known concentration of the analyte being measured, in order to identify properties of the matrix that may hinder method effectiveness. Samples are spiked with concentrations equivalent to 5 to 10 times the PQL. Percent recovery is calculated.

11.2.5 Method Blanks

Method blanks (de-ionised water or clear sand) are carried through all stages of sample preparation and analysis at a rate of approximately 10%. Analyte concentrations in blanks should be less than the stated PQL. Reagent blanks are run if the method blank exceeds the PQL. The purpose of method blanks is to detect laboratory contamination.

11.3 DATA QUALITY OBJECTIVES (DQO) AND ACCEPTANCE CRITERIA

The QA/QC Data will be assessed against the Data Acceptance Criteria (DAC) provided in Table 11. If data does not meet the DAC then the following steps will be taken:

- Request that the laboratory re-check or even re-analyse the sample; and

- Inspect the sample for anomalies which may be causing the failure; and
- If necessary, undertake additional sampling and analyses; or
- Qualify data. For example, data may be used for screening purposes only or working PQLs may be raised.

12 REPORTING

The proposed monitoring programme outlined in this SAQP, including field and laboratory methods and results, will be reported in accordance with the requirements of guidelines adopted by NSW EPA.

13 REFERENCES

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TABLES

Table 1: Proposed Sampling Locations				
Sample Location	**Sampling Pattern**	**Location Rationale**	**Potential Contaminants of Concern for analysis**	**Method of Sample Collection**
BHAE100 series	Triangular Grid	Located on grid pattern across eastern portion of site.	General Suite (Table 2)	Boreholes
BHAW100 series	Triangular Grid	Located on grid pattern across western portion of site.	General Suite (Table 2)	Borehole
MWA101	Targetted	Located in south western corner of site.	General Suite (Table 2)	Soil and groundwater well
MWA102	Targetted	Located along central westen boundary of site.	General Suite (Table 2)	Soil and groundwater well
MWA103	Targetted	Located in north eastern corner of site.	General Suite (Table 2)	Soil and groundwater well
MWA104	Targetted	Located towards middle of site.	General Suite (Table 2)	Soil and groundwater well
MWA105	Targetted	Located along central eastern boundary of site.	General Suite (Table 2)	Soil and groundwater well
MWA106	Targetted	Located in south eastern corner of site.	General Suite (Table 2)	Soil and groundwater well
LGA101	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well
LGA102	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well
LGA103	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well
LGA104	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well
LGA105	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well
LGA106	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well

Table 2: Proposed Analytical Program			
Matrix	**No. of Sampling Points**	**Potential Contaminants**	**Number of Environmental Samples to be Analysed**
Soil	108	General Suite	Metals and metalloids (162) TPH/BTEX (81) PAHs (81) OCPs/OPPs (54) VOCs (27) PAAHs (27) Phenols (27) Nutrients (27) Asbestos (37) SPOCAS - field (27) SPOCAS (12)
Groundwater	6	General Suite	Metals and metalloids (6) Major ions (6) Nutrients (6) TPH/BTEX (6) PAHs (6) Salinity indicators (6)

Table 3: Containers, preservation requirements and holding times – Soil				
Parameter	**Container**	**Preservation**	**Maximum holding time**	**Colour code**
Acid digestible metals and metalloids (As, Cd, Cr, Cu, Ni, Pb, Zn, Sn)	250 mL glass	Nil	6 months	Orange
Mercury	250 mL glass	4^oC	28 days	Orange
TPH/BTEX	250 mL glass	4^oC	14 days	Orange
PAHs	250 mL glass	4^oC, zero headspace	14 days	Orange
OCPs/OPPs/PCBs	250 mL glass	4^oC, zero headspace	14 days	Orange
VOCs, PAAHs, Phenols	250 mL glass	4^oC, zero headspace	14 days	Orange
Nutrients	250 mL glass	4^oC	7 days	Orange
Asbestos	Sealed plastic bag	Nil	Nil	Nil
SPOCAS	Sealed plastic bag	Frozen	Nil	Nil
Salinity indicators	Sealed plastic bag - min 1500g	Nil	Nil	Nil

Table 4: Containers, preservation requirements and holding times – Groundwater					
Parameter	**Container Volume (mL)**	**Preservative**	**Maximum holding time**	**Colour Code**	**Field Filtered**
Metals and metalloids	125 mL Plastic	HNO_3 / 4°C	6 months	Red	Yes
Anions	250 ml Plastic	None / 4°C	48 Hrs	Green	No
Cations	125 mL Plastic	HNO_3 / 4°C	7 days	Red	Yes
Nutrients	250 ml Plastic	H_2SO_4 / 4°C	28 days	Purple	No
TPH (C_6-C_9)/BTEX/VOCs	4 x 43 mL Glass	HCl / 4°C	14 days	Orange	No
TPH (C_{10}-C_{36})/PAHs	1000 mL Glass	None / 4°C	28 days	Orange	No
PAAHs, Phenols	1000 mL Glass	None / 4°C	28 days	Orange	No
Salinity Indicators	1000 mL	None / 4°C	48 Hrs	Green	No

Table 5: Analytical parameters, PQLs and methods – Soil			
Parameter	**Unit**	**PQL**	**Method Based On**
Metals and Metalloids in Soil			
Arsenic [1]	mg kg^{-1}	1	USEPA 200.7
Cadmiun [1]	mg kg^{-1}	1	USEPA 200.7
Chromium [1]	mg kg^{-1}	1	USEPA 200.7
Copper [1]	mg kg^{-1}	1	USEPA 200.7
Mercury [2]	mg kg^{-1}	0.1	USEPA 7471A
Nickel [1]	mg kg^{-1}	1	USEPA 200.7
Lead [1]	mg kg^{-1}	1	USEPA 200.7
Zinc [1]	mg kg^{-1}	1	USEPA 200.7
Total Petroleum Hydrocarbons (TPH) and BTEX Compounds			
C_6-C_9 fraction	mg kg^{-1}	2	USEPA 8015B
C_{10}-C_{14} fraction	mg kg^{-1}	50	USEPA 8015B
C_{15}-C_{28} fraction	mg kg^{-1}	100	USEPA 8015B
C_{29}-C_{36} fraction	mg kg^{-1}	100	USEPA 8015B
Total C_6-C_{36}	mg kg^{-1}	--	USEPA 8015B
Benzene	mg kg^{-1}	0.2	USEPA 8021A
Toluene	mg kg^{-1}	0.5	USEPA 8021A
Ethylbenzene	mg kg^{-1}	0.5	USEPA 8021A
m&p-xylene	mg kg^{-1}	1	USEPA 8021A
o-xylenes	mg kg^{-1}	0.5	USEPA 8021A
Organics in Soil			
Polycyclic Aromatic Hydrocarbons	mg kg^{-1}	0.5-1	USEPA 8270 SIM
Organochlorine Pesticides	mg kg^{-1}	0.05-0.2	USEPA 8081A
Polychlorinated Biphenyls	mg kg^{-1}	0.1	USEPA 8081A
Asbestos			
Asbestos	-	-	Polarised Light Microscopy
SPOCAS analysis			
SPOCAS	% or mol H^+ $tonne^{-1}$	0.001-0.01	Ahern *et al* (1998)
Salinity Indicators			
pH	pH units	0.01	AS2159:1995
Electrical Conductivity	µS cm^{-1}	1	AS2159:1995
Salinity	ppt	1	AS2159:1995
Resistivity	Ohms	1	AS2159:1995
Soluble sulfate	mg kg^{-1}	10	AS2159:1995
Chloride	mg kg^{-1}	10	AS2159:1995
Note 1: Acid soluble metals by ICP-AES. Note 2: Total recoverable mercury.			

Table 6: Analytical parameters, PQLs and methods - Groundwater.

Parameter	Unit	PQL	Method Based On
Metals in Water			
Arsenic	µg L^{-1}	1	USEPA 200.8
Cadmium	µg L^{-1}	0.1	USEPA 200.8
Chromium	µg L^{-1}	1	USEPA 200.8
Copper	µg L^{-1}	1	USEPA 200.8
Mercury	µg L^{-1}	0.1	USEPA 7470
Nickel	µg L^{-1}	1	USEPA 200.8
Lead	µg L^{-1}	1	USEPA 200.8
Zinc	µg L^{-1}	5	USEPA 200.8
Major Ions in Water			
Cations (Na^{+}, K^{+}, Ca^{2+}, Mg^{2+})	mg L^{-1}	1	USEPA 200.7
Anions (Cl^{-}, SO_4^{2-}, HCO_3^{-}, CO_3^{2-})	mg L^{-1}	1	APHA 2320
Nutrients			
Total Nitrogen	mg L^{-1}	0.1	APHA 20th Ed 4500
Ammonia	mg L^{-1}	0.1	APHA 20th Ed 4500 NH_3-H
Total Phosphorous	mg L^{-1}	0.1	USEPA 600/4-79-020
Total Petroleum Hydrocarbons (TPH) in Water			
C_6-C_9 fraction	µg L^{-1}	50	USEPA 8015B
C_{10}-C_{14} fraction	µg L^{-1}	50	USEPA 8015B
C_{15}-C_{28} fraction	µg L^{-1}	400	USEPA 8015B
C_{29}-C_{36} fraction	µg L^{-1}	100	USEPA 8015B
BTEX Compounds			
Benzene	µg L^{-1}	1	USEPA 5030/8260B
Toluene	µg L^{-1}	1	USEPA 5030/8260B
Ethylbenzene	µg L^{-1}	1	USEPA 5030/8260B
ortho-Xylenes	µg L^{-1}	2	USEPA 5030/8260B
meta- and para-Xylenes	µg L^{-1}	1	USEPA 5030/8260B
Organic Contaminants in Water			
Polycyclic Aromatic Hydrocarbons	µg L^{-1}	0.5	USEPA 8270/EP032B
Salinity Indicators			
pH	pH units	0.1	AS2159:1995
Electrical conductivity	µS cm^{-1}	1	AS2159:1995
Salinity	ppt	1	AS2159:1995
Total dissolved solids	mg L^{-1}	1	AS2159:1995
Resistivity	Ohms	1	AS2159:1995
Saturation Index	-	-	AS2159:1995
Alkalinity	mg L^{-1}	1	AS2159:1995
Ammonia	mg L^{-1}	0.01	AS2159:1995
Sulfate	mg L^{-1}	0.1	AS2159:1995
Chloride	mg L^{-1}	0.1	AS2159:1995

Table 7: Site Assessment Criteria – Soils (mg kg^{-1})				
Contaminant	**HIL (Setting F)**	**HIL (Setting E)**	**EIL**	**Source**
Arsenic (total)	500	200	20	NEPC (1999) – Schedule (B1)
Benzo(a)pyrene	5	2	-	NEPC (1999) – Schedule (B1)
Cadmium	100	40	3	NEPC (1999) – Schedule (B1)
Chromium (III)	60 %	24 %	400	NEPC (1999) – Schedule (B1)
Copper	5000	2000	100	NEPC (1999) – Schedule (B1)
Lead	1500	600	600	NEPC (1999) – Schedule (B1)
Mercury (inorganic)	75	30	1	NEPC (1999) – Schedule (B1)
Nickel	3000	600	60	NEPC (1999) – Schedule (B1)
Zinc	35 000	14 000	200	NEPC (1999) – Schedule (B1)
Total PAHs	100	40	-	NEPC (1999) – Schedule (B1)
TPH C_6-C_9	65	65	-	NSW EPA (1994)
TPH C_{10}-C_{40}	1000	1000	-	NSW EPA (1994)
Benzene	1	1	-	NSW EPA (1994)
Toluene	130	130	-	NSW EPA (1994)
Ethylbenzene	50	50	-	NSW EPA (1994)
Total Xylene	25	25	-	NSW EPA (1994)
Aldrin + Dieldrin	50	20	-	NEPC (1999) – Schedule (B1)
Chlordane	250	100	-	NEPC (1999) – Schedule (B1)
DDT+DDD+DDE	1000	400	-	NEPC (1999) – Schedule (B1)
Heptachlor	50	20	-	NEPC (1999) – Schedule (B1)
Polychlorinated Biphenyls	50	20	-	NEPC (1999) – Schedule (B1)

Table 8: Action criteria based on ASS soil analysis					
Type of Material		**Action Criteria 1-1000 tonnes disturbed**		**Action Criteria if more than 1000 tonnes disturbed**	
Texture range[1]	**Approx. clay content** (%<0.002 mm)	**Sulfur trail** % S oxidisable (oven-dry basis) eg S_{TOS} or S_{POS}	**Acid trail** mol H+/tonne (oven-dry basis) eg TPA or TSA	**Sulfur trail** % S oxidisable (oven-dry basis) eg S_{TOS} or S_{POS}	**Acid trail** mol H+/tonne (oven-dry basis) eg TPA or TSA
Coarse Texture Sands to loamy sands	≤5	0.03	18	0.03	18
Medium Texture Sandy loams to light clays	5-40	0.06	18	0.03	18
Fine Texture Medium to heavy clays and silty clays.	≥40	0.1	18	0.03	18

Source: Ahern *et al.* (1998a) Table 4.4.

Table 9: Summary of site assessment criteria - groundwater		
Parameter	**Criterion ($\mu g\ L^{-1}$)**	**Source and Comments[1]**
Metals and Metalloids		
Arsenic (V)	13	ANZECC 2000 (95 % freshwater)
Cadmium	5.5	ANZECC 2000 (95 % marine)
Chromium VI	4.4	ANZECC 2000 (95 % marine)
Copper	1.3	ANZECC 2000 (95 % marine)
Nickel	70	ANZECC 2000 (95 % marine)
Lead	4.4	ANZECC 2000 (95 % marine)
Zinc	15	ANZECC 2000 (95 % marine)
Mercury (inorganic)	0.1	ANZECC 2000 (99 % marine)
Nutrients		
Nitrate	10 000	ANZECC 2000[6]
Ammonia	910	ANZECC 2000
TPH and BTEX		
TPH C_6-C_{36}	285	ANZECC 2000[5]
Benzene	700	ANZECC 2000
Toluene	180	ANZECC 2000[2]
Ethylbenzene	5	ANZECC 2000[2]
m + p xylene	ID	ANZECC 2000[2]
o-xylene	350	ANZECC 2000
Total xylenes	380	EPA NSW 1994[3]
Polycyclic Aromatic Hydrocarbons		
Fluoranthene	1	ANZECC 2000[2]
Phenanthrene	0.6	ANZECC 2000[2]
Anthracene	0.01	ANZECC 2000[2]
Benzo(a)pyrene	0.1	ANZECC 2000[2]
Napthalene	50	ANZECC 2000 (99%)
Organic Compounds		
Organochlorine Pesticides	Various	ANZECC 2000[2]
Polychlorinated Biphenyls	Various	ANZECC 2000[2]
Volatile Organic Compounds	Various	ANZECC 2000[2]
Dissolved methane	-	-

Note 1: ANZECC 2000 95% level of protection in marine water.
Note 2: ANZECC 2000 low reliability threshold in marine water.
Note 3: EPA NSW 1994 Guidelines for Assessing Service Stations.
Note 4: ID - insufficient data for guideline development.
Note 5: Addition of the combined detection limits
Note 6: ANZECC 2000 recreational waters guideline

Table 10: Frequency of Field QA/QC sampling			
Environmental samples	**Blind replicates**	**Split sample**	**Rinsate Blanks (if required)**
0 – 5	Subject to project requirements		
5 - 10	1	0	1
10 – 15	1	1	1
>15	10%	5%	1

Table 11: QA/QC Data Acceptance Criteria		
QA/QC Sample Type	**Method of Assessment**	**Acceptable Range**
Field QA/QC		
Blind Replicates and Split Samples	The assessment of split replicate is undertaken by calculating the Relative Percent Difference (RPD) of the replicate concentration compared with the original sample concentration. The RPD is defined as: $$RPD = 100 \times \frac{\lvert X_1 - X_2 \rvert}{Average}$$ Where: X_1 and X_2 are the concentration of the original and replicate samples.	The acceptable range depends upon the levels detected: ▪ 0 – 100% RPD (When the average concentration is < 5 times the PQL) ▪ 0 – 75% RPD (When the average concentration is 5 to 10 times the PQL) ▪ 0 – 50% RPD (When the average concentration is > 10 times the PQL)
Laboratory-prepared Trip Spikes	The trip spike is analysed after returning from the field and the % Recovery of the known spike.	70% - 130%
Blanks (Rinsate and Trip blanks)	Each blank is analysed as per the original samples.	Analytical Result < PQL
Laboratory QA/QC		
Laboratory Duplicates	Assessment as per Split Replicates.	The acceptable range depends upon the levels detected: ▪ 0 – 100% RPD (When the average concentration is < 4 times the PQL) ▪ 0 – 50% RPD (When the average concentration is 4 to 10 times the PQL) ▪ 0 – 30% RPD (When the average concentration is > 10 times the PQL)
Surrogates Matrix Spikes Laboratory Control Samples	Assessment is undertaken by determining the % Recovery of the known spike or addition to the sample. $$\% Recovery = 100 \times \frac{C - A}{B}$$ Where: A = Concentration of analyte determined in the original sample; B = Added Concentration; C = Calculated Concentration.	Surrogates: 70% – 130% Matrix Spikes: 70% - 130% (Organics) 80% - 120% (Inorganics) LCS: 70% - 130% (Organics) 90% - 110% (Inorganics)
Method Blanks	Each blank is analysed as per the original samples.	Analytical Result < PQL

Note: 1 PQL = Laboratory Practical Quantitation Limit (PQL) or the minimum detection limit for a particular analyte.
Reference: APHA 18th Edition/ Amdel Quality Control Manual SPM-01/USEPA SW846.
Australian Standard AS4482.1-1997 Guide to Sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds

FIGURES

APPENDIX 1
Sample Field Data Sheets

CONSULTING EARTH SCIENTISTS

SAMPLING, ANALYSIS AND QUALITY PLAN:
ENVIRONMENTAL SITE ASSESSMENT, AREA B – PROPOSED GOLF COURSE NORTH, COOKS COVE DEVELOPMENT SITE
PREPARED FOR BOYD COOK COVE.

REPORT ID: CES050706-BCC-02-F

Written by: Y. Carden
Field Scientists: N/A
Reviewed by: M. Petrozzi

Authorised by:
Dr. Michael Petrozzi

Client:
Boyd Cook Cove
Suite 305, 35 Lime Street
Sydney NSW 2000

Date:
28 June 2006

Telephone: 02 8585 4888 • **Fax**: 02 9550 9566 • 1/111 Moore St • Leichhardt, NSW 2040 • Australia

SAMPLING, ANALYSIS AND QUALITY PLAN: ENVIRONMENTAL SITE ASSESSMENT, AREA B - PROPOSED GOLF COURSE NORTH, COOKS COVE DEVELOPMENT SITE. PREPARED FOR BOYD COOK COVE.

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1 INTRODUCTION

Consulting Earth Scientists (CES) was commissioned by Boyd Cook Cove (BCC) to provide environmental consulting services associated with the investigation phase of the Cooks Cove Development (CCD) site, located to the south of Sydney International Airport in southern Sydney (Figure 1). The total development area consists of an approximately 100 Ha parcel of land that is bound by Marsh Street to the north, the Cooks River and Muddy Creek to the east, Bestic Street to the south and West Botany Street and residential properties to the west.

The CCD involves the relocation of Kogarah Golf Course to accommodate the development of a Business and Technology Park in the northern portion of the CCD site. Land in the southern portion of the CCD site was previously used by Rockdale Council for landfilling activities and is currently used as public open space by a variety of recreational and sporting users.

Due to the large area of the CCD site it has been divided into five areas (Areas A to E) based upon future land use and physical features. These areas are:

- Area A (Proposed business and technology park): The northern portion of the CCD site located between the East-West Link to the south and Northern Pocket Park to the north (~21 ha);
- Area B: The golf course area between the East-West Link to the north and the SWSOOS to the south (~9.5 ha);
- Area C: The playing fields located between the SWSOOS to the north and the Spring Creek Channel to the south. These fields are located on a former putrescible waste landfill (~33 ha);
- Area D: The areas adjacent to the St George Soccer Stadium between the Spring Creek Channel to the north and Bestic Park to the south. These areas are located on a former waste landfill (~13 ha); and
- Area E: The area occupied by Firmstone Gardens located between Area C and West Botany Street (~1 ha). Information sources suggest that this area was also subject to landfilling.

This document refers to Area B, the second most northern portion of the CCD site, herein referred to as 'the site' or 'Area B' (Figure 2). Area B covers an area of approximately 9.5 Ha and is currently occupied by the southern portion of Kogarah Golf Club. It is proposed that this portion of the site will be retained by Kogarah Golf Club and in the new development will consist of the northern portion of the new golf course design.

This document outlines the proposed Sampling, Analysis and Quality Plan (SAQP) for the conduct of an Environmental Site Assessment (ESA) on Area B. The ESA will include the investigation of soil and groundwater conditions at the site in order to assess its suitability for continuation of the existing open space land use.

2 OBJECTIVE AND SCOPE OF WORK

The objectives of the investigation are to:

- Address existing information gaps on soil and groundwater conditions across the site;
- Undertake a preliminary Acid Sulfate Soil (ASS) Assessment of the site;
- Undertake a preliminary Salinity Assessment of the site; and
- Assess whether the site is suitable for the continuation of the existing open space land use.

To achieve this objective, CES propose to undertake the following scope of works for Area B:

- Preparation of Sampling, Analysis and Quality Program (SAQP);
- Drill sampling locations in a grid pattern across Area B so that statistical analysis can be used (if required) to assess whether this area is suitable for the proposed use as a golf course without any or major remediation works and to be able to assess the size of contamination hotspots (approximately 53m in diameter) which may be encountered during the investigation. A total of 48 sample locations (which equates to a sample density of 5 sample points per hectare or a sampling grid of approximately 45m) are proposed for the investigation. This sample density is less than the minimum sampling points required for site characterisation outlined in the NSW EPA (1996) *Sampling Design Guidelines*. A reduced sampling density has been proposed considering that the land use of the current area will not be changing as part of the development;
- Four (4) of the boreholes will be converted into groundwater monitoring wells and four (4) into gas monitoring wells. The boreholes for the groundwater wells will be extended to the base of fill or to bedrock refusal;
- Soil/fill samples will be analysed for metals and metalloids (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg), Total Petroleum Hydrocarbons (TPH), the monocyclic aromatic hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), Organochlorine Pesticides (OCPs), Organophosphate Pesticides (OPPs), Volatile Organic Compounds (VOCs), Phenoxyacetic Acid Herbicides (PAAHs), nutrients (nitrogen and phosphorus), phenols and potential Asbestos Containing Materials (ACMs). In addition, pieces of potential ACMs will be analysed as appropriate;
- Soil samples collected as part of the ASS assessment will be field screened, with select samples analysed for the Suspension Peroxide Oxidation Combined Acidity and Sulfate (SPOCAS) analysis;

- Soil samples collected as part of the salinity assessment will be analysed for pH, electrical conductivity, salinity, resistivity, texture, soluble sulfate and chloride;
- Wells will be installed using Geoprobe prepacked screens, which will be developed prior to sampling. Groundwater sampling will be undertaken using low-flow methods with minimum drawdown;
- Undertake sampling and analysis on all newly installed wells as well as existing groundwater wells BH106, BH107, BH304 and BH305, if locatable and in sound condition;
- Groundwater samples will be analysed for field parameters (depth to water table, temperature, pH, electrical conductivity, dissolved oxygen and redox potential) dissolved metals and metalloids, major ions, nutrients, TPH, BTEX, PAHs, OCPs, OPPs, VOCs, PAAHs and phenols;
- As part of the salinity assessment, groundwater samples will also be analysed for pH, electrical conductivity, salinity, total dissolved solids, resistivity, saturation index, alkalinity, ammonia, sulfate and chloride;
- Gas wells will be monitored to assess concentrations of methane, carbon dioxide, oxygen and combustible gasses as well as formation gas pressures and gas flow rates; and
- The results of the environmental assessment works for Area B will be prepared into a report which will outline the results of the former investigations along with the results of the current investigation and either conclude that Area B is suitable for the continuation of the existing open space land use or recommend any further investigations or remediation which may be required.

3 DATA QUALITY OBJECTIVES

Step 1 - State the Problem

The problem is that the limited investigations undertaken on the site to date do not provide sufficient information to adequately characterise soil and groundwater quality. Further, there has only been a limited assessment of whether the site has been impacted by landfill gas migrating from the landfills located to the south of the site.

Step 2 - Identify the Decision Statement

The aim of this step is to identify what questions this program will attempt to resolve and to discuss what actions may result.

The primary question that this programme will attempt to resolve is:

- What is the extent of soil, groundwater and landfill gas contamination on the site, if any, as a result of previous land uses on both this and adjacent sites?

It is expected that by resolving this question, it will be possible to develop more focussed remediation options for the site.

Step 3 - Identify inputs to the decision

The following data are required to resolve the decision question(s):

- The key contaminants of concern as identified from the findings from previous consultant investigations and more recently by CES;
- The installation of 48 boreholes across the site, with four boreholes converted to groundwater monitoring wells and four boreholes converted to gas monitoring wells. In addition, it will be attempted to locate four existing groundwater monitoring wells installed on the site by previous investigations;
- Collection of soil samples at regular depth intervals in each borehole;
- Collection of groundwater samples from each of the groundwater monitoring wells following development and purging in accordance with appropriate methods;
- Standing water levels to be recorded in each monitoring well prior to sampling;
- Monitoring of landfill gas characteristics in each of the sub-surface gas monitoring wells;

- Analysis of both soil and groundwater samples for the contaminants of concern and other analytes which will assist in developing remediation techniques;
- Comparison of the results with relevant site assessment criteria (*ie.* NEPM, (1998); ANZECC (2000) water quality guidelines and EPA NSW (1994) *Guidelines for Assessing Service Station Site* threshold concentrations for "Waters - Protection of Aquatic Ecosystems"); and
- Obtain survey data, including the position and relative heights, for each of the monitoring wells. When combined with the water level data and analytical results this will enable a determination of the spatial and vertical extent of the contaminant plumes and direction of groundwater flow.

Step 4 - Define the boundaries of the study

The site has been referred to as Area B of the Cooks Cove Development site. It is bound by Area A to the north, Marsh Street to the west, the Cooks River to the east and the M5 East and SWSOOS easements to the south. There is currently no obvious northern boundary, although it will be defined prior to undertaking the field component of this investigation.

The legal description of the developable land is Part of Lot 11 in Deposited Plan (DP) 570900, and Part of Lot 1 DP 108492. It is located within the Local Government Area (LGA) of Rockdale, Parish of St George, County of Cumberland.

A site survey plan including the site and individual allotment boundaries, building locations and other relevant detail is provided as Figure 2.

It is anticipated that the vertical extent of the study will be the top approximately 10 m, with this depth considered sufficient to provide an assessment of natural soil as well as intercept the shallow groundwater zone.

Step 5 - Develop a decision rule

The purpose of this step is to define the parameters of interest, specify the action levels and combine the outputs of the previous DQO steps into an "if…then…" decision rule that defines the conditions that would cause the decision maker to choose alternative actions.

The parameters of interest (or contaminants of concern) in the soil for this investigation are metals and metalloids, TPH, BTEX, PAHs, OCPs, PCBs and asbestos. For the groundwater investigation, the contaminants of concern are metals and metalloids, nutrients, TPH, BTEX and

PAHs. In addition to soil and groundwater, landfill gas is also a potential contaminant of concern.

The action level which will be used to decide if the parameter represents an unacceptable risk for the continuation of the existing open space land use are provided as Investigation Criteria in Section 10 of this document.

The types of data quality required during the fieldwork component of the investigation and for the laboratory analyses are specified in Sections 10.1 and 10.2 respectively. The acceptable limits for this data are defined in Table 11.

Based on these data quality types and limits the following decision rules will apply:

- Impacted soil will be identified by concentrations exceeding the assessment criteria;

- Impacted groundwater will be identified by concentrations exceeding the assessment criteria;

- The presence of elevated concentrations of landfill gas will be identified by concentrations exceeding the assessment criteria;

- If contaminants of concern are detected in the trip blanks, then potential cross contamination may have occurred during sample transport. To assess whether this is the case, CES will check the trip blank results with the laboratory and compare the results with other blanks provide by the same laboratory. It is possible that detections in trip blanks may reflect background concentrations in laboratory-supplied water or analytical error. If it is concluded that decontamination procedures were inadequate CES will assess the severity of the cross contamination and subsequent impacts on the ability to resolve the decision question. Possible actions may include the raising of working detection limits or the collection of replacement data;

- If RPDs for blind replicates or split samples are outside the acceptable limits, then there may be errors in laboratory analysis process. When assessing duplicate pairs with elevated RPDs, CES will check the results with the laboratory(ies) and examine the nature of the sample being assessed, since heterogeneous samples can often provide high RPDs. If it is believed that irreversible errors have occurred during the laboratory process then additional investigation will be required to resolve the decision question; and

- If any of the laboratory data quality tests do not meet the acceptable limits, the laboratory will be requested to retest samples or provide justification for the results.

Step 6 - Specify acceptable limits on decision errors

There are two types of errors:

a) Deciding that the site is acceptable for recreational open space land use when it actually is not (Type I error). The consequence of this error may be unacceptable ecological or health risk for future users of the site.

b) Deciding that the site is unacceptable for recreational open space land use when it is acceptable (Type II error). The consequence of this error is that the client will pay for further investigation / remediation that is not necessary.

The more severe consequence is with decision error (a) since the risk of jeopardising human health outweighs the consequences of paying more for remediation.

It will not be possible to conduct statistical hypothesis tests as the proposed sampling programme consists of the collection of one round of samples only. Unlike soils, it is not generally appropriate to compare guideline levels with Upper Confidence Limits (UCLs) for the mean of measured concentrations. The level of impact on groundwater and from landfill gas will need to be assessed at each monitoring well.

Step 7 - Optimising the Design for Obtaining Data

The purpose of this step is to identify a resource-effective data collection design for generating data that are expected to satisfy the DQOs.

The resource effective data collection design that is expected to satisfy the DQOs is described in detail in Section 10. To ensure the design satisfies the DQOs a comprehensive Quality Assurance and Quality Control plan will be implemented as described in Section 11.

4 SITE INFORMATION

4.1 SITE IDENTIFICATION

The site is referred to as Area B of the Cooks Cove Development site, Cooks Cove, NSW. It is located in the northern portion of the development site and covers an approximate area of 9.5 Ha. The legal description of the developable land is Part of Lot 11 in Deposited Plan (DP) 570900, and Part of Lot 1 DP 108492. It is located within the Local Government Area (LGA) of Rockdale, Parish of St George, County of Cumberland.

A plan showing the site layout is presented in Figure 3. A registered survey plan showing the boundaries of each Lot and DP will be provided in the report.

4.2 SITE ZONING AND LAND USE

The overall site is currently zoned for open space/recreational land use and is currently occupied by the Kogarah Golf Club for its golf course. It is not proposed to change the zoning of the site as part of the development.

4.3 TOPOGRAPHY

The Botany Bay 1:25000 Topographic map (9130-3-S) indicates that the site elevation ranges from 0 to 10 m above Australian Height Datum (AHD). The site topography has been significantly modified through the placement of fill material over the original swamp and delta. An undulating surface has been created to form the golf course including several small lakes as shown on Figure 3.

The site generally drains in an easterly direction towards the Cooks River, although localised flow paths occur across the golf course, including an un-named intermittent stream draining the golf course shown on the 1:25000 Topographic Map. In addition, the central portion of the golf course drains internally towards a series of lakes.

4.4 GEOLOGY

The Sydney 1:100 000 Geological Series map indicates that the site is underlain by silty to peaty quartz sand, silt and clay. Ferruginous and humic cementation occurs in places with common shell layers also reported. This material is most likely of alluvial origin, deposited as sub-aerial and sub-aqueous components of the Cooks River delta. This deposit has been reworked significantly in the last century as part of river diversion and training works. These works would have involved significant dredging operations.

An outcrop of Hawkesbury Sandstone is also shown in the location of the existing Kogarah Golf Club House. The Sydney 1: 100 000 Soil Landscape Sheet 9130 indicates that the site is underlain by anthropogenic fill material.

4.5 HYDROGEOLOGY

4.5.1 Regional Hydrogeology

The groundwater at this site is expected to lie within a shallow unconfined aquifer, although localised layers of low permeability (*eg.* clay, peat and layers of localised iron-cemented sand) may act as local confining layers. Groundwater at the site is expected to flow in an easterly direction towards the Cooks River.

The Cooks River, Muddy Creek and the Spring Street Canal are tidal in the study area. It is expected that saline or brackish intrusion in the form of a Ghyben-Herzberg lens occurs around the periphery of the site. Diurnal fluctuations in groundwater levels in the peripheral areas are also expected to occur in response to tidal cycles.

4.5.2 Local Hydrogeology

CES (2001) undertook a search of the groundwater database at the DLWC (now DIPNR). A total of 66 registered groundwater wells were identified within a 2 km radius of the centre of the Cooks Cove Development site. Work summaries are presented in Appendix 1. Twenty five wells are registered for "General Use" with a further 17 registered for "Domestic Use". Wells for general use were registered between 1950 and 1969 while wells for domestic use were registered between 1991 and 2000. It is proposed that general and domestic wells refer to use by private persons for non-potable use. The different classes are attributed to a change in well classification methods by the DLWC.

Three wells are registered for recreational or irrigation use. All of these wells are registered to local sporting facilities, including the Kogarah Golf Club (installed in 1966). Twenty one of the wells are registered for environmental monitoring or testing. Sixteen of these wells are registered in association with the M5 East Motorway. None of these wells are located within Area B.

Inspection of DLWC work summaries reveals reported well yields of up to 3.0 L s^{-1}, with most yields of the order of 0.5 L s^{-1}. The salinity of wells installed is reported as “good”. These data indicate that the study area is surrounded and underlain by relatively permeable strata. Low (“good”) salinity of water extracted from the wells indicates that saline or brackish intrusion is likely to be limited to peripheral areas adjacent to the Cooks River and tidal reaches of tributaries thereof.

4.6 ACID SULFATE SOIL RISK

The Botany Bay Acid Sulfate Soil Risk Map (2nd Ed, 1997) produced by the DLWC indicates that the site is located in an area of “high probability of occurrence of acid sulfate soil materials. The environment of deposition has been suitable for the formation of acid sulfate soil materials. Acid sulfate soils materials are widespread or sporadic and may be buried by alluvium or windblown sediments”. If present the depth is expected to be between 1 and 3 m below the ground surface.

Although extensive filling has occurred across the site, the fill material is most likely to consist of sediments dredged from the Cooks River. Therefore, this material, although technically fill, has the potential to be acid sulfate in nature.

5 SITE HISTORY

5.1 HISTORICAL AERIAL PHOTOGRAPHS

Historical aerial photographs from the Department of Land and Water Conservation were examined. Aerial surveys have typically been conducted every 8-10 years with the earliest photographs being taken in 1930. The following photographs were examined for this report: 1930; 1951; 1961; 1970; 1978; 1986, 1994 and 2002. In addition, the 1943 aerial photograph acquired by the Department of Main Roads (DMR), now the Roads and Traffic Authority (RTA), was also examined. The findings of air photo investigations are as presented below.

5.1.1 1930 (DLWC)

Cooks River is more torturous than at present day and does not adjoin the north-eastern section of the site as it does today. Muddy Creek and lower Cooks River are very thin and appear to be small tributaries off the main river only. The Cooks River outlet to Botany Bay is further north than presently located.

The study area has been subdivided. The northern half of the area presently occupied by Kogarah Golf Club, appears to be comprised of paddocks (possibly market gardens). The house in the north eastern part of the site presently utilised as the clubhouse has been built and may be surrounded by a few smaller buildings and a number of large trees. The southern half of the present day golf course and the area to the south have been subdivided and appear sandy with some scrubby vegetation.

The water main easement running across the Cooks River from the western to the eastern banks is present. Although property to the north west of the site adjoining the river appears to be comprised of sand it does seem to have been landscaped. River bank is in the present day location. Neighbouring areas to the west and north west are predominantly paddocks although some industrial buildings are present. Land south west of the site has been urbanised. East of the site across the lower Cooks River and Muddy Creek, the land is comprised of large subdivided blocks of dunes with some grass. White sand dunes occur on the north eastern side of the Cooks River.

5.1.2 1943 (DMR)

The 1943 aerial photograph indicates that the Cooks River is still fairly torturous in comparison to the aligned state of the present day. The golf club is present on the site, with what appears to be the present day club house in position. The site is generally covered in vegetation with some patches of sandy areas and some sealed sections around the clubhouse.

Market Gardens are present to the south of the site, residential property to the west, open space to the north and the Kingsford Smith International Airport to the east.

5.1.3 1951 (DLWC)

The shape of Cooks River has been altered extensively with the lower parts of the river now bounding the property. Muddy Creek has been considerably widened and channelised. Spring Street Canal has been constructed, as has the present day channel opening of the Cooks River into Botany Bay. Dredges and sand stockpiles in the photo indicate that these works were still in progress at the time.

The entire area of the present day Kogarah Golf Club appears to have reverted back to grass-and scrub-covered sand dunes, with the southern half being sandier.

There is a continued build up of industry in the neighbouring area to the north west and airport developments on the eastern side of the river are continuing.

5.1.4 1961 (DLWC)

The Cooks River has been reshaped and repositioned since the 1951 photograph. The north eastern side of the property now bounds the river. In addition Muddy Creek has been significantly narrowed.

The northern part of the site is now occupied by the golf course and is close to the present day layout. Numerous vehicles were noted around the golf club.

To the north of the site, land on the rivers edge has been landscaped and some small buildings erected. Additional factories and houses have been built on properties to the north west of the site and numerous trucks and smaller vehicles are visible around these buildings. Airport runways and aircraft hangars have been completed on the eastern bank of the Cooks River and are in operation with numerous planes visible in this area.

5.1.5 1970 (DLWC)

Additional alterations to the Cooks River have been performed since the 1961 photograph with the river essentially as in its present day form. Further industrial development has occurred to the north west of the site as well as superficial changes to other buildings in this area.

The construction of the airport overpass at the north eastern end of Marsh Street has commenced. Numerous construction site sheds are visible in the north eastern corner of the Kogarah Golf Club. The golf course area is essentially the same as in the 1961 photograph although looking a little more grassy and with the addition of numerous small ponds.

5.1.6 1978 (DLWC)

The Kogarah Golf Club has been further landscaped with areas having been built up and additional ponds put in place. The western-most section of this area, previously occupied by market gardens is now included as part of the golf course.

To the north of the site demolition and construction of industrial buildings has occurred. The main span of the Marsh Street airport overpass has been constructed. Remaining neighbouring properties appear essentially the same.

5.1.7 1986 (DLWC)

The site in general has not undergone many changes since the 1978 photograph.

To the north west of the site across Marsh Road, tennis courts have been built, as has the Airport Hilton in the place of the demolition area noted in the last photo. In addition superficial changes have been made to other buildings in this area. A central section of the Marsh Street overpass to the airport has been constructed.

5.1.8 1999 (DLWC)

On the Kogarah Golf Course a large maintenance shed has been constructed on the northern most part of the property next to Marsh Street. In addition a small building has been built in the middle of the golf course.

On neighbouring properties to the north small-scale construction and demolition works have been carried out. Houses on the corner of Marsh and West Botany Streets have been demolished. Directly north of the site across the river, some construction works or redevelopment activities are being carried out. The central section of the Marsh Street overpass to the airport has been completed.

A summary of the aerial photographs indicates that the site was part of the Cooks River floodplain prior to its reclamation and development. The golf course has been required to move over time in concert with reclamation activities of former mangrove areas. Therefore, although the golf course has been present in the area since circa 1930, it has not always been in its existing location.

The following potentially contaminating activities have been carried out on the site:

- Introduction of contaminants in fill material. The most probable source of fill material is dredged spoil from the Cooks River and its delta; and
- Chemical inputs associated with the golf course such as fertilisers and pesticides.

In addition, the site is located to the immediate north of a number of former municipal landfill sites. These former landfills are located on Areas C and D of the Cooks Cove Development Site, both located to the south of Area B. It is understood that neither leachate nor gas management systems were constructed on these landfills and as such the potential exists for either leachate or landfill gas to have migrated onto Area B.

6 SITE CONDITION AND SURROUNDING ENVIRONMENT

Descriptions of site and background information are presented in the Phase 1 Environmental Site Assessment (ESA) undertaken by CES (2001) on the entire Cooks Cove Development Site. It is not intended to fully replicate this information herein. However, a summary is provided below.

6.1 CURRENT OWNER, OCCUPIER AND OPERATIONS

Area B of the Cooks Cove Development Site is currently on land owned by Kogarah Golf Club Limited, with a section along Marsh Street on the western boundary owned by The Municipality of the Council of Rockdale. The entirety of Area B is currently occupied by Kogarah Golf Club for their golf course, with the section owned by Rockdale Council under lease to the Kogarah Golf Club.

6.2 SITE DESCRIPTION

The following description of the site is based upon a recent site inspection and information provided in previous reports.

Current access to the site is through Area A of the larger development site, that is, the northern portion of the existing Kogarah Golf Club. The site consists of features typical of a golf course such as greens, fairways, sand bunkers and surface water bodies.

The majority of the site is unsealed.

6.3 TANKS AND ASSOCIATED SERVICES

No Underground Storage Tanks (USTs) or Above Ground Storage Tanks (ASTs) are known to have previously existed on the site.

6.4 SURROUNDING LAND-USE

Without gaining access, the properties immediately surrounding the site are as follows.

- *North* – The northern portion of the Kogarah Golf Club, that is, Area A of the CCD site, forms the northern boundary of the site;

- *South* – The M5 East and SWSOOS easements form the southern boundary of the site;
- *East* – The Cooks River forms the eastern boundary of the site. To the east of the Cooks River is the International Terminal of Kingsford Smith Airport; and
- *West* – Marsh Street and a wetlands area form the western boundary of the site. Residential properties are located on the western side of Marsh Street.

6.5 SUMMARY OF PREVIOUS INVESTIGATIONS

6.5.1 Cooks Cove Development Site

The following environmental and geotechnical investigation reports have been prepared for the entire CCD Site.

- Consulting Earth Scientists (April 2001). *"Site Contamination Issues Paper: Cooks Cove Development Site.* Prepared for Trafalgar Properties Pty Ltd and Page Kirkland Management Pty Ltd";
- Keighran Geotechnics (August 2001). *"Preliminary Site Investigation, Cook Cove Industrial Development, Kogarah Golf Club, Arncliffe";*
- Consulting Earth Scientists (August 2001). *"Phase 1 Environmental Site Assessment: Cooks Cove Development Site.* Prepared for Trafalgar Properties Pty Ltd and Page Kirkland Management Pty Ltd";
- Consulting Earth Scientists (September 2001). *"Report on Wetland Sampling Conducted 26 August 2001"*;
- Consulting Earth Scientists (October 2001). *"Report on Well Installation and Groundwater Sampling Programme: Cooks River Development Site.* Prepared for Trafalgar Properties Pty Ltd and Page Kirkland Management Pty Ltd"; and
- Golder Associates (January 2002). *"Contamination Investigation and Conceptual Remediation Approach for Cooks River Development, Arncliffe".*

The main conclusions drawn from these reports with respect to contamination and other environmental constraints associated with the proposed development are outlined below:

- The CCD site has been subjected to extensive filling. The type and depth of filling varies across the CCD site;
- The subsurface conditions underlying Areas A and B generally consist of fill sands to depths of 0.2 to 0.8 metres below ground level (mBGL) underlying alluvial sands and

clays. Sandstone bedrock was encountered at depth ranging from 0.9 mBGL near the clubhouse in Area A to 10.5 mBGL in the flatter sections of Areas A and B;

- Contaminating activities currently and historically known to have occurred on the CCD site include landfilling, reclamation works adjacent to adjoining water bodies, disposal of dredged material and canal sediments; use as a night sullage depot, market gardens and activities/operations associated with the maintenance of the golf course and playing fields;
- The former Unhealthy Building and notice registry (repealed by the *Contaminated Land Management Act)* managed by the NSW EPA noted the presence of "garbage and industrial waste disposal areas " across the CCD site";
- The CCD site adjoins several environmentally sensitive receptors including wetlands, surface water bodies and residential premises;
- No leachate controls have been constructed within any of the areas subjected to landfilling;
- Contamination typically associated with the landfilling of waste materials (putrescible and uncontrolled landfilling) has been detected in soils and groundwater beneath the site and in adjoining wetlands areas and surface water bodies;
- Landfill gas (containing methane) has been detected at concentrations above the Lower Explosive Limit (LEL) beneath the CCD site (Areas B, C and D) and at the CCD site boundaries. Buildings, tunnels and services present beneath and adjacent to the CCD site could potentially be impacted by the migration of landfill gas from the site;
- Virtually the entire CCD site is thought to be underlain by Potential Acid Sulfate Soils (PASS). Acid Sulfate Soils (ASS) could also be present within the stockpile of material generated during the construction of the M5 Tunnel located adjacent to the eastern boundary of Area C; and
- The capping material identified within Areas C and D during the investigations was highly variable and would be unlikely to comply with NSW EPA guidelines for the closure of landfills. In consideration of the heterogenous nature of the capping material encountered, it is likely that the capping works were uncontrolled and it is possible that other contamination above the respective guidelines are present in other areas not investigated. In most areas, the capping encountered does not contain engineered materials (ie. compacted clay) and therefore would not be adequate in reducing the infiltration of surface water from rainfall events and periodic irrigation which could in turn increase the generation of leachate from the buried waste materials.

6.5.2 Area B: Cooks Cove Development Site

From the information review, Area B has been subjected to a number of potentially contaminating activities including agricultural activities (entire area), reclamation of land using dredged sediments (eastern and southern boundary), miscellaneous filling (entire area) and activities/operations associated with the maintenance of the golf course. It is possible that the southern portion of Area B has been subjected to, and/or affected by, the landfilling activities known to have occurred on the adjoining Area C. A summary of the reports relevant to the soil and groundwater quality at the site is provided below.

6.5.2.1 CES (August, 2001)

CES (August 2001) prepared a Phase 1 Environmental Site Assessment (ESA) for the CCD site on behalf of Trafalgar Properties, the developer at the time. The Phase 1 ESA consisted of a desktop review of site history and land use as well as a limited investigation programme.

The main findings of the assessment relevant to Area B were as follows:

- Site stratigraphy consisted of sand and clay fill deposited over natural alluvium or Hawkesbury Sandstone Bedrock fill material;
- No contaminant concentrations in samples collected from Area B exceeded the adopted recreational open space assessment criteria; and
- Alluvium underlying fill material at the site was classified as Potential Acid Sulfate Soil.

6.5.2.2 Golders (2002)

Golders were commissioned to undertake a contamination investigation and prepare a conceptual remediation approach for the CCD site by Page Kirkland Management (Golders, 2002). The portion of the investigation undertaken on Area B of the CCD site included the excavation of ten test pits and the installation of two groundwater monitoring wells (BH304 and BH305).

Analytical data from the test pits is not provided in the report. Chromium concentrations were detected in soil samples collected from BH305 at depths of 0.5-0.7 and 2.6-3.0 m that exceeded the adopted phytoxicity guideline levels. Concentrations of other parameters in soil were less than the adopted assessment criteria. Elevated ammonia concentrations were detected in groundwater sampled from BH304 (7.96 and 6.67 mg L^{-1}) and BH305 (7.24 and 7.79 mg L^{-1}). No other groundwater parameters were detected at elevated concentrations.

6.5.3 Data Quality Review of Previous Investigations

6.5.3.1 CES (August, 2001)

Although the formal seven step Data Quality Objectives (DQOs) were not prepared prior to undertaking the investigation, the CES (August, 2001) investigation met the majority of the critical components of the DQO approach. This included:

- The objectives and scope of the investigation were stated;
- The appropriate type of samples were collected for the purposes of the investigation;
- Appropriate site investigation criteria were adopted for the proposed future land-use;
- Chain of Custody documentation was used to track all samples during transport to the laboratory;
- Samples were appropriately preserved and maintained during transport to the laboratory;
- Samples were analysed within the recommended holding times by a NATA accredited laboratory using NATA accredited methodologies;
- Detection limits for the chemicals of potential concern were appropriate for the site investigation criteria;
- Field duplicates, rinsate blanks, trip blanks and trip spikes were collected during the investigation; and
- The laboratory QA/QC included analysis of laboratory duplicates, matrix spikes, surrogates, laboratory control samples and laboratory blanks.

The above QA/QC programme is generally acceptable for the purposes of the investigation. The only major QA/QC component not undertaken or addressed was the collection of split sample(s) for inter-laboratory analysis.

6.5.3.2 Golders (2002)

A data quality and sampling plan was prepared by Golders prior to commencement of the project. CES have not seen a copy of this plan. A Field and Laboratory Quality Control Report is provided in Appendix C of the report which summarises the results of the QA/QC programme.

The stated Data Quality Objectives of the project (Section 7.1) were:

"*…to generate data quality that was consistent with the objectives of the investigation. This mainly consisted of generating quality data on the soil and groundwater conditions in the areas* *targeted for sampling. The key elements to achieve the DQO related to implementation of the field work, collection of quality control samples and generation of internal laboratory quality control data to support the reported results and the assessment of laboratory results.*"

The Golders (2002) investigation met the majority of the critical components of the DQO approach. This included:

- The objectives and scope of the investigation were stated;
- The appropriate type of samples were collected for the purposes of the investigation;
- Appropriate site investigation criteria were adopted for the proposed future land-use;
- Chain of Custody documentation was used to track all samples during transport to the laboratory;
- Samples were appropriately preserved and maintained during transport to the laboratory;
- Samples were analysed within the recommended holding times by a NATA accredited laboratory using NATA accredited methodologies;
- Detection limits for the chemicals of potential concern were appropriate for the site investigation criteria;
- Two field duplicates (10 %), a rinsate blank and a trip spike were collected during the soil sampling programme and five field duplicates (~10 %), one trip blank and two trip spikes were collected during the water sampling programme; and
- The laboratory QA/QC included analysis of laboratory duplicates, matrix spikes, surrogates, laboratory control samples and laboratory blanks.

The above QA/QC programme is generally acceptable for the purposes of the investigation. QA/QC components that were not undertaken or addressed were the absence of split samples during the soil and water sampling programme and the absence of a trip blank during the soil sampling programme.

7 CONCEPTUAL MODEL OF POTENTIAL CONTAMINATION

The conceptual model of potential contamination has been developed to provide an understanding of the critical parameters required to understand the contamination status of the site. Its purpose is to develop a hypothesis on the contamination of the site which can be tested through a programme of soil, groundwater and landfill gas testing.

The model has been developed from a review of background information, historical documents and a detailed site inspection. It includes potential sources of contamination and their associated Contaminants of Potential Concern (CoPC), characteristics of the CoPC, site conditions and a summary of the approach of the investigation.

7.1 POTENTIAL SOURCES OF CONTAMINATION AND ASSOCIATED COPC

A review of background information, historical documents and a detailed site inspection indicate that the following potential sources of contamination are present at the site or its immediate surrounds.

7.1.1 Market Gardens

Prior to 1978 the western part of the site was used for market gardens, which may have included the addition of fertilisers and pest control agents to the soil.

The CoPCs include metals and metalloids, nutrients, OCPs, OPPs and PAAHs.

7.1.2 Reclaimed Land

The Cooks River has been extensively altered over the past century. River training works may have utilised dredged sediments or imported fill material. Therefore, an investigation is required in order to assess the type of material used in the reclamation.

The CoPC includes metals and metalloids, nutrients, TPH, BTEX, PAHs, VOCs, phenols and ACMs.

7.1.3 Landfill Activities

Although the site was not an official landfill, anecdotal evidence form members of the Kogarah Golf Club indicate that waste material has been exposed during on-site excavations.

The CoPC includes metals and metalloids, nutrients, TPH, BTEX, PAHs, OCPs, OPPs, PAAHs, VOCs, phenols, ACMs and landfill gas.

7.1.4 Golf Course

The sites historical and current use as a golf course may have resulted in the application of fertilisers and pest control agents.

The CoPCs include metals and metalloids, nutrients, OCPs, OPPs and PAAHs.

7.1.5 Presence of Unlined Landfills on Adjacent Blocks

The presence of an unlined landfill on Area C of the CCD site indicate that leachate-impacted groundwater or landfill gas has the potential to migrate onto the site.

The CoPC includes metals and metalloids, nutrients, TPH, BTEX, PAHs, OCPs, OPPs, PAAHs, VOCs, phenols and landfill gas.

7.1.6 Summary of Chemicals of Potential Concern

Based on the above, the following CoPC have been identified for the entire site:

- Metals and metalloids;
- Nutrients, including ammonia, nitrate, nitrite, total kjeldahl nitrogen and total phosphorus;
- Total Petroleum Hydrocarbons (TPH), monocyclic aromatic hydrocarbons (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Organochlorine Pesticides (OCPs);
- Organophosphate Pesticides (OPPs);
- Volatile Organic Compounds (VOCs);
- Phenols;
- Phenoxyacetic Acid Herbicides; and
- Asbestos Containing Materials (ACMs).

7.2 CHARACTERISTICS OF CHEMICALS OF POTENTIAL CONCERN

7.2.1 Metals and Metalloids

The metals and metalloids analytical suite generally consists of arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury. They all tend to bind strongly to soil particles and with the exception of zinc will dissolve in water. Both mercury and zinc accumulate in animal tissue while the others will not. The mobility of all metals increases with increasing acidity.

Additional considerations include detecting for the presence for hexavalent chromium and methyl mercury where land use indicates that this is prudent. These two forms of the metals have a much greater toxicity than that analysed for in a standard metals and metalloids analysis.

7.2.2 Nutrients

Nitrogen and phosphorus species are the main nutrients of concern, with ammonia the most likely to be present as a result of the former landfill activities both on the site and on adjacent sites.

The concentrations of the nitrogen species will vary depending on site conditions, especially the oxidative environment. For example, ammonia is a main indicator of landfill leachate which is a low oxygen or reducing environment. Nitrate is highly mobile in water and will rarely adsorb to particular matter.

Phosphorus is readily adsorbed to soil particles and as such is often not detected in groundwater.

7.2.3 Total Petroleum Hydrocarbons (TPHs) and BTEX Compounds

TPH and BTEX compounds are mostly associated with petroleum products. TPHs are divided into the C_6-C_9, C_{10}-C_{14}, C_{15}-C_{28} and C_{29}-C_{36} fractions based upon the number of carbon atoms within the compound. The C_6-C_9 fraction is considered to be the volatile fraction, with volatility and density decreasing with increasing number of carbon atoms. As a result, the C_6-C_9 fraction is generally the most mobile and will be present within the upper component of the aquifer, whereas the C_{29}-C_{36} fraction is the leats mobile and will tend to accumulate at the bottom of an aquifer or on top of less permeable layers within the aquifer.

The BTEX compounds are volatile and less dense than water and as such will behave in a similar fashion to the TPH C_6-C_9 fraction.

7.2.4 Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs are essentially a byproduct of incomplete combustion, either by natural or anthropogenic sources. Common sources are coal, soot, charcoal and bitumen. The PAH analytical suite consists of the 16 USEPA priority PAHs which are listed in order of decreasing volatility, with naphthalene being the most volatile. There are hundreds of PAHs in existence.

PAHs are very stable and persistent in the environment as well as being carcinogenic. Most PAHs adsorb strongly to soil particles, although some are capable of migrating into groundwater. They do not dissolve easily in water and are most likely to be associated with particulate matter.

7.2.5 Organochlorine Pesticides (OCPs) and Organophosphate Pesticides (OPPs)

OCPs are chlorine-based pesticides which are now generally banned from use in most parts of the world due to their environmental impact and bioaccumulative potential within fatty tissue. They are generally rapidly broken down by sunlight within about two days and adsorb strongly to soil. Only minor concentrations of OCPs would be expected to be detected in groundwater as they do not dissolve easily.

The OPPs are phosphate-based pesticides used widely in agricultural activities. They tend to dissolve easily in water and are degraded rapidly in the environment into harmless breakdown products. They do not tend to accumulate within animal or plant foods.

7.2.6 Volatile Organic Compounds (VOCs)

The VOCs in question have a density greater than 1 and thus are termed Dense Non-Aqueous Phase Liquids (DNAPLs). Due to their greater density they are expected to accumulate at the bottom of the aquifer or in areas of lower permeability. Thus it becomes important to understand the location and extent of low permeability layers (*ie.* peat) across the site.

The VOCs present are degraded under reducing conditions such as those found in groundwater across the site. Therefore, it is expected that breakdown products of the original contaminants will be present. Of interest will be whether any VOCs detected on the site are the original solvent products or the products of the reductive dehalogenation breakdown process such as chloroethane.

VOCs are generally not adsorbed onto the soil matrix so it is unlikely that they will be present within soil samples.

7.2.7 Phenoxyacetic Acid Herbicides

The Phenoxyacetic Acid Herbicide group is mostly used in agriculture and horticulture for their selective action against broad-leaved weeds. It includes herbicides such as 2,4-D (Agent Orange), Dicamba and MCPA.

They will degrade in soil through microbial action and will adsorb to soils with higher organic content. Residence time in soils is generally short-lived and in the order of weeks to months. Leaching into groundwater may occur in coarse sandy environments although the residence time is generally similar to that of soils.

7.2.8 Phenols

Phenols are produced during a number of industrial processes (*eg* coke processing, wood and iron/steel industry), in cigarette smoke and in smoked food products. Phenols have an objectionable smell and taste so human exposure is often limited by these early warning symptoms.

Phenols are highly mobile in soil and are not likely to persist in the environment or bioaccumulate.

7.2.9 Asbestos Containing Materials (ACMs)

ACMs are man-made fibres that consist of asbestos. They include fibro sheeting, fire retardants and lagging of piping and other features.

Any degradation will result in the release of microscopic fibres which can be harmful to human health and potentially result in lung diseases. ACMs can be detected either as fibres within a soil sample or by submitting larger pieces of material to the laboratory for analysis.

7.3 SITE CONDITIONS

Based on the results of previous investigations of the larger redevelopment site and knowledge of regional geology and hydrogeology, the following is understood about the site conditions likely to be encountered during the investigation:

- Bore logs for BH304 and BH305 (Golders, 2002) indicate that approximately one metre of fill material is present across Area B. The fill material encountered in these two boreholes consisted of fine to medium grained silty or gravely sand. The underlying alluvium consisted of silty sands and clays with layers of peat material;

- Bedrock was not encountered in either BH304 or BH305 at final depths of 6 and 7.5 m respectively; and
- Groundwater was encountered at approximately 1.2 m in both boreholes. Groundwater present across the site would be expected to flow to the east into the Cooks River.

The site conditions described above indicate that any contamination on the site could easily migrate both vertically downwards and horizontally as, with the exception of the clayey peat layer present at the base of the landfill, there is little evidence of the presence of impervious or low permeability layers. Further, as the site has surface water receptors along it's eastern boundary, any horizontal migration would be likely to migrate off-site and into the Cooks River.

7.4 APPROACH OF INVESTIGATION

The investigation outlined in the remainder of this SAQP is designed to provide a delineation of the lateral and vertical extent of impacted soil and groundwater across the site, as well as provide an assessment of whether landfill gas is being generated.

As the major source of potential contamination is considered to be the adjacent landfilling activities, the investigation will focus on assessing whether the adjacent landfill has impacted on local soil and groundwater conditions. Boreholes will be drilled across the site with soil and groundwater samples analysed for the COPCs. The analytical suite selected will also include any additional COPCs identified in Section 7.1 of this document.

8 PROPOSED SOIL, GROUNDWATER AND GAS INVESTIGATION

8.1 SOIL

The following proposed soil sampling programme has been designed on the basis of a review of the site history.

8.1.1 Sampling Pattern, Location and Number of Sampling Points

A triangular or herringbone systematic (or grid) pattern will be used to locate boreholes across the site.

Summaries of the proposed sample locations and analytical programmes for soil and groundwater are provided in Tables 1, 2 and 3 respectively. The proposed sampling locations are shown on the attached site plan (Figure 3), with the exact locations to be determined during the sampling programme based on local access issues and field observations.

A total of 48 sampling locations, which equates to a sample density of 5 sample points per hectare or a sampling grid of approximately 45 m, are proposed for the investigation. This is less than the minimum sampling points required for site characterisation as outlined in NSW EPA *Sampling Design Guidelines* (NSW EPA, 1995). A reduced sampling density has been proposed considering that the area will maintain its existing land use and that historical filling is likely to have occurred in a single episode. This provides a circular hotspot with a diameter of approximately 53 m that can be detected with 95 % confidence (Procedure F, NSW EPA, 1995). The exact depths of samples will be determined in the field based on FID readings and any adverse aesthetics indicating the presence of contamination (*eg.* odour or discoloured soil).

8.1.2 Sampling Depths

8.1.2.1 Boreholes

Boreholes will be extended to at least one metre into natural soil or drill rig refusal as this depth is expected to be the lower limit of the inferred vertical migration zone of contaminants associated with fill material.

In accordance with NEPC (1999) *Data Collection, Sample Design and Reporting*, samples will be collected from the near surface between 0-150 mm unless there is evidence of a thin superficial layer of impacted material. At greater depths, samples will be collected at 0.5-1.0 m intervals or at changes in fill or soil type and so that soil is also collected at depths where the presence of contamination is indicated (*eg*. based on unusual odour, colour, substances, liquids etc).

8.1.3 Method of Sample Collection

Care will be taken to ensure that representative samples are obtained and that the integrity is maintained, particularly when dealing with potentially volatile and semi-volatile components.

Samples will be collected in accordance with documented CES procedures by experienced staff. Samples will be collected using a track mounted rig with direct push tubes.

The sample will be transferred from the sample liners to the laboratory-supplied glass sample jar or resealable plastic bag using a new pair of disposable gloves for each sample. Samples will be stored in the manner outlined in Section 8.1.5.

Where there is sufficient sample volume, part of the sample will be placed in a re-sealable polyethylene bag for measurement of volatile soil gases using the closed headspace Photo Ionisation Detector (PID) or Flame Ionisation Detector (FID) method. The procedure for soil screening using a PID/FID is summarised as follows:

1. A corresponding sample to that selected for possible laboratory analysis is placed into a "snap-lock" or re-sealable plastic bag until half filled, then sealed;
2. The bag is then hand warmed (or left in sunlight) for ten minutes with occasional agitation to maximise the release of volatile compounds into the bag;
3. Calibrate the PID/FID instrument;
4. Measure background VOC concentrations in ambient air prior to each reading in order to account for sensor drift. Record on a field data sheet along with date, location details, depth and method (HS for headspace method);
5. Use the point of the PID/FID or a knife to punch a small hole in the top the plastic bag. Place the tip of the PID/FID in the bag and monitor the readout and note the maximum and minimum concentration during the recording period;
6. Make entries in field data sheets;
7. Repeat process outlined above for each sample (ie, background reading followed by sample reading);

8. Check instrument calibration against span gas at the conclusion of monitoring. A check should be undertaken after every 20 samples if more than 20 samples are to be tested. Calibration checks are to be recorded on field data sheets; and
9. Check that samples with high concentrations of volatile compounds in headspace gases have been included for laboratory analysis.

The PID/FID is a non-specific detector, as such, the instrument provides a measure of concentrations of total combustible and ionisable compounds reported as equivalents of a calibration span gas. Therefore, the data are used to compare concentrations of volatile compounds between samples without an understanding of the specific compounds present. PIDs/FIDs are generally calibrated using zero (ambient) air and methane/isobutylene span gases.

FIDs are capable of detecting a wide range of organic compounds from C_1 upwards including a number of chlorinated solvents. For this reason, samples of organic-rich sediments sampled from anoxic environments may display elevated concentrations of combustible gases. This is due to the ability of the FID to detect compounds such as methane.

Volatile concentrations detected by PIDs/FIDs are dependent on a number of factors including:

- The concentration and type of volatile compound present in the soil sample;
- Soil texture and compaction largely influence the potential for volatiles to be released from samples;
- Time since sample collection; and
- Temperature. This strongly affects the level of volatilisation of volatile compounds from soil and fill samples. In fact, temperature changes may result in differences of up to one order of magnitude in levels of volatiles detected using PIDs/FIDs. Consequently, field screening for volatiles should be undertaken at the same time for all samples in order to produce representative results. Generally, it is recommended that samples be stored on ice and returned to base. Screening should be carried out after allowing samples to equilibrate to ambient air temperatures.

As the site consists largely of dredged sediments, soil samples collected as part of the ASS assessment will be sampled from both above and below the water table. Samples will be placed in a resealable plastic bag and frozen prior to transport to the laboratory. Field testing for PASS will be undertaken by the laboratory.

8.1.4 Decontamination Procedures.

The following decontamination procedures will be adopted for drilling and sampling equipment.

8.1.4.1 Boreholes

The boreholes will be established using a track mounted rig using a direct push tube sampling method. In order to minimise potential cross-contamination of the boreholes, all drilling equipment will be thoroughly cleaned between sampling points (set-ups) using a steam cleaner or pressure washer. Initially using Decon 90 and finally rinsed with clean water. Samples taken using the track mounted rig and the direct push tube sampling method do not require decontamination as dedicated liners are used to collect samples.

8.1.4.2 Sampling Equipment

Sampling equipment, such as trowels, will be washed between sampling locations using Decon 90 initially followed by adequate rinsing with clean water. To check the adequacy of the decontamination protocol, rinsate samples will be collected for analysis.

8.1.4.3 Sample Containers

The soil sample jars (Table 3) will comprise glass with a Teflon lined lid and be supplied by either the primary or secondary laboratory. The jars will be completely filled with soil, labelled with the job number, date, unique sampling point identification and initials of CES staff.

Resealable plastic bags will be used for the collection of samples for the ASS assessment.

8.1.5 Method of Sample Storage and Handling

The soil jars, once filled with sample, will immediately be placed in an esky / cool box in which ice has been added to keep the samples below a temperature of approximately 4^{o}C. At the end of each day the samples in the cool box will be transported to the CES Sydney office where more ice will be added until delivery to the laboratory (within one day).

Samples collected for the ASS assessment will be frozen prior to transport to the laboratory.

8.1.6 Sample Logging

A borehole log will be completed during drilling by a qualified environmental engineer/scientist. The log records the following data:

- Sample number and depth;
- Soil classification, colour, consistency or density, odour and moisture content;
- Depth of boring / excavation;
- Auger / bucket refusal;
- Method of drilling / excavation;
- The depth of first encountered free water; and
- Presence or absence of odour and potential asbestos containing materials.

A copy of a blank borehole log is provided in Appendix 1.

All samples, including QA samples, will be transported to the primary and check laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COC will detail the following information:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date;
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch courier(s).

8.1.7 QA/QC Documentation

While on site, the supervising engineer/scientist will be required to fill out a copy of CES ‘sample register’, which documents:

- Time of sample collection;
- Weather;
- Unique sample identification number; and
- Sample location and depth.

All samples will be classified in the field based on soil/fill characteristics and obvious signs of contamination such as discolouration or odour will be noted on the borehole log.

All samples, including QA samples, will be transported to the primary and check laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COC will detail the following information:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date;
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch courier(s)

8.2 GROUNDWATER

8.2.1 Location and Number of Sampling Points

Four groundwater-monitoring wells will be installed across the site in order to ensure adequate site coverage. Groundwater in the north eastern corner of the site will be assessed using a groundwater well that is to be installed in the south eastern corner of Area A. The proposed location of the groundwater monitoring wells is provided in Figure 3.

In addition, existing groundwater wells on the site that were installed during previous investigations will also be sampled, provided that they can be located and are in sound condition. These include BH106 and BH107 (CES, 2001) and BH304 and BH305 (Golders, 2001) (Figure 3).

8.2.2 Well Construction

The groundwater investigation will comprise the installation of four shallow groundwater monitoring wells at various locations across the site using a Geoprobe 6620DT drill rig. Groundwater wells are to be constructed using factory-decontaminated, 40 mm internal diameter Schedule 40 PVC machine slotted pre-packed screen sections, 1 mm sand pack, bentonite seal, steel monument set in concrete block at the surface. The use of pre-packed wells allows a gravel pack to be reliably installed around screens in collapsing formations.

Well construction will consist of the following:

- Probe rods fitted with an expendable drive point are driven to the desired depth ensuring approximately 0.5 m of screen is installed above the water table to allow sampling of LNAPLs and free-phase product;
- The well assembly (with end cap) is then lowered into the probe rod string with threaded PVC riser pipe. Once the well assembly is lowered to the bottom of the probe rod string, the probe rods are retracted to a point (approximately 1 metre) above the screen;
- In natural sands, where natural formation collapse (occurring during the initial probe rod retraction) occurs, using pre-pack screens negates the need to add sand. However CES propose to place additional fine-grade (1mm) sand through the rod annulus effectively placing sand from the base of the well to approximately one metre above the screen;
- Granular bentonite is to then be installed in the annulus above the sand pack to form a well seal;
- A PVC cap (screw, push-in or push-on) is to be installed on each well; and
- The well will be finished at the surface by the installation of a flush mounted steel gatic cover set in concrete.

8.2.3 Well Development and Sample Collection

Fieldwork will be undertaken in accordance with documented CES procedures by experienced staff. Depending on the volumes of water present, wells will be developed with a foot valve and using a Waterra Power Pack PP1 Pump. Following development of the wells, they will then be allowed to recharge before purging and sampling. The purging process will be undertaken using a low-flow method with drawdown control to limit drawdown to less than 0.05m. This will be done using either a peristaltic pump with inlet tubing set in the middle of the well screen or a bladder pump.

A calibrated water quality meter placed within a flow cell will be used during the purging process to assess chemical equilibrium by measuring pH, redox potential (Eh), electrical conductivity, dissolved oxygen and temperature. The parameters will be considered stable and at equilibrium when two consecutive readings (during the removal of each well volume) are within ±10%. The water quality meter will be calibrated at the beginning and end of each sampling day by trained CES staff. Calibration standards are kept in the CES office and are appropriate for the water quality meter used.

8.2.4 Decontamination Procedures

The pumps used to re-develop each well will be decontaminated in between sample locations by washing in a solution of phosphate-free detergent followed by rinsing with distilled water. The peristaltic pump will not require decontamination since CES propose to use dedicated tubing for each well. Bladders will be disposable and used only once.

8.2.5 Sample Containers

Laboratory supplied sample containers will be used to contain the groundwater samples (Table 4). Sample containers will be filled in order of volatility, with the most volatile substances collected first. Care will be taken to minimise disturbance of the sample to avoid aeration by minimising the distance between the outlet tubing and the container, tilting the container so that discharge flows gently down the inner walls, and ensuring containers have no airspace, are capped tightly and placed in an ice cooler immediately.

8.2.6 Method of Sample Collection, Storage and Handling

All sample containers will be labelled with the sample number, project number, date obtained and site name. This information will be repeated on the Chain-of-Custody (COC) record form.

Sample containers will be filled in order of the most volatile substances. Care will be taken to minimise disturbance of the sample to avoid aeration by minimising the distance between the outlet tubing and the container and tilting the container so that discharge flows gently down the inner walls.

Once filled, the caps will be checked to ensure that they are secure (and that there are no air bubbles/head space) then placed within an esky / cool box in which a cooling medium has been added to keep the samples below a temperature of approximately 4°C. At the end of each sampling day the samples in the cool box will be transported to the CES office where ice will be added until delivered to the laboratory (within one day). Custody seals will be placed on the esky / cool box for delivery to the laboratory.

8.2.7 Documentation

While on site, the supervising engineer/scientist will be required to fill out a copy of CES “Groundwater Sampling Field Data Sheet” and “Sample Register’, which document:

- Time of sample collection;
- Weather;

- Unique sample identification number;
- Sample location and depth;
- Static Water Level;
- Water quality screening results (DO, Temperature, Redox potential, pH and conductivity);
- Presence or absence of odour (nature and intensity);
- Colour of the water;
- Presence or absence of sediment in the well; and
- Well condition and purging volumes.

Copies of these forms are provided in Appendix 1.

All samples, including QA samples, will be transported to the primary and check laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COC will detail the following information:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date;
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch couriers.

8.3 LANDFILL GAS

8.3.1 Location and Number of Sampling Points

Four sub-surface gas monitoring wells will be installed across the sites southern boundary to assess whether landfill gas may be migrating onto the site. The proposed location of the sub-surface gas monitoring wells is provided in Figure 3.

8.3.2 Well Construction

Wells will be constructed in accordance with the following specifications:

- Well casing will be Class 18, PVC with 25 to 50 mm internal diameter. Matching male and female threads fitted with O-ring seals were machined onto each length of screen;
- Well screens will be factory slotted and match the specifications as outlined above for casing;
- Wells will be installed to approximately one metre into the unconfined aquifer and be screened to approximately one metre from the surface;
- The annulus around well screens will be filled with washed, graded river gravel (filter pack);
- A bentonite seal will be installed above the filter pack;
- Push-on or threaded caps will be fitted to the base of each well;
- Caps with vapour monitoring ports shall be fitted to each of the sub-surface gas monitoring wells. The fittings will ensure that an “air tight” seal is maintained on the well between sampling events; and
- The wells will be finished using either galvanised steel monuments set in a concrete base or gatic covers concreted at ground level.

8.3.3 Well Development and Gas Monitoring

Depending on the volumes of water present, wells will be developed with a foot valve and using a Waterra Power Pack PP1 Pump.

Monitoring will be undertaken in accordance with procedures developed by CES based on techniques for soil-gas studies and landfill surface gas surveys. These procedures are currently used by CES on a number of landfill sites in the Sydney metropolitan region. An outline of sub-surface gas monitoring methods is provided below. The procedure for monitoring landfill gas wells involves the following stages:

- Initial measurements and observations;
- Purge well by the application of vacuum; and
- Gas measurements in well.

The following initial measurements and observations will be made upon arrival at each gas well:

1. Measure concentrations of combustible gases in the ambient air using a calibrated Flame Ionisation Detector (FID) or landfill gas analyser;
2. Inspect the well for damage;

3. Estimate the air volume in the gas monitoring well;
4. Measure formation pressure (gas pressure in well before venting) using a pressure gauge;
5. Vent gas while taking care not to breathe in the emissions. Note the response of the well to venting (*eg*, no response; brief initial pulse (typically 1-2 s), long pulse (>5 s) or continuous gas emission); and
6. Measure initial concentrations in the well. Use a gas sampling bag if the well discharges gas continuously when vented to atmospheric pressure.

The procedure for purging gas wells is summarised as follows:

1. Generate a vacuum in a pressure vessel fitted with compressor motor;
2. Open the vacuum to the well while noting the initial vacuum applied;
3. Measure recovery time, defined as the time required for the well to return to atmospheric pressure after vacuum has been applied;
4. Measure gas concentrations in the well upon return to atmospheric pressure; and
5. Repeat purging and measurement cycle until concentrations stabilise to within +/-10% or three well volumes have been purged.

It should be noted that recovery times of greater than 10 minutes should be considered to be suspect as the effect of sample train leakages is increased with long recovery times. If recovery times of greater than 10 minutes occur, the operator should conclude that the formation has a low permeability to gas, record the final vacuum (small gauge) and take no further action.

In addition to the monitoring discussed above, samples of landfill gas will be collected for analysis of Volatile Organic Compounds (VOCs). Samples will be collected by drawing a volume of air under pressure through activated carbon tubes. Samples will only be collected from wells that equilibrate to atmospheric pressure during the purging process. The tubes of activated carbon will then be submitted to the laboratory for VOC analysis. The tubes will be placed within eskies/coolers and transported to the laboratory within twenty four hours of collection.

9 PROPOSED ANALYTICAL PLAN

9.1 *CHOICE OF ANALYTES*

9.1.1 Soil

The analytes selected for soil testing have been determined based on our knowledge of past land use and the results of previous investigations and will comprise:

- Metals and metalloids (arsenic, cadmium, chromium, copper, nickel, lead, mercury and zinc);
- Total Petroleum Hydrocarbons (TPH);
- Monocyclic Aromatic Hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Organochlorine Pesticides (OCPs);
- Polychlorinated Biphenyls (PCBs);
- Volatile Organic Compounds (VOCs);
- Phenoxyacetic Acid Herbicides (PAAHs);
- Phenols;
- Nutrients (ammonia, nitrate, nitrite, total kjeldahl nitrogen and total phosphorus);
- Potential Asbestos Containing Materials (ACMs), as required;
- SPOCAS; and
- Salinity indicators such as pH, electrical conductivity, salinity, resistivity, texture, soluble sulfate and chloride.

9.1.2 Groundwater

9.1.2.1 Field Parameters

Standard field measurements will be taken during purging of the wells, to ascertain when equilibrium is reached, prior to the collection of each groundwater sample. Measurements to be taken will be:

- Dissolved oxygen;
- Electrical conductivity;
- Temperature;
- Redox potential; and
- pH.

Field measurements will be taken using a calibrated water quality meter. Calibration will be checked by measuring known standard solutions at the end of each day.

9.1.2.2 Laboratory Testing

The analytes selected for testing have been determined based on the results of previous investigations and with a view to future remediation. CES propose to analyse groundwater for:

- Dissolved metals and metalloids (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury);
- Major anions (chloride, sulfate and alkalinity) and cations (sodium, potassium, calcium and magnesium).
- Nutrients - ammonia, nitrogen and phosphorous;
- Total Petroleum Hydrocarbon (TPH);
- Monocyclic Aromatic Hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Organochlorine Pesticides (OCPs);
- Organophosphate Pesticides (OPPs);
- Volatile Organic Compounds (VOCs);
- Phenoxyacetic Acid Herbicides (PAAHs);
- Phenols; and
- Salinity indicators such as salinity, total dissolved solids, corrosion potential (resistivity and saturation index), alkalinity, ammonia, sulfate and chloride.

9.1.3 Landfill Gas

The parameters selected for monitoring have been determined based on CES experience with sub-surface landfill gas monitoring of putrescible landfills in the Sydney metropolitan area. CES propose to monitor sub-surface gas wells for:

- Methane, carbon dioxide and oxygen concentrations;
- Formation pressures; and
- Flow rates.

Methane, carbon dioxide and oxygen concentrations will be measured using a Landfill Gas Analyser (LGA) which will be calibrated at the beginning and end of each work day using manufacturer supplied calibration gases.

Landfill gas will also be analysed for VOCs as part of the human health risk assessment.

9.2 LABORATORY

CES propose to use either Australian Laboratory Services (ALS) Pty Ltd or Labmark Pty Ltd (Labmark) as the primary and secondary 'check' laboratories for the soil and groundwater investigations. Both laboratories are NATA accredited for the above analyses.
Bio-Track Pty Ltd will be contracted for the ASS assessment.

9.3 ANALYTICAL METHODS

9.3.1 Soil

Soil samples will be analysed in accordance with ANZECC (1996) Guidelines for the Laboratory Analysis of Contaminated Soils using USEPA and APHA approved analytical methods as described in Table 5. The laboratory Practical Quantitation Limits (PQLs) are also summarised in Table 5.

The SPOCAS analysis will be undertaken utilising the procedure outlined in the ASSMAC (1998) manual.

9.3.2 Groundwater

The water samples will be analysed using analytical methods based on US EPA and APHA methods as described in Table 6. The corresponding laboratory PQLs are also provided in Table 6.

9.3.3 Landfill Gas

The gas samples will be analysed using analytical methods based on US National Institute of Occupational Health and Safety (NIOSH) methods 1003, 1300, 1301, 1500 and 1501. The laboratory PQL is 1 µg $tube^{-1}$.

10 PROPOSED SITE ASSESSMENT CRITERIA

10.1 SOIL

When determining the significance of any contaminants detected in the soil, it is important to define site assessment criteria. For recreational open space land use this should include aesthetics (including soil colour and odour), ecological and potential human health issues. That is, the site assessment criteria should be set at a level that provides confidence that contaminant concentrations below the criteria will not adversely impact the environment, human health or be aesthetically adverse.

10.1.1 Aesthetics

Aesthetics relates to the generation of odours from the site and any discolouration of the soil as a result of contamination. Aesthetic issues will continually be addressed during the investigation and reported on the borehole logs.

10.1.2 Ecologically Based Investigation Levels

Potential ecological impacts have to be assessed for soils to be retained on site, which are not underneath buildings or slabs. To address potential ecological impacts of these soils, CES will compare the analytical testing results against the lower of the health based investigation levels a set of Ecological based Investigation Levels (EILs) that provides confidence that contaminant concentrations below these levels will not adversely impact specific flora proposed for the site.

Specific flora proposed for the site is not known therefore CES propose to adopt the interim urban Ecological Investigation Levels (EILs) as published in NEPC (1999), which are equivalent to the provisional Phytotoxicity-based Investigation Levels (PBIL) published in NSW EPA (1998). With respect to hydrocarbons, CES will adopt the ecologically based threshold concentrations as published in NSW EPA (1994) Guidelines for Assessing Service Station Sites.

The EILs are generally based on threshold levels for phytotoxicity or other impact to flora. As such, they are framed to protect the most sensitive environmental receptor. Both the NEPC EILs and the NSW EPA PBIL are provisional and only intended as a screening guide. Furthermore, the published levels specifically relate to sandy loams with a pH of between 6 and 8. If the proposed exposed soil does not fit this description, then field observations in conjunction with results of CEC, pH, clay content and organic content testing will be relied upon rather than the EILs.

A summary of the adopted EIL criteria is provided in Table 7.

10.1.3 Health-Based Soil Investigation Levels

To address potential health impacts at the site, CES will compare the analytical testing results against a set of Health Based Soil Investigation Levels (HIL) appropriate for the proposed land-use. That is, the HIL will be set at a level that provides confidence that contaminant concentrations below the HIL will not adversely affect human health.

It is understood that Area B will retain its existing recreational open space land use. Therefore, CES has adopted the following HIL criteria:

- NEPC (1999) Health Based Investigation Levels (HIL) recommended for exposure setting 'E' which includes recreational open space land use; and
- With respect to hydrocarbons (TPH and BTEX), the NSW EPA (1994) Threshold Levels.

For contaminants with no relevant Australian guidelines, CES will examine guideline levels from overseas which are appropriate for the future intended land-use (*eg*. USEPA Region 9 Preliminary Remediation Goals).

A summary of the soil assessment criteria is provided in Table 7.

10.1.4 Asbestos in Soil

The current EPA policy is that sites should not contain any Asbestos Containing Material (ACM) or asbestos fibres at the surface. For this project, CES propose that there must be no visible ACM and each soil sample collected must not contain any respirable asbestos fibres above the lower detection limit of the analytical method used by Australian Safer Environment and Technology Pty Ltd (ie 0.1 grams per kilogram).

10.1.5 Acid Sulfate Soils

ASSMAC (1998) criteria were selected to identify the presence of Acid Sulfate Soils on the site. These guidelines provide a series of trigger levels or action criteria, above which an ASS management plan should be prepared and development consent obtained prior to excavation works (Table 8). The trigger levels are based on the percentage of oxidisable sulfur (or equivalent TPA, TAA) for broad categories of soil types. For projects that disturb more than

1000 tonnes of soil with ≥0.03% oxidisable sulfur or equivalent existing acidity, a detailed management plan and development consent will be required (Ahern *et al.*, 1998).

10.2 GROUNDWATER

Assessment criteria for groundwater will be derived from the ANZECC (2000) water quality guidelines.

Trigger values for marine water will be adopted for this study rather than freshwater guidelines, on the basis that the ultimate receiving system for groundwater at the site is the estuarine section of the Cooks River and ultimately Botany Bay.

The ANZECC (2000) water quality guidelines specify four sets of trigger values corresponding with different levels of protection for ecosystem conditions. Trigger values, derived using the statistical distribution method, relate to the protection of 99%, 95%, 90% and 80% of species in an aquatic ecosystem. Three "categories of ecosystem conditions" are developed in the guidelines. The guidelines advocate that the level of protection afforded to a particular ecosystem should be determined following consideration of site conditions in consultation with key stakeholders. The guidelines recommend that, in most cases, the 95% protection trigger values should be applied to "slightly to moderately disturbed" ecosystems. Consequently, with the 95% protection trigger values have been adopted. However, the ANZECC (2000) guidelines require that for chemicals which are bioaccumulative, such as mercury, that the 99 % protection trigger values be adopted. Therefore, the 99 % protection trigger value will be adopted for mercury.

In the absence of appropriate marine water levels, the 95% trigger values for freshwater will be utilised for o-xylenes. Additionally, ANZECC (2000) Low Reliability and Environmental Concern Levels (ECLs) will be utilised for TPH C_6-C_{40}. In the absence of any appropriate site assessment criteria for the remaining analytes detected, the EPA NSW (1994) *Guidelines for Assessing Service Station Site* threshold concentrations for "Waters – Protection of Aquatic Ecosystems" will be adopted for toluene, ethylbenzene and total xylenes. Assessment criteria for relevant parameters are summarised in Table 9.

10.3 LANDFILL GAS

EPA NSW (1996) specifies that a detection of methane above 1.25% *v*/*v* in sub-surface gas monitoring wells will require notification to EPA and an increase in the frequency of monitoring. This criterion will be adopted for the purposes of this investigation.

11 PROPOSED QUALITY CONTROL PLAN

Fieldwork will be undertaken by experienced staff in accordance with documented CES procedures as outlined in Section 7. Field and laboratory QA/QC requirements compliant with National Environmental Protection Council (1999) requirements are outlined below.

11.1 FIELD QA/QC PROGRAMME

Field QA/QC for this project consists of blind replicates, split samples, rinsate samples, trip spikes and trip blanks. A description of each of these samples and their proposed frequency of testing is provided below.

Rinsate samples are unlikely to be included in this investigation as the Geoprobe 6620DT drill rig utilises location specific core liners for the collection of soil samples. In addition, groundwater sampling will be undertaken using site specific tubing and equipment. However, a description of their collection and purpose has been provided below in the event that different sampling equipment becomes required.

11.1.1 Environmental Samples

Environmental samples or field samples are the representative samples of, groundwater or soil (in this case groundwater and soil) collected for analysis to determine aspects of their chemical composition.

11.1.2 Blind Replicate Samples

Blind replicate samples are provided by the collection of two environmental samples from the same location or successively from the same monitoring bore. These samples are preserved, stored, transported, prepared and analysed in an identical manner. As a minimum, the results of analyses on the blind replicate sample pair are assessed by calculating the Relative Percentage Differences (RPDs) between the results. The RPD is calculated as the difference between the results divided by their mean value and expressed as a percentage. If the RPD exceeds the value adopted for any analytes, additional investigation will be required, or justification provided for not conducting additional investigation.

One blind replicate will be collected for every ten environmental samples or one for each batch larger than five samples (Table 10). This equates to two blind replicates samples for this investigation.

11.1.3 Split Samples

Split samples provide a check on the analytical proficiency of the laboratories. Split samples are collected from the same location or successively from the same monitoring bore. Split samples must be taken from the same location as the blind replicate, thus becoming a triplicate sample. However, split samples are not taken as often as blind replicates. Split samples will generally be collected at a rate of one split sample for every 20 environmental samples or 5% of samples. For small batches split samples are collected subject to project requirements (Table 10). This equates to one split sample for this investigation

Spilt samples (triplicates) are preserved, stored, transported, prepared and analysed in an identical manner to environmental samples.

11.1.4 Rinsate (Equipment) Samples

Rinsate (equipment) blanks consist of pre-preserved bottles filled with laboratory-prepared water that has been passed over decontaminated field equipment. Rinsate blanks are prepared on site, labelled with a unique CES sample identification number and transported to the principle laboratory for analysis as regular environmental samples. The purpose of the rinsate blank is to assess the efficiency of decontamination procedures.

For inorganic compounds and semi-volatile organic compounds (SVOCs), rinsate water must consist of milli-Q water (distilled tap water passed through a resin de-ioniser). This water is unsuitable for the analysis of volatile organic compounds (VOC) due to the inclusion of volatiles in the milli-Q water. Only purged water is to be used for volatiles (VOC) rinsate blanks. This water is produced at the laboratory by purging spring water that has not been adulterated by VOCs as with tap water. Purged water is unsuitable for the production of rinsate samples for inorganics due to the presence of trace levels of inorganic compounds.

While the number of equipment blanks varies between projects, the following strategy is generally adopted (Table 10): a rate of one rinsate blank for each field collection (>5 samples). Rinsate sampling will be subject to project requirements for smaller batches (<5 samples).

Rinsate samples are not required if field equipment is dedicated for the specific sampling location.

11.1.5 Trip Blanks

Trip blanks consisting of pre-washed bottles containing distilled or de-ionised water and appropriate preservatives will be supplied by the analytical laboratory. The role of trip blanks is to detect potential contamination during sample transport. These samples reside in transport vessels during sampling activities and are not opened in the field. Trip blanks are analysed at the laboratory as regular samples or only for volatile organic compounds, as deemed appropriate.

One trip blank will be prepared for each field collection day as is the standard.

11.1.6 Laboratory Prepared Trip Spikes

Laboratory-prepared VOC spikes consisting of distilled, de-ionised water or sand spiked with known concentrations of BTEX should be included in QA/QC programmes where TPH and BTEX concentrations are being measured. Laboratory-prepared VOC spikes should be included at a rate of one per sample batch. These samples are to be submitted for BTEX analysis with results compared with the known additions. Generally, samples are spiked with concentrations of 10, 10, 10 and 30 ppm of benzene, toluene, ethylbenzene and total xylenes respectively. The purpose of these samples is to monitor VOC losses during transit.

Care will be taken to ensure that only freshly-prepared spiked samples are used. Spikes more than 2 days old at the time of receipt from the laboratory should be discarded. All trip spikes received will be checked for leakage or bubbles. Any spikes containing bubbles or any other defects will be discarded. Furthermore, only spikes delivered under laboratory COC will be accepted. COCs will be stored in the project file for reference.

11.2 LABORATORY QA/QC PROGRAMME

The reliability of test results from the analytical laboratories will be monitored according to the QA/QC procedures used by the NATA accredited laboratory. The QA/QC programme employed by ALS (the primary laboratory) will specify holding times, extraction dates, method descriptions, Chain of Custody (COC) requirements, analysis, PQLs and acceptance criteria for the results. Laboratory QA/QC requirements to be undertaken by ALS are based on NEPM requirements and are outlined below (NEPC, 1999).

11.2.1 Laboratory Duplicate Samples

Laboratory duplicates provide data on analytical precision for each batch of samples. Where required and in order to provide sufficient sample for analysis of laboratory duplicate, two batches of samples are collected at the first site listed on the Chain of Custody form. This is done in order to ensure that sufficient sample is collected.

Laboratory duplicates are performed at a rate of one duplicate for batches of 6-14 samples with an additional duplicate for each subsequent ten samples.

11.2.2 Laboratory Control Samples

Laboratory control samples consist of a clean matrix (de-ionised water or clean sand) spiked with a known concentration of the analyte being measured. These samples monitor method recovery in clean samples and can also be used to evaluate matrix interference by comparison with matrix spikes. Laboratory control samples may be certified reference materials.

11.2.3 Surrogates

For organic analyses, a surrogate is added at the extraction stage in order to verify method effectiveness. The surrogate is then analysed with the batch of samples. Percent recovery is calculated.

11.2.4 Matrix Spike

A matrix spikes consist of samples spiked with a known concentration of the analyte being measured, in order to identify properties of the matrix that may hinder method effectiveness. Samples are spiked with concentrations equivalent to 5 to 10 times the PQL. Percent recovery is calculated.

11.2.5 Method Blanks

Method blanks (de-ionised water or clear sand) are carried through all stages of sample preparation and analysis at a rate of approximately 10%. Analyte concentrations in blanks should be less than the stated PQL. Reagent blanks are run if the method blank exceeds the PQL. The purpose of method blanks is to detect laboratory contamination.

11.3 DATA QUALITY OBJECTIVES (DQO) AND ACCEPTANCE CRITERIA

The QA/QC Data will be assessed against the Data Acceptance Criteria (DAC) provided in Table 11. If data does not meet the DAC then the following steps will be taken:

- Request that the laboratory re-check or even re-analyse the sample; and

- Inspect the sample for anomalies which may be causing the failure; and
- If necessary, undertake additional sampling and analyses; or
- Qualify data. For example, data may be used for screening purposes only or working PQLs may be raised.

12 REPORTING

The proposed monitoring programme outlined in this SAQP, including field and laboratory methods and results, will be reported in accordance with the requirements of guidelines adopted by NSW EPA.

13 REFERENCES

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National Environmental Health Forum (NEHF), 1998: *Health-Based Soil Investigation Levels.* National Environmental Health Forum Monographs, Soil Series No 1, 2nd edition, NEHF, 33pp.

TABLES

Table 1: Proposed Sampling Locations				
Sample Location	**Sampling Pattern**	**Location Rationale**	**Potential Contaminants of Concern for analysis**	**Method of Sample Collection**
BHB100 series	Triangular Grid	Located on grid pattern across site.	General Suite (Table 2)	Boreholes
BH106	Targetted	Located towards south eastern corner of site. Installed by CES (2001).	General Suite (Table 2)	Groundwater well
BH107	Targetted	Located along northern boundary of site. Installed by CES (2001).	General Suite (Table 2)	Groundwater well
BH304	Targetted	Located towards eastern boundary of site. Installed by Golders (2001).	General Suite (Table 2)	Groundwater well
BH305	Targetted	Located towards centre of site. Installed by Golders (2001).	General Suite (Table 2)	Groundwater well
MWB101	Targetted	Located along western boundary of site.	General Suite (Table 2)	Soil and groundwater well
MWB102	Targetted	Located along central northern boundary of site.	General Suite (Table 2)	Soil and groundwater well
MWB103	Targetted	Located along central southern boundary of site.	General Suite (Table 2)	Soil and groundwater well
MWB104	Targetted	Located in south eastern corner of site.	General Suite (Table 2)	Soil and groundwater well
LGB101	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well
LGB102	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well
LGB103	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well
LGB104	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well

Table 2: Proposed Analytical Program			
Matrix	**No. of Sampling Points**	**Potential Contaminants**	**Number of Environmental Samples to be Analysed**
Soil	48	General Suite	Metals and metalloids (72) TPH/BTEX (36) PAHs (36) OCPs (36) OPPs (24) VOCs (12) PAAHs (12) Phenols (12) Nutrients (12) Asbestos (18) SPOCAS - field (12) SPOCAS (6) Salinity indicators (5)
Groundwater	10	General Suite	Metals and metalloids (10) Major ions (10) Nutrients (10) TPH/BTEX (10) PAHs (10) VOCs (10) PAAHs (10) Phenols (10) Salinity indicators (10)

Table 3: Containers, preservation requirements and holding times – Soil				
Parameter	**Container**	**Preservation**	**Maximum holding time**	**Colour code**
Acid digestible metals and metalloids (As, Cd, Cr, Cu, Ni, Pb, Zn, Sn)	250 mL glass	Nil	6 months	Orange
Mercury	250 mL glass	4°C	28 days	Orange
TPH/BTEX	250 mL glass	4°C	14 days	Orange
PAHs	250 mL glass	4°C, zero headspace	14 days	Orange
OCPs/OPPs/PCBs	250 mL glass	4°C, zero headspace	14 days	Orange
VOCs, PAAHs, Phenols	250 mL glass	4°C, zero headspace	14 days	Orange
Nutrients	250 mL glass	4°C	7 days	Orange
Asbestos	Sealed plastic bag	Nil	Nil	Nil
SPOCAS	Sealed plastic bag	Frozen	Nil	Nil
Salinity indicators	Sealed plastic bag - min 1500g	Nil	Nil	Nil

Table 4: Containers, preservation requirements and holding times – Groundwater					
Parameter	**Container Volume (mL)**	**Preservative**	**Maximum holding time**	**Colour Code**	**Field Filtered**
Metals and metalloids	125 mL Plastic	HNO_3 / 4°C	6 months	Red	Yes
Anions	250 ml Plastic	None / 4°C	48 Hrs	Green	No
Cations	125 mL Plastic	HNO_3 / 4°C	7 days	Red	Yes
Nutrients	250 ml Plastic	H_2SO_4 / 4°C	28 days	Purple	No
TPH (C_6-C_9)/BTEX/VOCs	4 x 43 mL Glass	HCl / 4°C	14 days	Orange	No
TPH (C_{10}-C_{36})/PAHs	1000 mL Glass	None / 4°C	28 days	Orange	No
PAAHs/Phenols	1000 mL Glass	None / 4°C	28 days	Orange	No
Salinity Indicators	1000 mL	None / 4°C	48 Hrs	Green	No

Table 5: Analytical parameters, PQLs and methods - Soil			
Parameter	**Unit**	**PQL**	**Method Based On**
Metals and Metalloids in Soil			
Arsenic [1]	mg kg^{-1}	1	USEPA 200.7
Cadmiun [1]	mg kg^{-1}	1	USEPA 200.7
Chromium [1]	mg kg^{-1}	1	USEPA 200.7
Copper [1]	mg kg^{-1}	1	USEPA 200.7
Mercury [2]	mg kg^{-1}	0.1	USEPA 7471A
Nickel [1]	mg kg^{-1}	1	USEPA 200.7
Lead [1]	mg kg^{-1}	1	USEPA 200.7
Zinc [1]	mg kg^{-1}	1	USEPA 200.7
Total Petroleum Hydrocarbons (TPH) and BTEX Compounds			
C_6-C_9 fraction	mg kg^{-1}	2	USEPA 8015B
C_{10}-C_{14} fraction	mg kg^{-1}	50	USEPA 8015B
C_{15}-C_{28} fraction	mg kg^{-1}	100	USEPA 8015B
C_{29}-C_{36} fraction	mg kg^{-1}	100	USEPA 8015B
Total C_6-C_{36}	mg kg^{-1}	--	USEPA 8015B
Benzene	mg kg^{-1}	0.2	USEPA 8021A
Toluene	mg kg^{-1}	0.5	USEPA 8021A
Ethylbenzene	mg kg^{-1}	0.5	USEPA 8021A
m&p-xylene	mg kg^{-1}	1	USEPA 8021A
o-xylenes	mg kg^{-1}	0.5	USEPA 8021A
Organics in Soil			
Polycyclic Aromatic Hydrocarbons	mg kg^{-1}	0.5-1	USEPA 8270 SIM
Organochlorine Pesticides	mg kg^{-1}	0.05-0.2	USEPA 8081A
Polychlorinated Biphenyls	mg kg^{-1}	0.1	USEPA 8081A
Asbestos			
Asbestos	-	-	Polarised Light Microscopy
SPOCAS analysis			
SPOCAS	% or mol H^+ $tonne^{-1}$	0.001-0.01	Ahern *et al* (1998)
Salinity Indicators			
pH	pH units	0.01	AS2159:1995
Electrical Conductivity	µS cm^{-1}	1	AS2159:1995
Salinity	ppt	1	AS2159:1995
Resistivity	Ohms	1	AS2159:1995
Soluble sulfate	mg kg^{-1}	10	AS2159:1995
Chloride	mg kg^{-1}	10	AS2159:1995

Note 1: Acid soluble metals by ICP-AES.

Note 2: Total recoverable mercury.

Table 6: Analytical parameters, PQLs and methods - Groundwater.

Parameter	Unit	PQL	Method Based On
Metals in Water			
Arsenic	µg L^{-1}	1	USEPA 200.8
Cadmium	µg L^{-1}	0.1	USEPA 200.8
Chromium	µg L^{-1}	1	USEPA 200.8
Copper	µg L^{-1}	1	USEPA 200.8
Mercury	µg L^{-1}	0.1	USEPA 7470
Nickel	µg L^{-1}	1	USEPA 200.8
Lead	µg L^{-1}	1	USEPA 200.8
Zinc	µg L^{-1}	5	USEPA 200.8
Major Ions in Water			
Cations (Na^+, K^+, Ca^{2+}, Mg^{2+})	mg L^{-1}	1	USEPA 200.7
Anions (Cl^-, SO_4^{2-}, HCO_3^-, CO_3^{2-})	mg L^{-1}	1	APHA 2320
Nutrients			
Total Nitrogen	mg L^{-1}	0.1	APHA 20th Ed 4500
Ammonia	mg L^{-1}	0.1	APHA 20th Ed 4500 NH_3-H
Total Phosphorous	mg L^{-1}	0.1	USEPA 600/4-79-020
Total Petroleum Hydrocarbons (TPH) in Water			
C_6-C_9 fraction	µg L^{-1}	50	USEPA 8015B
C_{10}-C_{14} fraction	µg L^{-1}	50	USEPA 8015B
C_{15}-C_{28} fraction	µg L^{-1}	400	USEPA 8015B
C_{29}-C_{36} fraction	µg L^{-1}	100	USEPA 8015B
BTEX Compounds			
Benzene	µg L^{-1}	1	USEPA 5030/8260B
Toluene	µg L^{-1}	1	USEPA 5030/8260B
Ethylbenzene	µg L^{-1}	1	USEPA 5030/8260B
ortho-Xylenes	µg L^{-1}	2	USEPA 5030/8260B
meta- and para-Xylenes	µg L^{-1}	1	USEPA 5030/8260B
Organic Contaminants in Water			
Polycyclic Aromatic Hydrocarbons	µg L^{-1}	0.5	USEPA 8270/EP032B
Salinity Indicators			
pH	pH units	0.1	AS2159:1995
Electrical conductivity	µS cm^{-1}	1	AS2159:1995
Salinity	ppt	1	AS2159:1995
Total dissolved solids	mg L^{-1}	1	AS2159:1995
Resistivity	Ohms	1	AS2159:1995
Saturation Index	-	-	AS2159:1995
Alkalinity	mg L^{-1}	1	AS2159:1995
Ammonia	mg L^{-1}	0.01	AS2159:1995
Sulfate	mg L^{-1}	0.1	AS2159:1995
Chloride	mg L^{-1}	0.1	AS2159:1995

Table 7: Site Assessment Criteria – Soils (mg kg^{-1})			
Contaminant	**HIL (Setting E)**	**EIL (Phytotoxicity)**	**Source**
Arsenic (total)	200	20	NEPC (1999) – Schedule (B1)
Benzo(a)pyrene	2	-	NEPC (1999) – Schedule (B1)
Cadmium	40	3	NEPC (1999) – Schedule (B1)
Chromium (III)	24 %	400	NEPC (1999) – Schedule (B1)
Copper	2000	100	NEPC (1999) – Schedule (B1)
Lead	600	600	NEPC (1999) – Schedule (B1)
Mercury (inorganic)	30	1	NEPC (1999) – Schedule (B1)
Nickel	600	60	NEPC (1999) – Schedule (B1)
Zinc	14 000	200	NEPC (1999) – Schedule (B1)
Total PAHs	400	-	NEPC (1999) – Schedule (B1)
TPH C_6-C_9	65	-	NSW EPA (1994)
TPH C_{10}-C_{40}	1000	-	NSW EPA (1994)
Benzene	1	-	NSW EPA (1994)
Toluene	130	-	NSW EPA (1994)
Ethylbenzene	50	-	NSW EPA (1994)
Total Xylene	25	-	NSW EPA (1994)
Aldrin + Dieldrin	20	-	NEPC (1999) – Schedule (B1)
Chlordane	100	-	NEPC (1999) – Schedule (B1)
DDT+DDD+DDE	400	-	NEPC (1999) – Schedule (B1)
Heptachlor	20	-	NEPC (1999) – Schedule (B1)
Polychlorinated Biphenyls	20	-	NEPC (1999) – Schedule (B1)

Table 8: Action criteria based on ASS soil analysis					
Type of Material		**Action Criteria 1-1000 tonnes disturbed**		**Action Criteria if more than 1000 tonnes disturbed**	
Texture range[1]	**Approx. clay content** (%<0.002 mm)	**Sulfur trail** % S oxidisable (oven-dry basis) eg S_{TOS} or S_{POS}	**Acid trail** mol H+/tonne (oven-dry basis) eg TPA or TSA	**Sulfur trail** % S oxidisable (oven-dry basis) eg S_{TOS} or S_{POS}	**Acid trail** mol H+/tonne (oven-dry basis) eg TPA or TSA
Coarse Texture Sands to loamy sands	≤5	0.03	18	0.03	18
Medium Texture Sandy loams to light clays	5-40	0.06	18	0.03	18
Fine Texture Medium to heavy clays and silty clays.	≥40	0.1	18	0.03	18
Source: Ahern *et al*. (1998a) Table 4.4.					

Table 9: Summary of site assessment criteria - groundwater		
Parameter	**Criterion ($\mu g\ L^{-1}$)**	**Source and Comments[1]**
Metals and Metalloids		
Arsenic (V)	13	ANZECC 2000 (95 % freshwater)
Cadmium	5.5	ANZECC 2000 (95 % marine)
Chromium VI	4.4	ANZECC 2000 (95 % marine)
Copper	1.3	ANZECC 2000 (95 % marine)
Nickel	70	ANZECC 2000 (95 % marine)
Lead	4.4	ANZECC 2000 (95 % marine)
Zinc	15	ANZECC 2000 (95 % marine)
Mercury (inorganic)	0.1	ANZECC 2000 (99 % marine)
Nutrients		
Nitrate	10 000	ANZECC 2000[6]
Ammonia	910	ANZECC 2000
TPH and BTEX		
TPH C_6-C_{36}	285	ANZECC 2000[5]
Benzene	700	ANZECC 2000
Toluene	180	ANZECC 2000[2]
Ethylbenzene	5	ANZECC 2000[2]
m + p xylene	ID	ANZECC 2000[2]
o-xylene	350	ANZECC 2000
Total xylenes	380	EPA NSW 1994[3]
Polycyclic Aromatic Hydrocarbons		
Fluoranthene	1	ANZECC 2000[2]
Phenanthrene	0.6	ANZECC 2000[2]
Anthracene	0.01	ANZECC 2000[2]
Benzo(a)pyrene	0.1	ANZECC 2000[2]
Napthalene	50	ANZECC 2000 (99%)
Organic Compounds		
Organochlorine Pesticides	Various	ANZECC 2000[2]
Polychlorinated Biphenyls	Various	ANZECC 2000[2]
Volatile Organic Compounds	Various	ANZECC 2000[2]
Dissolved methane	-	-

Note 1: ANZECC 2000 95% level of protection in marine water.
Note 2: ANZECC 2000 low reliability threshold in marine water.
Note 3: EPA NSW 1994 Guidelines for Assessing Service Stations.
Note 4: ID - insufficient data for guideline development.
Note 5: Addition of the combined detection limits
Note 6: ANZECC 2000 recreational waters guideline

Table 10: Frequency of Field QA/QC sampling			
Environmental samples	**Blind replicates**	**Split sample**	**Rinsate Blanks (if required)**
0 – 5	Subject to project requirements		
5 - 10	1	0	1
10 – 15	1	1	1
>15	10%	5%	1

Table 11: QA/QC Data Acceptance Criteria		
QA/QC Sample Type	**Method of Assessment**	**Acceptable Range**
Field QA/QC		
Blind Replicates and Split Samples	The assessment of split replicate is undertaken by calculating the Relative Percent Difference (RPD) of the replicate concentration compared with the original sample concentration. The RPD is defined as: $$RPD = 100 \times \frac{\lvert X_1 - X_2 \rvert}{Average}$$ Where: X_1 and X_2 are the concentration of the original and replicate samples.	The acceptable range depends upon the levels detected: ▪ 0 – 100% RPD (When the average concentration is < 5 times the PQL) ▪ 0 – 75% RPD (When the average concentration is 5 to 10 times the PQL) ▪ 0 – 50% RPD (When the average concentration is > 10 times the PQL)
Laboratory-prepared Trip Spikes	The trip spike is analysed after returning from the field and the % Recovery of the known spike.	70% - 130%
Blanks (Rinsate and Trip blanks)	Each blank is analysed as per the original samples.	Analytical Result < PQL
Laboratory QA/QC		
Laboratory Duplicates	Assessment as per Split Replicates.	The acceptable range depends upon the levels detected: ▪ 0 – 100% RPD (When the average concentration is < 4 times the PQL) ▪ 0 – 50% RPD (When the average concentration is 4 to 10 times the PQL) ▪ 0 – 30% RPD (When the average concentration is > 10 times the PQL)
Surrogates Matrix Spikes Laboratory Control Samples	Assessment is undertaken by determining the % Recovery of the known spike or addition to the sample. $$\% \text{ Recovery} = 100 \times \frac{C - A}{B}$$ Where: A = Concentration of analyte determined in the original sample; B = Added Concentration; C = Calculated Concentration.	Surrogates: 70% – 130% Matrix Spikes: 70% - 130% (Organics) 80% - 120% (Inorganics) LCS: 70% - 130% (Organics) 90% - 110% (Inorganics)
Method Blanks	Each blank is analysed as per the original samples.	Analytical Result < PQL

Note: 1 PQL = Laboratory Practical Quantitation Limit (PQL) or the minimum detection limit for a particular analyte.
Reference: APHA 18th Edition/ Amdel Quality Control Manual SPM-01/USEPA SW846.
Australian Standard AS4482.1-1997 Guide to Sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds

FIGURES

Title	CES Project ID	Scale	Paper size
Figure 1: Site location, Cooks Cove Development Site	CES050706-BCC	Not to scale	A4

CONSULTING EARTH SCIENTISTS
1/111 Moore St, Leichhardt NSW 2040
ph: 02 8585 4888 fax: 02 9550 9566

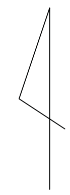
Date	Prepared by	Checked by	Figure number
27 September 2005	YC	MP	

Aerial photograph sourced from © 2005 Google Earth: Image © Digital Globe.

Legend
Site Boundary
Area Boundaries

CES PROJECT ID	SCALE	SIZE	TITLE
CES050706-BCC	Approx. 1:8700	A4	Figure 2 Site Layout

DATE	PREPARED BY	CHECKED BY	
27 September 2005	YC	MP	CONSULTING EARTH SCIENTISTS 1/ 111 Moore St, Leichhardt NSW 2040 ph: 02 8585 4888 fax: 02 9550 9566



Legend	
—	Site Boundary
●	Proposed Borehole Location
■	Proposed Groundwater Monitoring Well
◆	Proposed Gas Monitoring Well
■	Existing Groundwater Monitoring Well

BHB100 boreholes have not been labelled to minimise noise. BHB101 will be located in the north western corner of the site. Boreholes will be numbered sequentially from left to right and north to south.

Title	CES Project ID	Scale	Paper size
Figure 3: Proposed sample locations, Cooks Cove Development Site - Area B	CES050706-BCC	Approx. 1:4100	A4

CONSULTING EARTH SCIENTISTS
1/111 Moore St, Leichhardt NSW 2040
ph: 02 8585 4888 fax: 02 9550 9566

Date	Prepared by	Checked by	Figure number
28 September 2005	YC	MP	3

APPENDIX 1
Sample Field Data Sheets

Project:

Client:

Location:

Northing:

Elevation: m

EARTH SCIENTISTS
1/111 Moore Street Leichhardt NSW 2040
PH: (02) 9565 4888 FAX: (02) 9550 9560

Environmental Log:

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION						WELL DETAIL
							FID/PID (ppm)				
Depth	Method	Water	Symbol	Description	Sample ID	Type	0	250	500	750	
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

Drill Company:

Drill Model

Hole Diameter (mm):

Date Commenced:

Date Completed:

Logged/checked by:

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client:		CES Project Code:
Project:		Location:
Sampler (s):	Signature(s):	Project Manager:
PID manufacturer and model:		Serial no:

Calibration gas type and concentration:	Lamp voltage:
Calibration date:	Calibration check and date:

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm)		Comments
						Minimum	Maximum	

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

MONITORING WELL DEVELOPMENT FIELD DATA SHEET

Client:	EnviroRisk Management	CES Project Code:	CES051107-ERM
Project:	Illawarra Coke Company	Location:	Railway Street, Corrimal
Sampler (s):	Y. Carden	Project Manager:	Y. Carden

Signature(s):

Well Development Record

Date	Well ID	Development Method (s)	Standing Water Level (before/after)	Depth to Bottom of Well (before/after)	Water Volume Removed (L)	Description and comments (eg. Turbidity, odours, free-phase product, changes (through development process)

Note I:
B = Bailer; SB = Surge Block; AIR = Air sparging/air lift; NLIFT = Nitrogen gas sparging/lift; PUMP = Pumping/over pumping

GROUNDWATER FIELD DATA SHEET

Client: Envirogurard		**CES Project Code:**	CES000102-EGD
Project: Erskine Park Landfill		**Location:**	Erskine Park Landfill
Sampler (s): Petrozzi	**Signature(s):**	**Project Manager:**	Petrozzi
BH ID:		**Sample ID:**	
Purging Date: 29-Mar-05		**Sampling Date:**	29-Mar-05

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater	YES/NO

Comments:

Standing Water Level (SWL): (mBTOC)
Well volume: (L)
Water level after purging: (mBTOC)
Water level at time of sampling: (mBTOC)
Volume of water purged: (L)
Well purged to dry?: YES/NO
Purging equipment: Pump / micro-Purging / Bailer / Foot valve
Sampling equipment: Pump / Bailer / Foot valve

Purging Details

Elapsed time (min)	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^{o}C)	Comments

Groundwater field parameters at the end of purging to be marked "Field Measurements".

CONSULTING EARTH SCIENTISTS

SUBSURFACE GAS MONITORING FIELD DATA SHEET

Client:	CES Project Code:
Project:	Location:
Sampler (s): Signature(s):	Project Manager:
BH ID:	Monitoring Date / Time:

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Vapour cap on PVC casing:	YES/NO
Standing water, vegetation around monument:	YES/NO	Well ID visible:	YES/NO
Water between PVC and protective casing:	YES/NO	Monument damaged:	YES/NO
Comments:			
Ambient air measurement (FID):	ppm		
Length of air column in well (L):	(m estimated)		
Estimated air volume in well:	(L) (4.2L/m air in 50mm ID screen with gravel pack inside 110mm ID borehole)		
Formation pressure:	kPa		
Initial vent:	Nil / Initial pulse / Pulse > 5 s / Continuous		
Gas flow rate:	(% 440L/hr) OR (% 3000L/hr)		
Well pressure after initial vent:	kPa		

Readings

Cumulative volume (L)*	Maximum Vacuum on Well (psi)	Maximum Vacuum on Well (kPa)	Recovery Time - For well vacuum to equilibrate to atmospheric pressure (min)	CH_4 (%)	CO_2 (%)	O_2 (%)	FID (ppm)	Comments
Initial	-	-	-					

* Where one vacuum tank volume = 12 L

Unit conversions
1 kPa = 0.145 psi
1 psi = 6.90 kPa

CONSULTING EARTH SCIENTISTS

FIELD DATA SHEET : Landfill Surface Gas Surveys

Client:	CES Project Code:
Project:	Date:
Sampler (s): Signature(s):	Project Manager:
Weather Conditions and General Comments:	

Field Calibration and Instrument Details (include make, model and serial number)

Grid Details and Datum

Date	Time	x coord	y coord	Methane ppm	Comments (odour, wind, leachate, location)
/ /2002	:				
/ /2002	:				
/ /2002	:				
/ /2002	:				
/ /2002	:				
/ /2002	:				
/ /2002	:				
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Appendix 2
Tabulated QA/QC Data

A2 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PROGRAMME

A2.1 Field QA/QC Programme

Field QA/QC for the soil investigation consisted of thirty one blind replicates, nine split samples, nine trip blank, nine trip spike and one rinsate sample. Field QA/QC for the groundwater investigation consisted of four blind replicate, two split sample, three trip blank and three trip spike.

The number of samples collected during the soil and groundwater investigation is summarised in Tables A2-1 and A2-2.

Table A2-1: Number and Frequency of QA/QC Samples (Duplicates)					
Analytes	Quantity				
	Total	Blinds	Splits	Recommended	Actual
Soil					
Metals	196	24	12	≥ 10 %	12.2
				≥ 5 %	6.1
TPH	107	15	8	≥ 10 %	14.0
				≥ 5 %	7.4
BTEX	107	15	8	≥ 10 %	14.0
				≥ 5 %	7.4
PAH	105	15	6	≥ 10 %	14.0
				≥ 5 %	5.7
OC/OP/PCB	98	12	5	≥ 10 %	12.2
				≥ 5 %	5.1
PAAH	42	5	2	≥ 10 %	11.9
				≥ 5 %	**4.8**
Phenols	45	6	3	≥ 10 %	13.3
				≥ 5 %	6.7
VOC	43	5	3	≥ 10 %	11.6
				≥ 5 %	7.0
Nutrients	53	6	2	≥ 10 %	10.7
				≥ 5 %	**3.8**
Groundwater					
Metals	24	4	2	≥ 10 %	16.6
				≥ 5 %	8.3
TPH	24	4	2	≥ 10 %	16.6
				≥ 5 %	8.3
BTEX	24	4	2	≥ 10 %	16.6
				≥ 5 %	8.3
PAH	24	4	2	≥ 10 %	16.6
				≥ 5 %	8.3
OC/OP/PCB	24	4	2	≥ 10 %	16.6
				≥ 5 %	8.3
VOC	22	4	2	≥ 10 %	16.6
				≥ 5 %	8.3
Nutrients	24	4	2	≥ 10 %	16.6
				≥ 5 %	8.3

Table A2-2: Number and Frequency of QA/QC Samples (Duplicates)				
QA/QA Sample	**Analytes**	**Quantity QA/QC**	**Frequency**	
			Recommended	**Actual**
Rinsate Blanks[1]	All analytes	1	1 per sampling equipment	1 per sampling equipment
Trip Blanks	Volatiles	9 (sand) 3 (water)	1 Per Batch	1 per batch
Trip Spike	BTEX	9 (sand) 3 (water)		1 per batch

A description of each of the field QA/QC samples is provided in the following sections.

A2.1.1 Environmental Samples

Environmental samples are the representative samples of soil or groundwater collected for analysis to determine aspects of their chemical composition. Environmental samples are the original sample taken from a particular location and other samples are replicates or triplicates of the original.

A2.1.2 Blind Replicate Samples

Blind replicate samples are provided by the collection of two similar samples from the same location or successively from the same monitoring bore. These samples are preserved, stored, transported, prepared and analysed in an identical manner to environmental samples.

A2.1.3 Split Samples

Split samples provide a check on the analytical proficiency of the laboratories. Split samples are collected from the same location or successively from the same monitoring bore. Split samples must be taken from the same location as the blind replicate, thus becoming a triplicate sample. However, split samples are not taken as often as blind replicates. Split samples (triplicates) are preserved, stored, transported, prepared and analysed in an identical manner to environmental samples.

A2.1.4 Trip Blanks

Trip blanks consisting of pre-washed bottles containing distilled or de-ionised water and appropriate preservatives will be supplied by the analytical laboratory. The role of trip blanks is to detect potential contamination during sample transport. These samples reside in transport vessels during sampling activities and are not opened in the field. Trip blanks are analysed at the laboratory as regular samples or only for volatile organic compounds, as deemed appropriate. For soil sampling programmes, the trip blank consists of a laboratory-supplied sand blank containing acid-washed quartz sand.

A2.1.4 Laboratory-prepared Trip Spikes

Laboratory-prepared trip spikes consisting of distilled, de-ionised water or sand spiked with known concentrations of BTEX should be included in QA/QC programmes where TPH and BTEX concentrations are being measured. Laboratory-prepared trip spikes should be included at a rate of one per sample batch. These samples are to be submitted for BTEX analysis with results compared with the known additions. Generally, samples are spiked with concentrations of 10, 10, 10 and 30 ppm of benzene, toluene, ethylbenzene and total xylenes respectively. The purpose of these samples is to monitor VOC losses during transit.

Care will be taken to ensure that only freshly-prepared spiked samples are used. Spikes more than 2 days old at the time of receipt from the laboratory should be discarded. All trip spikes received will be checked for leakage or bubbles. Any spikes containing bubbles or any other defects will be discarded. Furthermore, only spikes delivered under laboratory COC will be accepted. COCs will be stored in the project file for reference.

A2.2 Laboratory QA/QC Programme

The reliability of test results from the analytical laboratories will be monitored according to the QA/QC procedures used by the NATA accredited laboratory. The QA/QC programme employed by the NATA registered laboratory specifies sample tracking procedures, methods of extraction, analysis, Practical Quantitation Limit (PQL) and acceptance criteria for results. Laboratory QA/QC procedures adopted by the laboratories used in this investigation are summarised below.

A2.2.1 Laboratory Duplicate Samples

Laboratory duplicates provide data on analytical precision for each batch of samples. Where required and in order to provide sufficient sample for analysis of laboratory duplicate, two batches of samples are collected at a site listed and marked “laboratory duplicate" on the Chain of Custody form. This is done in order to ensure that sufficient sample is collected.

A2.2.2 Standards

Calibration standards are prepared from individual certified materials, AR Grade or better reagents purchased as certified mixtures. Stock solutions are replaced every 6 months. Working standards are prepared at least every month from the stock solutions.

A2.2.3 Laboratory Control Samples

Laboratory control samples consist of a clean matrix (de-ionised water or clean sand) spiked with a known concentration of the analyte being measured. These samples monitor method recovery in clean samples and can also be used to evaluate matrix interference by comparison with matrix spikes. Laboratory control samples may be certified reference materials.

A2.2.4 Surrogates

For organic analyses, a surrogate is added at the extraction stage in order to verify method effectiveness. The surrogate is then analysed with the batch of samples. Percent recovery is calculated.

A2.2.4 Matrix Spike

A matrix spikes consist of samples spiked with a known concentration of the analyte being measured, in order to identify properties of the matrix that may hinder method effectiveness. Samples are spiked with concentrations equivalent to 4 to 10 times the PQL. Percent recovery is calculated.

A2.2.6 Method Blanks

Method blanks (de-ionised water or clear sand) were carried through all stages of sample preparation and analysis at a rate of approximately 10%. Analyte concentrations in blanks should be less than the stated PQL. Reagent blanks are run if the method blank exceeds the PQL. The purpose of method blanks is to detect laboratory contamination.

A8.3 DATA ACCEPTANCE CRITERIA

Data Acceptance Criteria (DAC) for this investigation are summarised in Table A9-3.

Table A2.3: QA/QC Compliance Assessment		
QA/QC Sample Type	**Method of Assessment**	**Acceptable Range**
Field QA/QC		
Blind Replicates and Split Samples	The assessment of split replicate is undertaken by calculating the Relative Percent Difference (RPD) of the replicate concentration compared with the original sample concentration. The RPD is defined as: $\text{RPD} = 100 \times \frac{\lvert X_1 - X_2 \rvert}{\text{Average}}$ Where: X_1 and X_2 are the concentration of the original and replicate samples.	The acceptable range depends upon the levels detected: ▪ 0 – 100% RPD (When the average concentration is < 5 times the LOR/EQL) ▪ 0 – 75% RPD (When the average concentration is 5 to 10 times the LOR/EQL) ▪ 0 – 50% RPD (When the average concentration is > 10 times the LOR/EQL)
Blanks (Rinsate and Trip Blanks)	Each blank is analysed as per the original samples.	Analytical Result < LOR/EQL
Laboratory-prepared Trip Spike	The trip spike is analysed after returning from the field and the % recovery of the known spike is calculated.	70% - 130%
Laboratory QA/QC		
Laboratory Duplicates	Assessment as per Blind Replicates and Split Samples.	The acceptable range depends upon the levels detected: ▪ 0 – 100% RPD (When the average concentration is < 4 times the LOR/EQL) ▪ 0 – 50% RPD (When the average concentration is 4 to 10 times the LOR/EQL) ▪ 0 – 30% RPD (When the average concentration is > 10 times the LOR/EQL)
Surrogates Matrix Spikes Laboratory Control Samples	Assessment is undertaken by determining the percent recovery of the known spike or addition to the sample. $\%\ \text{Recovery} = 100 \times \frac{C - A}{B}$ Where: A = Concentration of analyte determined in the original sample; B = Added Concentration; C = Calculated Concentration.	70% - 130% (General Analytes) 50% - 130% (Phenols) 60% - 130% (OP Pesticides) If the result is outside the above ranges, the result must be < 3x Standard Deviation of the Historical Mean (calculated over past 12 months)
Method Blanks	Each blank is analysed as per the original samples.	Analytical Result < LOR/EQL
Note: EQL = Laboratory Estimated Quantitation Limit (EQL) or the minimum detection limit for a particular analyte. LOR = Limit of Reporting or the minimum detectable limit for a particular analyte.		

Blind Replicate and Split Sample RPD Results - Soil

Sample ID			280408-12-KW	280408-13-KW	280408-14-KW					290805-39-KW	290408-40-KW	290408-41-KW					010508-136-KW	010508-137-KW	010508-138-KW				
Location			BBH403							BBH409							BBH445						
Depth			1.1-1.4							0.2-0.5							0.1-0.4						
Date			28 April 2008							29 April 2008							1 May 2008						
Laboratory			Envirolab	Envirolab	ALS					Envirolab	Envirolab	ALS					Envirolab	Envirolab	ALS				
Parameter	PQL	Units	Original Sample	Blind Replicate	Split Sample	Blind Replicate		Split Sample		Original Sample	Blind Replicate	Split Sample	Blind Replicate		Split Sample		Original Sample	Blind Replicate	Split Sample	Blind Replicate		Split Sample	
						Average	RPD	Average	RPD				Average	RPD	Average	RPD				Average	RPD	Average	RPD
Metals																							
Arsenic	4	mg/kg	7.3	5.8	11	6.55	23%	9.15	40%	82	40	56	61	**69%**	69	38%	< 4	< 4	<5	N/A	N/A	N/A	N/A
Cadmium	2	mg/kg	< 1	< 1	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	< 1	< 1	<1	N/A	N/A	N/A	N/A
Chromium	1	mg/kg	6.1	5.2	4	5.65	16%	5.05	42%	73	97	72	85	28%	72.5	1%	1.4	1.4	3	1.4	0%	2.2	73%
Copper	1	mg/kg	1.6	3.4	< 5	2.5	72%	1.6	N/A	160	150	133	155	6%	146.5	18%	1.9	2.3	6	2.1	19%	3.95	**104%**
Nickel	1	mg/kg	2.9	1.9	< 2	2.4	42%	2.9	N/A	3.8	4.3	3	4.05	12%	3.4	24%	< 1	< 1	<2	N/A	N/A	N/A	N/A
Lead	1	mg/kg	5.8	11	< 5	8.4	62%	5.8	N/A	290	360	268	325	22%	279	8%	3	5	18	4	50%	10.5	**143%**
Zinc	1	mg/kg	17	7.5	< 5	12.25	78%	17	N/A	140	150	111	145	7%	125.5	23%	6.9	8.7	18	7.8	23%	12.45	**89%**
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A	0.49	0.58	0.3	0.535	17%	0.395	48%	< 0.1	< 0.1	<0.1	N/A	N/A	N/A	N/A
TPH/BTEX																							
TPH C6 - C9	25	mg/kg	< 25	< 25	< 10	N/A	N/A	N/A	N/A	< 25	< 25	< 10	N/A	N/A	N/A	N/A	< 25	< 25	<10	N/A	N/A	N/A	N/A
TPH C10 - C14	50	mg/kg	< 50	< 50	< 50	N/A	N/A	N/A	N/A	< 50	< 50	< 50	N/A	N/A	N/A	N/A	< 50	< 50	<50	N/A	N/A	N/A	N/A
TPH C15 - C28	100	mg/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A	< 100	< 100	< 100	N/A	N/A	N/A	N/A	< 100	< 100	<100	N/A	N/A	N/A	N/A
TPH C29 - C36	100	mg/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A	< 100	< 100	< 100	N/A	N/A	N/A	N/A	< 100	< 100	<100	N/A	N/A	N/A	N/A
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.2	N/A	N/A	N/A	N/A	< 0.5	< 0.5	< 0.2	N/A	N/A	N/A	N/A	< 0.5	< 0.5	<0.2	N/A	N/A	N/A	N/A
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A	N/A	< 0.5	< 0.5	<0.5	N/A	N/A	N/A	N/A
Ethylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A	< 1	< 1	<0.5	N/A	N/A	N/A	N/A
meta- & para-Xylene	2	mg/kg	< 2	< 2	< 0.5	N/A	N/A	N/A	N/A	< 2	< 2	< 0.5	N/A	N/A	N/A	N/A	< 2	< 2	<0.5	N/A	N/A	N/A	N/A
ortho-Xylene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A	< 1	< 1	<0.5	N/A	N/A	N/A	N/A
PAHs																							
Naphthalene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Acenaphthylene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Acenaphthene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Fluorene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Phenanthrene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	0.1	0.3	< 0.5	0.2	100%	0.1	N/A	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Anthracene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Fluoranthene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	0.3	0.7	0.6	0.5	80%	0.45	67%	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Pyrene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	0.4	0.7	0.6	0.55	55%	0.5	40%	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	0.2	0.3	< 0.5	0.25	40%	0.2	N/A	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Chrysene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	0.2	0.4	< 0.5	0.3	67%	0.2	N/A	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	0.5	0.6	nt	0.55	18%	0.5	N/A	< 0.2	< 0.2	<0.5	N/A	N/A	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	0.3	0.3	< 0.5	0.3	0%	0.3	N/A	< 0.05	< 0.05	<0.5	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	0.2	0.2	< 0.5	0.2	0%	0.2	N/A	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	0.2	0.2	< 0.5	0.2	0%	0.2	N/A	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
OCP																							
alpha-BCH	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
b-BHC	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
d-BHC	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Heptachlor	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Aldrin	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Chlordane - trans	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Chlordane - cis	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Endosulfan alpha	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Dieldrin	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
4,4-DDE	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	0.1	N/A	N/A	0.1	N/A	< 0.1	< 0.1	0.1	N/A	N/A	0.1	N/A
4,4-DDD	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Endrin	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Endosulfan II	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Endrin aldehyde	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
4,4-DDT	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.2	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.2	N/A	N/A	N/A	N/A
Methoxychlor	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.2	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.2	N/A	N/A	N/A	N/A
OPP																							
Dimethoate	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Diazinon	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Ronnel	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	nt	N/A	N/A	N/A	N/A
Fenitrothion	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	nt	N/A	N/A	N/A	N/A
Chlorpyrifos	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Ethion	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
PCB																							
Total PCB	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A

NOTES:

nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate and Split Sample RPD Results - Soil

Sample ID			280408-12-KW	280408-13-KW	280408-14-KW					290805-39-KW	290408-40-KW	290408-41-KW					010508-136-KW	010508-137-KW	010508-138-KW				
Location			BBH403							BBH409							BBH445						
Depth			1.1-1.4							0.2-0.5							0.1-0.4						
Date			28 April 2008							29 April 2008							1 May 2008						
Laboratory			Envirolab	Envirolab	ALS					Envirolab	Envirolab	ALS					Envirolab	Envirolab	ALS				
Parameter	PQL	Units	Original Sample	Blind Replicate	Split Sample	Blind Replicate		Split Sample		Original Sample	Blind Replicate	Split Sample	Blind Replicate		Split Sample		Original Sample	Blind Replicate	Split Sample	Blind Replicate		Split Sample	
						Average	RPD	Average	RPD				Average	RPD	Average	RPD				Average	RPD	Average	RPD
VOC																							
Styrene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Cumene (isopropylbenzene)	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
n-Propylbenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,3,5-Trimethylbenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
sec-butylbenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,4-Trimethylbenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
tert-Butylbenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
p-isopropyltoluene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
n-Butylbenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
2,2-Dichloropropane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-dichloropropane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
cis-1,3-Dichloropropene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
trans-1,3-Dichloropropene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dibromoethane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Dichlorodifluoromethane	10	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Chloromethane	10	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Vinyl chloride	10	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Bromomethane	10	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Chloroethane	10	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Trichlorofluoromethane	10	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 10	< 10	< 5	N/A	N/A	N/A	N/A
1,1-Dichloroethylene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
trans-1,2-Dichloroethylene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1-Dichloroethane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	< 0.5	N/A	N/A	N/A	N/A
cis-1,2-Dichloroethylene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1-Dichloropropene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Carbon tetrachloride	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dichloroethane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Trichloroethene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Dibromomethane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,2-trichloroethane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,3-dichloropropane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Tetrachloroethene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,1,2-Tetrachloroethane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,3-Trichloropropane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dibromo-3-chloropropane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Hexachlorobutadiene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromocholoromethane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	nt	N/A	N/A	N/A	N/A
Chlorobenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromobenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
o-Chlorotoluene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
4-chlorotoluene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,3-Dichlorobenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,4-trichlorobenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,3-trichlorobenzene	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Chloroform	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromodichloromethane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Chlorodibromomethane	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromoform	1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
PAAH																							
2,4-DB	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 100	< 100	< 100	N/A	N/A	N/A	N/A
Dicamba	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 100	< 100	< 100	N/A	N/A	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 100	< 100	< 100	N/A	N/A	N/A	N/A
2,4-DP (Dichloroprop)	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 100	< 100	< 100	N/A	N/A	N/A	N/A
2,4-D	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 100	< 100	< 100	N/A	N/A	N/A	N/A
Triclopyr	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 100	< 100	< 100	N/A	N/A	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 100	< 100	< 100	N/A	N/A	N/A	N/A
2,4,5-T	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	< 100	< 100	< 100	N/A	N/A	N/A	N/A
Phenols																							
Total Phenols	5	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	<5	<5	<5	N/A	N/A	N/A	N/A
Nutrients																							
Ammonia as N	0.5	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Total Kjeldahl Nitrogen	30	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Nitrite as N	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Nitrate as N	0.5	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Total Phosphorous	10	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A

NOTES:

nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate and Split Sample RPD Results - Soil

Sample ID			060508-14-KW	060508-15-KW	060508-16-KW				
Location			ABH229						
Depth			0.5-0.8						
Date			6 May 2008						
Laboratory			Envirolab	Envirolab	ALS	Blind Replicate		Split Sample	
Parameter	PQL	Units	Original Sample	Blind Replicate	Split Sample	Average	RPD	Average	RPD
Metals									
Arsenic	4	mg/kg	< 4	< 4	<5	N/A	N/A	N/A	N/A
Cadmium	2	mg/kg	< 1	< 1	<1	N/A	N/A	N/A	N/A
Chromium	1	mg/kg	2.1	1.8	<2	1.95	15%	2.1	N/A
Copper	1	mg/kg	< 1	< 1	<5	N/A	N/A	N/A	N/A
Nickel	1	mg/kg	< 1	< 1	<5	N/A	N/A	N/A	N/A
Lead	1	mg/kg	1.1	1.2	<2	1.15	9%	1.1	N/A
Zinc	1	mg/kg	36	12	28	24	100%	32	25%
Mercury	0.1	mg/kg	< 0.1	< 0.1	<0.1	N/A	N/A	N/A	N/A
TPH/BTEX									
TPH C6 - C9	25	mg/kg	< 25	< 25	<10	N/A	N/A	N/A	N/A
TPH C10 - C14	50	mg/kg	< 50	< 50	<50	N/A	N/A	N/A	N/A
TPH C15 - C28	100	mg/kg	< 100	< 100	<100	N/A	N/A	N/A	N/A
TPH C29 - C36	100	mg/kg	< 100	< 100	<100	N/A	N/A	N/A	N/A
Benzene	0.5	mg/kg	< 0.5	< 0.5	<0.2	N/A	N/A	N/A	N/A
Toluene	0.5	mg/kg	< 0.5	< 0.5	<0.5	N/A	N/A	N/A	N/A
Ethylbenzene	1	mg/kg	< 1	< 1	<0.5	N/A	N/A	N/A	N/A
meta- & para-Xylene	2	mg/kg	< 2	< 2	<0.5	N/A	N/A	N/A	N/A
ortho-Xylene	1	mg/kg	< 1	< 1	<0.5	N/A	N/A	N/A	N/A
PAHs									
Naphthalene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Acenaphthylene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Acenaphthene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Fluorene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Phenanthrene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Anthracene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Fluoranthene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Pyrene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Chrysene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	< 0.2	< 0.2	<0.5	N/A	N/A	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	< 0.05	< 0.05	<0.5	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
OCP									
alpha-BCH	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
b-BHC	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
d-BHC	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Heptachlor	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Aldrin	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Chlordane - trans	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Chlordane - cis	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Endosulfan alpha	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Dieldrin	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
4,4-DDE	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
4,4-DDD	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Endrin	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Endosulfan II	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Endrin aldehyde	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	< 0.1	< 0.1	<0.5	N/A	N/A	N/A	N/A
4,4-DDT	0.1	mg/kg	< 0.1	< 0.1	<0.2	N/A	N/A	N/A	N/A
Methoxychlor	0.1	mg/kg	< 0.1	< 0.1	<0.2	N/A	N/A	N/A	N/A
OPP									
Dimethoate	0.1	mg/kg	< 0.1	< 0.1	<0.05	N/A	N/A	N/A	N/A
Diazinon	0.1	mg/kg	< 0.1	< 0.1	<0.05	N/A	N/A	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	< 0.1	< 0.1	<0.05	N/A	N/A	N/A	N/A
Ronnel	0.1	mg/kg	< 0.1	< 0.1	nt	N/A	N/A	N/A	N/A
Fenitrothion	0.1	mg/kg	< 0.1	< 0.1	<0.05	N/A	N/A	N/A	N/A
Chlorpyrifos	0.1	mg/kg	< 0.1	< 0.1	<0.05	N/A	N/A	N/A	N/A
Ethion	0.1	mg/kg	< 0.1	< 0.1	<0.05	N/A	N/A	N/A	N/A
PCB									
Total PCB	0.1	mg/kg	< 0.1	< 0.1	<0.1	N/A	N/A	N/A	N/A

Sample ID			070508-55-KW	070508-56-KW	070508-57-KW				
Location			ABH204						
Depth			0.1-0.4						
Date			7 May 2008						
Laboratory			Envirolab	Envirolab	ALS	Blind Replicate		Split Sample	
Parameter	PQL	Units	Original Sample	Blind Replicate	Split Sample	Average	RPD	Average	RPD
Metals									
Arsenic	4	mg/kg	< 4	< 4	< 5	N/A	N/A	N/A	N/A
Cadmium	2	mg/kg	< 1	< 1	< 1	N/A	N/A	N/A	N/A
Chromium	1	mg/kg	3.1	3	2	3.05	3%	2.55	43%
Copper	1	mg/kg	3.9	6.5	6	5.2	50%	4.95	42%
Nickel	1	mg/kg	1	1	< 2	1	0%	1	N/A
Lead	1	mg/kg	9.9	16	9	12.95	47%	9.45	10%
Zinc	1	mg/kg	4.8	16	8	10.4	**108%**	6.4	50%
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
TPH/BTEX									
TPH C6 - C9	25	mg/kg	< 25	< 25	< 10	N/A	N/A	N/A	N/A
TPH C10 - C14	50	mg/kg	< 50	< 50	< 50	N/A	N/A	N/A	N/A
TPH C15 - C28	100	mg/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A
TPH C29 - C36	100	mg/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.2	N/A	N/A	N/A	N/A
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A	N/A
Ethylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
meta- & para-Xylene	2	mg/kg	< 2	< 2	< 0.5	N/A	N/A	N/A	N/A
ortho-Xylene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
PAHs									
Naphthalene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Acenaphthylene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Acenaphthene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Fluorene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Phenanthrene	0.1	mg/kg	< 0.1	0.1	< 0.5	0.1	N/A	N/A	N/A
Anthracene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Fluoranthene	0.1	mg/kg	< 0.1	0.3	< 0.5	0.3	N/A	N/A	N/A
Pyrene	0.1	mg/kg	< 0.1	0.3	< 0.5	0.3	N/A	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	< 0.1	0.1	< 0.5	0.1	N/A	N/A	N/A
Chrysene	0.1	mg/kg	< 0.1	0.2	< 0.5	0.2	N/A	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	< 0.2	0.4	nt	0.4	N/A	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	< 0.05	0.2	< 0.5	0.2	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	< 0.1	0.1	< 0.5	0.1	N/A	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	< 0.1	0.1	< 0.5	0.1	N/A	N/A	N/A
OCP									
alpha-BCH	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
b-BHC	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
d-BHC	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Heptachlor	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Aldrin	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Chlordane - trans	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Chlordane - cis	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Endosulfan alpha	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Dieldrin	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
4,4-DDE	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
4,4-DDD	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Endrin	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Endosulfan II	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Endrin aldehyde	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
4,4-DDT	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Methoxychlor	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
OPP									
Dimethoate	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Diazinon	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Ronnel	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Fenitrothion	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Chlorpyrifos	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Ethion	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
PCB									
Total PCB	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A

Sample ID			280508-123-KW	280508-124-KW	280508-125-KW				
Location			ABH240						
Depth			0.1-0.4						
Date			28 May 2008						
Laboratory			Envirolab	Envirolab	ALS	Blind Replicate		Split Sample	
Parameter	PQL	Units	Original Sample	Blind Replicate	Split Sample	Average	RPD	Average	RPD
Metals									
Arsenic	4	mg/kg	< 4	< 4	< 5	N/A	N/A	N/A	N/A
Cadmium	2	mg/kg	< 1	< 1	< 1	N/A	N/A	N/A	N/A
Chromium	1	mg/kg	2	2.6	2	2.3	26%	2	0%
Copper	1	mg/kg	1.8	1.6	< 5	1.7	12%	1.8	N/A
Nickel	1	mg/kg	< 1	1.1	< 2	1.1	N/A	N/A	N/A
Lead	1	mg/kg	3.5	2	< 5	2.75	55%	3.5	N/A
Zinc	1	mg/kg	5.3	3.3	< 5	4.3	47%	5.3	N/A
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
TPH/BTEX									
TPH C6 - C9	25	mg/kg	< 25	< 25	< 10	N/A	N/A	N/A	N/A
TPH C10 - C14	50	mg/kg	< 50	< 50	< 50	N/A	N/A	N/A	N/A
TPH C15 - C28	100	mg/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A
TPH C29 - C36	100	mg/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.2	N/A	N/A	N/A	N/A
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A	N/A
Ethylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
meta- & para-Xylene	2	mg/kg	< 2	< 2	< 0.5	N/A	N/A	N/A	N/A
ortho-Xylene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
PAHs									
Naphthalene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Acenaphthylene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Acenaphthene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Fluorene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Phenanthrene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Anthracene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Fluoranthene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Pyrene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Chrysene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	< 0.2	< 0.2	nt	N/A	N/A	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	< 0.05	< 0.05	< 0.5	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A
OCP									
alpha-BCH	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
b-BHC	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
d-BHC	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Heptachlor	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Aldrin	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Chlordane - trans	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Chlordane - cis	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Endosulfan alpha	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Dieldrin	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
4,4-DDE	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
4,4-DDD	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Endrin	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Endosulfan II	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Endrin aldehyde	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
4,4-DDT	0.1	mg/kg	< 0.1	< 0.1	< 0.2	N/A	N/A	N/A	N/A
Methoxychlor	0.1	mg/kg	< 0.1	< 0.1	< 0.2	N/A	N/A	N/A	N/A
OPP									
Dimethoate	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Diazinon	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Ronnel	0.1	mg/kg	< 0.1	< 0.1	nt	N/A	N/A	N/A	N/A
Fenitrothion	0.1	mg/kg	< 0.1	< 0.1	nt	N/A	N/A	N/A	N/A
Chlorpyrifos	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
Ethion	0.1	mg/kg	< 0.1	< 0.1	< 0.05	N/A	N/A	N/A	N/A
PCB									
Total PCB	0.1	mg/kg	<0.1	<0.1	<0.1	N/A	N/A	N/A	N/A

NOTES:

nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate and Split Sample RPD Results - Soil

Sample ID			060508-14-KW	060508-15-KW	060508-16-KW				
Location			ABH229						
Depth			0.5-0.8						
Date			6 May 2008						
Laboratory			Envirolab	Envirolab	ALS	Blind Replicate		Split Sample	
Parameter	PQL	Units	Original Sample	Blind Replicate	Split Sample	Average	RPD	Average	RPD
VOC									
Styrene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Cumene (isopropylbenzene)	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
n-Propylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,3,5-Trimethylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
sec-butylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,4-Trimethylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
tert-Butylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
p-isopropyltoluene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
n-Butylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
2,2-Dichloropropane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-dichloropropane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
cis-1,3-Dichloropropene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
trans-1,3-Dichloropropene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dibromoethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Dichlorodifluoromethane	10	mg/kg	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Chloromethane	10	mg/kg	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Vinyl chloride	10	mg/kg	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Bromomethane	10	mg/kg	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Chloroethane	10	mg/kg	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Trichlorofluoromethane	10	mg/kg	< 10	< 10	< 5	N/A	N/A	N/A	N/A
1,1-Dichloroethylene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
trans-1,2-Dichloroethylene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1-Dichloroethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
cis-1,2-Dichloroethylene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1-Dichloropropene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Carbon tetrachloride	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dichloroethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Trichloroethene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Dibromomethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,2-trichloroethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,3-dichloropropane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Tetrachloroethene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,1,2-Tetrachloroethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,3-Trichloropropane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dibromo-3-chloropropane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Hexachlorobutadiene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromocholoromethane	1	mg/kg	< 1	< 1	nt	N/A	N/A	N/A	N/A
Chlorobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
o-Chlorotoluene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
4-chlorotoluene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,3-Dichlorobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,4-trichlorobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,3-trichlorobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Chloroform	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromodichloromethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Chlorodibromomethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromoform	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
PAAH									
2,4-DB	100	ug/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A
Dicamba	100	ug/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	100	ug/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A
2,4-DP (Dichloroprop)	100	ug/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A
2,4-D	100	ug/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A
Triclopyr	100	ug/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A
2,4,5-T	100	ug/kg	< 100	< 100	< 100	N/A	N/A	N/A	N/A
Phenols									
Total Phenols	5	mg/kg	< 5	< 5	< 5	N/A	N/A	N/A	N/A
Nutrients									
Ammonia as N	0.5	mg/kg	1.2	1.4	<20	1.3	15%	1.2	N/A
Total Kjeldahl Nitrogen	30	mg/kg	240	200	140	220	18%	190	53%
Nitrite as N	0.1	mg/kg	< 0.1	< 0.1	0.199	N/A	N/A	0.199	N/A
Nitrate as N	0.5	mg/kg	0.6	0.7	<0.1	0.65	15%	0.6	N/A
Total Phosphorous	10	mg/kg	20	19	24	19.5	5%	22	18%

Sample ID	070508-55-KW	070508-56-KW	070508-57-KW				
Location	ABH204						
Depth	0.1-0.4						
Date	7 May 2008						
Laboratory	Envirolab	Envirolab	ALS	Blind Replicate		Split Sample	
Parameter	Original Sample	Blind Replicate	Split Sample	Average	RPD	Average	RPD
VOC							
Styrene	nt	nt	nt	N/A	N/A	N/A	N/A
Cumene (isopropylbenzene)	nt	nt	nt	N/A	N/A	N/A	N/A
n-Propylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,3,5-Trimethylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
sec-butylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2,4-Trimethylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
tert-Butylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
p-isopropyltoluene	nt	nt	nt	N/A	N/A	N/A	N/A
n-Butylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
2,2-Dichloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-dichloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
cis-1,3-Dichloropropene	nt	nt	nt	N/A	N/A	N/A	N/A
trans-1,3-Dichloropropene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-Dibromoethane	nt	nt	nt	N/A	N/A	N/A	N/A
Dichlorodifluoromethane	nt	nt	nt	N/A	N/A	N/A	N/A
Chloromethane	nt	nt	nt	N/A	N/A	N/A	N/A
Vinyl chloride	nt	nt	nt	N/A	N/A	N/A	N/A
Bromomethane	nt	nt	nt	N/A	N/A	N/A	N/A
Chloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
Trichlorofluoromethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,1-Dichloroethylene	nt	nt	nt	N/A	N/A	N/A	N/A
trans-1,2-Dichloroethylene	nt	nt	nt	N/A	N/A	N/A	N/A
1,1-Dichloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
cis-1,2-Dichloroethylene	nt	nt	nt	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,1-Dichloropropene	nt	nt	nt	N/A	N/A	N/A	N/A
Carbon tetrachloride	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-Dichloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
Trichloroethene	nt	nt	nt	N/A	N/A	N/A	N/A
Dibromomethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,1,2-trichloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,3-dichloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
Tetrachloroethene	nt	nt	nt	N/A	N/A	N/A	N/A
1,1,1,2-Tetrachloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,2,3-Trichloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-Dibromo-3-chloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
Hexachlorobutadiene	nt	nt	nt	N/A	N/A	N/A	N/A
Bromocholoromethane	nt	nt	nt	N/A	N/A	N/A	N/A
Chlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
Bromobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
o-Chlorotoluene	nt	nt	nt	N/A	N/A	N/A	N/A
4-chlorotoluene	nt	nt	nt	N/A	N/A	N/A	N/A
1,3-Dichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2,4-trichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2,3-trichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
Chloroform	nt	nt	nt	N/A	N/A	N/A	N/A
Bromodichloromethane	nt	nt	nt	N/A	N/A	N/A	N/A
Chlorodibromomethane	nt	nt	nt	N/A	N/A	N/A	N/A
Bromoform	nt	nt	nt	N/A	N/A	N/A	N/A
PAAH							
2,4-DB	nt	nt	nt	N/A	N/A	N/A	N/A
Dicamba	nt	nt	nt	N/A	N/A	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	nt	nt	nt	N/A	N/A	N/A	N/A
2,4-DP (Dichloroprop)	nt	nt	nt	N/A	N/A	N/A	N/A
2,4-D	nt	nt	nt	N/A	N/A	N/A	N/A
Triclopyr	nt	nt	nt	N/A	N/A	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	nt	nt	nt	N/A	N/A	N/A	N/A
2,4,5-T	nt	nt	nt	N/A	N/A	N/A	N/A
Phenols							
Total Phenols	nt	nt	nt	N/A	N/A	N/A	N/A
Nutrients							
Ammonia as N	nt	nt	nt	N/A	N/A	N/A	N/A
Total Kjeldahl Nitrogen	nt	nt	nt	N/A	N/A	N/A	N/A
Nitrite as N	nt	nt	nt	N/A	N/A	N/A	N/A
Nitrate as N	nt	nt	nt	N/A	N/A	N/A	N/A
Total Phosphorous	nt	nt	nt	N/A	N/A	N/A	N/A

Sample ID	280508-123-KW	280508-124-KW	280508-125-KW				
Location	ABH240						
Depth	0.1-0.4						
Date	28 May 2008						
Laboratory	Envirolab	Envirolab	ALS	Blind Replicate		Split Sample	
Parameter	Original Sample	Blind Replicate	Split Sample	Average	RPD	Average	RPD
VOC							
Styrene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Cumene (isopropylbenzene)	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
n-Propylbenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,3,5-Trimethylbenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
sec-butylbenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,4-Trimethylbenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
tert-Butylbenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
p-isopropyltoluene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
n-Butylbenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
2,2-Dichloropropane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-dichloropropane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
cis-1,3-Dichloropropene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
trans-1,3-Dichloropropene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dibromoethane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Dichlorodifluoromethane	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Chloromethane	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Vinyl chloride	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Bromomethane	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Chloroethane	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Trichlorofluoromethane	< 10	< 10	< 5	N/A	N/A	N/A	N/A
1,1-Dichloroethylene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
trans-1,2-Dichloroethylene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1-Dichloroethane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
cis-1,2-Dichloroethylene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1-Dichloropropene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Carbon tetrachloride	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dichloroethane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Trichloroethene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Dibromomethane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,2-trichloroethane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,3-dichloropropane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Tetrachloroethene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,1,2-Tetrachloroethane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,3-Trichloropropane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dibromo-3-chloropropane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Hexachlorobutadiene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromocholoromethane	< 1	< 1	nt	N/A	N/A	N/A	N/A
Chlorobenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromobenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
o-Chlorotoluene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
4-chlorotoluene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,3-Dichlorobenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,4-trichlorobenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,3-trichlorobenzene	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Chloroform	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromodichloromethane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Chlorodibromomethane	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromoform	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
PAAH							
2,4-DB	nt	nt	nt	N/A	N/A	N/A	N/A
Dicamba	nt	nt	nt	N/A	N/A	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	nt	nt	nt	N/A	N/A	N/A	N/A
2,4-DP (Dichloroprop)	nt	nt	nt	N/A	N/A	N/A	N/A
2,4-D	nt	nt	nt	N/A	N/A	N/A	N/A
Triclopyr	nt	nt	nt	N/A	N/A	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	nt	nt	nt	N/A	N/A	N/A	N/A
2,4,5-T	nt	nt	nt	N/A	N/A	N/A	N/A
Phenols							
Total Phenols	< 5	< 5	<2	N/A	N/A	N/A	N/A
Nutrients							
Ammonia as N	nt	nt	nt	N/A	N/A	N/A	N/A
Total Kjeldahl Nitrogen	nt	nt	nt	N/A	N/A	N/A	N/A
Nitrite as N	nt	nt	nt	N/A	N/A	N/A	N/A
Nitrate as N	nt	nt	nt	N/A	N/A	N/A	N/A
Total Phosphorous	nt	nt	nt	N/A	N/A	N/A	N/A

NOTES:

nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate and Split Sample RPD Results - Soil

Sample ID			130508-286-KW	130508-287-KW	130508-288-KW					150508-352-KW	150508-353-KW	150508-354-KW					150508-385-KW	150508-386-KW	150508-387-KW				
Location			ABH275							ABH291							ABH284						
Depth			0.8-1.2							0.1-0.5							1.3-1.6						
Date			13 May 2008							15 May 2008							15 May 2008						
Laboratory			Envirolab	Envirolab	ALS					Envirolab	Envirolab	ALS					Envirolab	Envirolab	ALS				
Parameter	PQL	Units	Original Sample	Blind Replicate	Split Sample	Blind Replicate		Split Sample		Original Sample	Blind Replicate	Split Sample	Blind Replicate		Split Sample		Original Sample	Blind Replicate	Split Sample	Blind Replicate		Split Sample	
						Average	RPD	Average	RPD				Average	RPD	Average	RPD				Average	RPD	Average	RPD
Metals																							
Arsenic	4	mg/kg	< 4	< 4	< 5	N/A	N/A	N/A	N/A	< 4	< 4	< 5	N/A	N/A	N/A	N/A	< 4	< 4	< 5	N/A	N/A	N/A	N/A
Cadmium	2	mg/kg	< 1	< 1	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A	< 1	< 1	< 1	N/A	N/A	N/A	N/A
Chromium	1	mg/kg	< 1	< 1	< 2	N/A	N/A	N/A	N/A	2	1.6	< 2	1.8	22%	2	N/A	2	1.1	4	1.55	58%	3	67%
Copper	1	mg/kg	< 1	< 1	< 5	N/A	N/A	N/A	N/A	2.2	2.7	< 5	2.45	20%	2.2	N/A	1.7	1.4	6	1.55	19%	3.85	**112%**
Nickel	1	mg/kg	< 1	< 1	< 2	N/A	N/A	N/A	N/A	1.9	1.4	< 2	1.65	30%	1.9	N/A	1.3	1.3	8	1.3	0%	4.65	**144%**
Lead	1	mg/kg	< 1	< 1	< 5	N/A	N/A	N/A	N/A	64	140	46	102	**75%**	55	33%	2.7	1.2	9	1.95	77%	5.85	**108%**
Zinc	1	mg/kg	3.5	1.3	< 5	2.4	92%	3.5	N/A	14	20	13	17	35%	13.5	7%	25	16	26	20.5	44%	25.5	4%
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.1	N/A	N/A	N/A	N/A
TPH/BTEX																							
TPH C6 - C9	25	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 25	< 25	< 10	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
TPH C10 - C14	50	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 50	< 50	< 50	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
TPH C15 - C28	100	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 100	< 100	< 100	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
TPH C29 - C36	100	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 100	< 100	< 100	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.2	N/A	N/A	N/A	N/A	< 0.5	< 0.5	< 0.2	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A	N/A	< 0.5	< 0.5	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Ethylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
meta- & para-Xylene	2	mg/kg	< 2	< 2	< 0.5	N/A	N/A	N/A	N/A	< 2	< 2	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
ortho-Xylene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
PAHs																							
Naphthalene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Acenaphthylene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Acenaphthene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Fluorene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Phenanthrene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Anthracene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Fluoranthene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Pyrene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Chrysene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.2	< 0.2	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.05	< 0.05	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	< 0.1	< 0.1	< 0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
OCP																							
alpha-BCH	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
b-BHC	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
d-BHC	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Heptachlor	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Aldrin	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Chlordane - trans	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Chlordane - cis	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Endosulfan alpha	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Dieldrin	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
4,4-DDE	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
4,4-DDD	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Endrin	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Endosulfan II	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Endrin aldehyde	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
4,4-DDT	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Methoxychlor	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
OPP																							
Dimethoate	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Diazinon	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Ronnel	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Fenitrothion	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Chlorpyrifos	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Ethion	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
PCB																							
Total PCB	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A

NOTES:
Relative Percentage Difference (RPD) is calculated as the absolute value of the
nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate and Split Sample RPD Results - Soil

Sample ID			130508-286-KW	130508-287-KW	130508-288-KW				
Location			ABH275						
Depth			0.8-1.2						
Date			13 May 2008						
Laboratory			Envirolab	Envirolab	ALS	Blind Replicate		Split Sample	
Parameter	PQL	Units	Original Sample	Blind Replicate	Split Sample	Average	RPD	Average	RPD
VOC									
Styrene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Cumene (isopropylbenzene)	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
n-Propylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,3,5-Trimethylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
sec-butylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,4-Trimethylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
tert-Butylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
p-isopropyltoluene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
n-Butylbenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
2,2-Dichloropropane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-dichloropropane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
cis-1,3-Dichloropropene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
trans-1,3-Dichloropropene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dibromoethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Dichlorodifluoromethane	10	mg/kg	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Chloromethane	10	mg/kg	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Vinyl chloride	10	mg/kg	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Bromomethane	10	mg/kg	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Chloroethane	10	mg/kg	< 10	< 10	< 5	N/A	N/A	N/A	N/A
Trichlorofluoromethane	10	mg/kg	< 10	< 10	< 5	N/A	N/A	N/A	N/A
1,1-Dichloroethylene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
trans-1,2-Dichloroethylene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1-Dichloroethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
cis-1,2-Dichloroethylene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1-Dichloropropene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Carbon tetrachloride	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dichloroethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Trichloroethene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Dibromomethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,2-trichloroethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,3-dichloropropane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Tetrachloroethene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,1,2-Tetrachloroethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,3-Trichloropropane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dibromo-3-chloropropane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Hexachlorobutadiene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromocholoromethane	1	mg/kg	< 1	< 1	nt	N/A	N/A	N/A	N/A
Chlorobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
o-Chlorotoluene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
4-chlorotoluene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,3-Dichlorobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,4-trichlorobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
1,2,3-trichlorobenzene	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Chloroform	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromodichloromethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Chlorodibromomethane	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
Bromoform	1	mg/kg	< 1	< 1	< 0.5	N/A	N/A	N/A	N/A
PAAH									
2,4-DB	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Dicamba	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A
2,4-DP (Dichloroprop)	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A
2,4-D	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Triclopyr	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A
2,4,5-T	100	ug/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Phenols									
Total Phenols	5	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Nutrients									
Ammonia as N	0.5	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Total Kjeldahl Nitrogen	30	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Nitrite as N	0.1	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Nitrate as N	0.5	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A
Total Phosphorous	10	mg/kg	nt	nt	nt	N/A	N/A	N/A	N/A

Sample ID	150508-352-KW	150508-353-KW	150508-354-KW				
Location	ABH291						
Depth	0.1-0.5						
Date	15 May 2008						
Laboratory	Envirolab	Envirolab	ALS	Blind Replicate		Split Sample	
Parameter	Original Sample	Blind Replicate	Split Sample	Average	RPD	Average	RPD
VOC							
Styrene	nt	nt	nt	N/A	N/A	N/A	N/A
Cumene (isopropylbenzene)	nt	nt	nt	N/A	N/A	N/A	N/A
n-Propylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,3,5-Trimethylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
sec-butylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2,4-Trimethylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
tert-Butylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
p-isopropyltoluene	nt	nt	nt	N/A	N/A	N/A	N/A
n-Butylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
2,2-Dichloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-dichloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
cis-1,3-Dichloropropene	nt	nt	nt	N/A	N/A	N/A	N/A
trans-1,3-Dichloropropene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-Dibromoethane	nt	nt	nt	N/A	N/A	N/A	N/A
Dichlorodifluoromethane	nt	nt	nt	N/A	N/A	N/A	N/A
Chloromethane	nt	nt	nt	N/A	N/A	N/A	N/A
Vinyl chloride	nt	nt	nt	N/A	N/A	N/A	N/A
Bromomethane	nt	nt	nt	N/A	N/A	N/A	N/A
Chloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
Trichlorofluoromethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,1-Dichloroethylene	nt	nt	nt	N/A	N/A	N/A	N/A
trans-1,2-Dichloroethylene	nt	nt	nt	N/A	N/A	N/A	N/A
1,1-Dichloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
cis-1,2-Dichloroethylene	nt	nt	nt	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,1-Dichloropropene	nt	nt	nt	N/A	N/A	N/A	N/A
Carbon tetrachloride	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-Dichloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
Trichloroethene	nt	nt	nt	N/A	N/A	N/A	N/A
Dibromomethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,1,2-trichloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,3-dichloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
Tetrachloroethene	nt	nt	nt	N/A	N/A	N/A	N/A
1,1,1,2-Tetrachloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,2,3-Trichloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-Dibromo-3-chloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
Hexachlorobutadiene	nt	nt	nt	N/A	N/A	N/A	N/A
Bromocholoromethane	nt	nt	nt	N/A	N/A	N/A	N/A
Chlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
Bromobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
o-Chlorotoluene	nt	nt	nt	N/A	N/A	N/A	N/A
4-chlorotoluene	nt	nt	nt	N/A	N/A	N/A	N/A
1,3-Dichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2,4-trichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2,3-trichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
Chloroform	nt	nt	nt	N/A	N/A	N/A	N/A
Bromodichloromethane	nt	nt	nt	N/A	N/A	N/A	N/A
Chlorodibromomethane	nt	nt	nt	N/A	N/A	N/A	N/A
Bromoform	nt	nt	nt	N/A	N/A	N/A	N/A
PAAH							
2,4-DB	nt	nt	nt	N/A	N/A	N/A	N/A
Dicamba	nt	nt	nt	N/A	N/A	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	nt	nt	nt	N/A	N/A	N/A	N/A
2,4-DP (Dichloroprop)	nt	nt	nt	N/A	N/A	N/A	N/A
2,4-D	nt	nt	nt	N/A	N/A	N/A	N/A
Triclopyr	nt	nt	nt	N/A	N/A	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	nt	nt	nt	N/A	N/A	N/A	N/A
2,4,5-T	nt	nt	nt	N/A	N/A	N/A	N/A
Phenols							
Total Phenols	nt	nt	nt	N/A	N/A	N/A	N/A
Nutrients							
Ammonia as N	nt	nt	nt	N/A	N/A	N/A	N/A
Total Kjeldahl Nitrogen	nt	nt	nt	N/A	N/A	N/A	N/A
Nitrite as N	nt	nt	nt	N/A	N/A	N/A	N/A
Nitrate as N	nt	nt	nt	N/A	N/A	N/A	N/A
Total Phosphorous	nt	nt	nt	N/A	N/A	N/A	N/A

Sample ID	150508-385-KW	150508-386-KW	150508-387-KW				
Location	ABH284						
Depth	1.3-1.6						
Date	15 May 2008						
Laboratory	Envirolab	Envirolab	ALS	Blind Replicate		Split Sample	
Parameter	Original Sample	Blind Replicate	Split Sample	Average	RPD	Average	RPD
VOC							
Styrene	nt	nt	nt	N/A	N/A	N/A	N/A
Cumene (isopropylbenzene)	nt	nt	nt	N/A	N/A	N/A	N/A
n-Propylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,3,5-Trimethylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
sec-butylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2,4-Trimethylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
tert-Butylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
p-isopropyltoluene	nt	nt	nt	N/A	N/A	N/A	N/A
n-Butylbenzene	nt	nt	nt	N/A	N/A	N/A	N/A
2,2-Dichloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-dichloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
cis-1,3-Dichloropropene	nt	nt	nt	N/A	N/A	N/A	N/A
trans-1,3-Dichloropropene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-Dibromoethane	nt	nt	nt	N/A	N/A	N/A	N/A
Dichlorodifluoromethane	nt	nt	nt	N/A	N/A	N/A	N/A
Chloromethane	nt	nt	nt	N/A	N/A	N/A	N/A
Vinyl chloride	nt	nt	nt	N/A	N/A	N/A	N/A
Bromomethane	nt	nt	nt	N/A	N/A	N/A	N/A
Chloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
Trichlorofluoromethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,1-Dichloroethylene	nt	nt	nt	N/A	N/A	N/A	N/A
trans-1,2-Dichloroethylene	nt	nt	nt	N/A	N/A	N/A	N/A
1,1-Dichloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
cis-1,2-Dichloroethylene	nt	nt	nt	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,1-Dichloropropene	nt	nt	nt	N/A	N/A	N/A	N/A
Carbon tetrachloride	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-Dichloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
Trichloroethene	nt	nt	nt	N/A	N/A	N/A	N/A
Dibromomethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,1,2-trichloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,3-dichloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
Tetrachloroethene	nt	nt	nt	N/A	N/A	N/A	N/A
1,1,1,2-Tetrachloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	nt	nt	nt	N/A	N/A	N/A	N/A
1,2,3-Trichloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-Dibromo-3-chloropropane	nt	nt	nt	N/A	N/A	N/A	N/A
Hexachlorobutadiene	nt	nt	nt	N/A	N/A	N/A	N/A
Bromocholoromethane	nt	nt	nt	N/A	N/A	N/A	N/A
Chlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
Bromobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
o-Chlorotoluene	nt	nt	nt	N/A	N/A	N/A	N/A
4-chlorotoluene	nt	nt	nt	N/A	N/A	N/A	N/A
1,3-Dichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2,4-trichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
1,2,3-trichlorobenzene	nt	nt	nt	N/A	N/A	N/A	N/A
Chloroform	nt	nt	nt	N/A	N/A	N/A	N/A
Bromodichloromethane	nt	nt	nt	N/A	N/A	N/A	N/A
Chlorodibromomethane	nt	nt	nt	N/A	N/A	N/A	N/A
Bromoform	nt	nt	nt	N/A	N/A	N/A	N/A
PAAH							
2,4-DB	nt	nt	nt	N/A	N/A	N/A	N/A
Dicamba	nt	nt	nt	N/A	N/A	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	nt	nt	nt	N/A	N/A	N/A	N/A
2,4-DP (Dichloroprop)	nt	nt	nt	N/A	N/A	N/A	N/A
2,4-D	nt	nt	nt	N/A	N/A	N/A	N/A
Triclopyr	nt	nt	nt	N/A	N/A	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	nt	nt	nt	N/A	N/A	N/A	N/A
2,4,5-T	nt	nt	nt	N/A	N/A	N/A	N/A
Phenols							
Total Phenols	nt	nt	nt	N/A	N/A	N/A	N/A
Nutrients							
Ammonia as N	nt	nt	nt	N/A	N/A	N/A	N/A
Total Kjeldahl Nitrogen	nt	nt	nt	N/A	N/A	N/A	N/A
Nitrite as N	nt	nt	nt	N/A	N/A	N/A	N/A
Nitrate as N	nt	nt	nt	N/A	N/A	N/A	N/A
Total Phosphorous	nt	nt	nt	N/A	N/A	N/A	N/A

NOTES:

Relative Percentage Difference (RPD) is calculated as the absolute value of the

nd - Result is below the laboratory Estimated Quantitation Limit.

* EQL increased due to matrix interference

N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			280408-19-KW	280408-20-KW			290408-32-KW	290508-33-KW			290408-51-KW	290408-52-KW		
Location			BBH413				BBH416				BBH408			
Depth			1.0-1.3				0.1-0.3				1.2-1.4			
Date			28-Apr-08				29-Apr-08				29-Apr-08			
Laboratory			Envirolab				Envirolab				Envirolab			
					Blind Replicate				Blind Replicate				Blind Replicate	
Parameter	PQL	Units	Original Sample	Blind Sample	Average	RPD	Original Sample	Blind Sample	Average	RPD	Original Sample	Blind Sample	Average	RPD
Metals														
Arsenic	4	mg/kg	nt	nt	N/A	N/A	22	16	19	32%	4.8	6.5	5.65	30%
Cadmium	2	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
Chromium	1	mg/kg	nt	nt	N/A	N/A	9.7	7.7	8.7	23%	2.1	2.5	2.3	17%
Copper	1	mg/kg	nt	nt	N/A	N/A	24	25	24.5	4%	< 1	< 1	N/A	N/A
Nickel	1	mg/kg	nt	nt	N/A	N/A	4.5	7.2	5.85	46%	< 1	< 1	N/A	N/A
Lead	1	mg/kg	nt	nt	N/A	N/A	39	45	42	14%	< 1	1	1	N/A
Zinc	1	mg/kg	nt	nt	N/A	N/A	59	65	62	10%	3.1	2.5	2.8	21%
Mercury	0.1	mg/kg	nt	nt	N/A	N/A	0.22	0.2	0.21	10%	< 0.1	< 0.1	N/A	N/A
TPH/BTEX														
TPH C6 - C9	25	mg/kg	< 25	< 25	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
TPH C10 - C14	50	mg/kg	< 50	< 50	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
TPH C15 - C28	100	mg/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
TPH C29 - C36	100	mg/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzene	0.5	mg/kg	< 0.5	< 0.5	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Toluene	0.5	mg/kg	< 0.5	< 0.5	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Ethylbenzene	1	mg/kg	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
meta- & para-Xylene	2	mg/kg	< 2	< 2	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
ortho-Xylene	1	mg/kg	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
PAHs														
Naphthalene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Acenaphthylene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Acenaphthene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Fluorene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Phenanthrene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Anthracene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Fluoranthene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Pyrene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chrysene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.2	< 0.2	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.05	< 0.05	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
OCP														
alpha-BCH	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
b-BHC	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
d-BHC	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Heptachlor	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Aldrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlordane - trans	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlordane - cis	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endosulfan alpha	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Dieldrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
4,4-DDE	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
4,4-DDD	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endosulfan II	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endrin aldehyde	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
4,4-DDT	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Methoxychlor	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
OPP														
Dimethoate	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Diazinon	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Ronnel	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Fenitrothion	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlorpyrifos	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Ethion	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
PCB														
Total PCB	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A

NOTES:

nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			280408-19-KW	280408-20-KW			290408-32-KW	290508-33-KW			290408-51-KW	290408-52-KW		
Location			BBH413				BBH416				BBH408			
Depth			1.0-1.3				0.1-0.3				1.2-1.4			
Date			28-Apr-08				29-Apr-08				29-Apr-08			
Laboratory			Envirolab				Envirolab				Envirolab			
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate	
					Average	RPD			Average	RPD			Average	RPD
VOC														
Styrene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Cumene (isopropylbenzene)	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
n-Propylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,3,5-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
sec-butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,2,4-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
tert-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
p-isopropyltoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
n-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
2,2-Dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,2-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
cis-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
trans-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,2-Dibromoethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Dichlorodifluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 10	< 10	N/A	N/A
Chloromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 10	< 10	N/A	N/A
Vinyl chloride	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 10	< 10	N/A	N/A
Bromomethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 10	< 10	N/A	N/A
Chloroethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 10	< 10	N/A	N/A
Trichlorofluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 10	< 10	N/A	N/A
1,1-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
trans-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,1-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,1,1-Trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,1-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Carbon tetrachloride	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,2-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Trichloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Dibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,1,2-trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,3-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Tetrachloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,1,1,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,1,2,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,2,3-Trichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,2-Dibromo-3-chloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Hexachlorobutadiene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Bromocholoromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Chlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Bromobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
o-Chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
4-chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,3-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,4-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,2-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,2,4-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
1,2,3-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Chloroform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Bromodichloromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Chlorodibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Bromoform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
PAAH														
2,4-DB	100	ug/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
Dicamba	100	ug/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	100	ug/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
2,4-DP (Dichloroprop)	100	ug/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
2,4-D	100	ug/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
Triclopyr	100	ug/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
2,4,5-T	100	ug/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
Phenols														
Total Phenols	5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nutrients														
Ammonia as N	0.5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Kjeldahl Nitrogen	30	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nitrite as N	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nitrate as N	0.5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Phosphorous	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A

NOTES:

nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			300408-89-KW	300408-90-KW			300408-101-KW	300408-102-KW			010508-156-KW	010508-157-KW		
Location			BBH443				BBH442				BBH433			
Depth			0.4-0.5				0.1-0.4				0.1-0.3			
Date			30-Apr-08				30-Apr-08				1-May-08			
Laboratory			Envirolab				Envirolab				Envirolab			
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate	
					Average	RPD			Average	RPD			Average	RPD
Metals														
Arsenic	4	mg/kg	5.3	< 4	5.3	N/A	5	< 4	5	N/A	16	7.9	11.95	68%
Cadmium	2	mg/kg	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
Chromium	1	mg/kg	8.8	4.6	6.7	63%	7.8	5.8	6.8	29%	19	14	16.5	30%
Copper	1	mg/kg	11	6.3	8.65	54%	86	40	63	**73%**	66	41	53.5	47%
Nickel	1	mg/kg	< 1	1.2	1.2	N/A	2.4	1.8	2.1	29%	12	6.6	9.3	58%
Lead	1	mg/kg	9.1	8.6	8.85	6%	48	30	39	46%	110	160	135	37%
Zinc	1	mg/kg	2.1	8.4	5.25	**120%**	86	61	73.5	34%	190	180	185	5%
Mercury	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	0.22	0.12	0.17	59%	0.4	0.35	0.375	13%
TPH/BTEX														
TPH C6 - C9	25	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
TPH C10 - C14	50	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
TPH C15 - C28	100	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
TPH C29 - C36	100	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzene	0.5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Toluene	0.5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Ethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
meta- & para-Xylene	2	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
ortho-Xylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
PAHs														
Naphthalene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Acenaphthylene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Acenaphthene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Fluorene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Phenanthrene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Anthracene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Fluoranthene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Pyrene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chrysene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	< 0.2	< 0.2	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	< 0.05	< 0.05	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
OCP														
alpha-BCH	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
b-BHC	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
d-BHC	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Heptachlor	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Aldrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlordane - trans	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlordane - cis	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endosulfan alpha	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Dieldrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
4,4-DDE	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
4,4-DDD	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endosulfan II	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endrin aldehyde	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
4,4-DDT	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Methoxychlor	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
OPP														
Dimethoate	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Diazinon	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Ronnel	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Fenitrothion	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlorpyrifos	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Ethion	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
PCB														
Total PCB	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A

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Depth			0.4-0.5				0.1-0.4				0.1-0.3			
Date			30-Apr-08				30-Apr-08				1-May-08			
Laboratory			Envirolab				Envirolab				Envirolab			
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate	
					Average	RPD			Average	RPD			Average	RPD
VOC														
Styrene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Cumene (isopropylbenzene)	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Propylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3,5-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
sec-butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,4-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
tert-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
p-isopropyltoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,2-Dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
trans-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromoethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dichlorodifluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Vinyl chloride	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromomethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Trichlorofluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
trans-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1-Trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Carbon tetrachloride	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Trichloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2-trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Tetrachloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,3-Trichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromo-3-chloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobutadiene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromocholoromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
o-Chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4-chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,4-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,4-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,3-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromodichloromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorodibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromoform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
PAAH														
2,4-DB	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dicamba	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4-DP (Dichloroprop)	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4-D	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Triclopyr	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4,5-T	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Phenols														
Total Phenols	5	mg/kg	<5	<5	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nutrients														
Ammonia as N	0.5	mg/kg	nt	nt	N/A	N/A	1.8	1.7	1.75	6%	nt	nt	N/A	N/A
Total Kjeldahl Nitrogen	30	mg/kg	nt	nt	N/A	N/A	830	1200	1015	36%	nt	nt	N/A	N/A
Nitrite as N	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Nitrate as N	0.5	mg/kg	nt	nt	N/A	N/A	1.9	1.5	1.7	24%	nt	nt	N/A	N/A
Total Phosphorous	10	mg/kg	nt	nt	N/A	N/A	160	120	140	29%	nt	nt	N/A	N/A

NOTES:

nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			060508-37-KW	060508-38-KW			120508-229-KW	120508-230-KW			120508-215-KW	120508-216-KW		
Location			ABH215				ABH265				ABH211			
Depth			0.7-0.9				0.9-1.1				1.0-1.2			
Date			6-May-08				12-May-08				12-May-08			
Laboratory			Envirolab	ALS			Envirolab	ALS			Envirolab	ALS		
					Blind Replicate				Blind Replicate				Blind Replicate	
Parameter	PQL	Units	Original Sample	Split Sample	Average	RPD	Original Sample	Split Sample	Average	RPD	Original Sample	Split Sample	Average	RPD
Metals														
Arsenic	4	mg/kg	6.5	<5	6.5	N/A	< 4	< 5	N/A	N/A	< 4	< 5	N/A	N/A
Cadmium	2	mg/kg	< 1	<1	N/A	N/A	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
Chromium	1	mg/kg	2.7	3	2.85	11%	< 1	< 2	N/A	N/A	1.6	2	1.8	22%
Copper	1	mg/kg	< 1	<5	N/A	N/A	1.2	< 5	1.2	N/A	< 1	< 5	N/A	N/A
Nickel	1	mg/kg	1.6	<5	1.6	N/A	< 1	< 2	N/A	N/A	< 1	< 2	N/A	N/A
Lead	1	mg/kg	1.4	<2	1.4	N/A	< 1	< 5	N/A	N/A	1	< 5	1	N/A
Zinc	1	mg/kg	3	<5	3	N/A	2.1	< 5	2.1	N/A	2.1	< 5	2.1	N/A
Mercury	0.1	mg/kg	< 0.1	<0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A	0.14	< 0.1	0.14	N/A
TPH/BTEX														
TPH C6 - C9	25	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
TPH C10 - C14	50	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
TPH C15 - C28	100	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
TPH C29 - C36	100	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzene	0.5	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Toluene	0.5	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Ethylbenzene	1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
meta- & para-Xylene	2	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
ortho-Xylene	1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
PAHs														
Naphthalene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Acenaphthylene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Acenaphthene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Fluorene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Phenanthrene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Anthracene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Fluoranthene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Pyrene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chrysene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
OCP														
alpha-BCH	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
b-BHC	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
d-BHC	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Heptachlor	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Aldrin	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlordane - trans	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlordane - cis	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Endosulfan alpha	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dieldrin	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4,4-DDE	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4,4-DDD	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Endrin	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Endosulfan II	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Endrin aldehyde	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4,4-DDT	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Methoxychlor	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
OPP														
Dimethoate	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Diazinon	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Ronnel	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Fenitrothion	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorpyrifos	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Ethion	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
PCB														
Total PCB	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A

NOTES:

Relative Percentage Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage.

nd - Result is below the laboratory Estimated Quantitation Limit.

* EQL increased due to matrix interference

N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			060508-37-KW	060508-38-KW			120508-229-KW	120508-230-KW			120508-215-KW	120508-216-KW		
Location			ABH215				ABH265				ABH211			
Depth			0.7-0.9				0.9-1.1				1.0-1.2			
Date			6-May-08				12-May-08				12-May-08			
Laboratory			Envirolab	ALS	Blind Replicate		Envirolab	ALS	Blind Replicate		Envirolab	ALS	Blind Replicate	
Parameter	PQL	Units	Original Sample	Split Sample	Average	RPD	Original Sample	Split Sample	Average	RPD	Original Sample	Split Sample	Average	RPD
VOC														
Styrene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Cumene (isopropylbenzene)	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Propylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3,5-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
sec-butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,4-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
tert-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
p-isopropyltoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,2-Dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
trans-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromoethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dichlorodifluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Vinyl chloride	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromomethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Trichlorofluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
trans-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1-Trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Carbon tetrachloride	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Trichloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2-trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Tetrachloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,3-Trichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromo-3-chloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobutadiene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromocholoromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
o-Chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4-chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,4-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,4-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,3-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromodichloromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorodibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromoform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
PAAH														
2,4-DB	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dicamba	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4-DP (Dichloroprop)	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4-D	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Triclopyr	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4,5-T	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Phenols														
Total Phenols	5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nutrients														
Ammonia as N	0.5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Kjeldahl Nitrogen	30	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nitrite as N	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nitrate as N	0.5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Phosphorous	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A

NOTES:

Relative Percentage Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage.
nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			060508-23-KW	060508-24-KW			070508-98-KW	070508-99-KW			080508-106-KW	080508-107-KW		
Location			ABH238				ABH247				ABH248			
Depth			0.1-0.5				0.1-0.4				1.0-1.1			
Date			6-May-08				7-May-08				8-May-08			
Laboratory			Envirolab				Envirolab				Envirolab			
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate	
					Average	RPD			Average	RPD			Average	RPD
Metals														
Arsenic	4	mg/kg	< 4	< 4	N/A	N/A	nt	nt	N/A	N/A	< 4	< 4	N/A	N/A
Cadmium	2	mg/kg	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Chromium	1	mg/kg	3.5	1.4	2.45	86%	nt	nt	N/A	N/A	1	< 1	1	N/A
Copper	1	mg/kg	2.3	< 1	2.3	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Nickel	1	mg/kg	1	< 1	1	N/A	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
Lead	1	mg/kg	3.3	1.7	2.5	64%	nt	nt	N/A	N/A	1.1	< 1	1.1	N/A
Zinc	1	mg/kg	9.7	9.8	9.75	1%	nt	nt	N/A	N/A	1.7	4.2	2.95	85%
Mercury	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
TPH/BTEX														
TPH C6 - C9	25	mg/kg	nt	nt	N/A	N/A	< 25	< 25	N/A	N/A	nt	nt	N/A	N/A
TPH C10 - C14	50	mg/kg	nt	nt	N/A	N/A	< 50	< 50	N/A	N/A	nt	nt	N/A	N/A
TPH C15 - C28	100	mg/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
TPH C29 - C36	100	mg/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
Benzene	0.5	mg/kg	nt	nt	N/A	N/A	< 0.5	< 0.5	N/A	N/A	nt	nt	N/A	N/A
Toluene	0.5	mg/kg	nt	nt	N/A	N/A	< 0.5	< 0.5	N/A	N/A	nt	nt	N/A	N/A
Ethylbenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
meta- & para-Xylene	2	mg/kg	nt	nt	N/A	N/A	< 2	< 2	N/A	N/A	nt	nt	N/A	N/A
ortho-Xylene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
PAHs														
Naphthalene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Acenaphthylene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Acenaphthene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Fluorene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Phenanthrene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Anthracene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Fluoranthene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Pyrene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chrysene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	nt	nt	N/A	N/A	< 0.2	< 0.2	N/A	N/A	nt	nt	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	nt	nt	N/A	N/A	< 0.05	< 0.05	N/A	N/A	nt	nt	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
OCP														
alpha-BCH	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
b-BHC	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
d-BHC	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Heptachlor	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Aldrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chlordane - trans	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chlordane - cis	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endosulfan alpha	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Dieldrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
4,4-DDE	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
4,4-DDD	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endosulfan II	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endrin aldehyde	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
4,4-DDT	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Methoxychlor	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
OPP														
Dimethoate	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Diazinon	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Ronnel	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Fenitrothion	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chlorpyrifos	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Ethion	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
PCB														
Total PCB	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A

NOTES:

nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			060508-23-KW	060508-24-KW			070508-98-KW	070508-99-KW			080508-106-KW	080508-107-KW		
Location			ABH238				ABH247				ABH248			
Depth			0.1-0.5				0.1-0.4				1.0-1.1			
Date			6-May-08				7-May-08				8-May-08			
Laboratory			Envirolab				Envirolab				Envirolab			
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate	
					Average	RPD			Average	RPD			Average	RPD
VOC														
Styrene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Cumene (isopropylbenzene)	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Propylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3,5-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
sec-butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,4-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
tert-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
p-isopropyltoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,2-Dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
trans-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromoethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dichlorodifluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Vinyl chloride	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromomethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Trichlorofluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
trans-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1-Trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Carbon tetrachloride	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Trichloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2-trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Tetrachloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,3-Trichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromo-3-chloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobutadiene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromocholoromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
o-Chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4-chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,4-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,4-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,3-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromodichloromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorodibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromoform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
PAAH														
2,4-DB	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dicamba	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4-DP (Dichloroprop)	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4-D	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Triclopyr	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4,5-T	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Phenols														
Total Phenols	5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nutrients														
Ammonia as N	0.5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Kjeldahl Nitrogen	30	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nitrite as N	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nitrate as N	0.5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Phosphorous	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A

NOTES:

nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			080508-145-KW	080508-146-KW			080508-152-KW	080508-153-KW			090508-194-KW	090508-195-KW		
Location			ABH242				ABH231				ABH2103			
Depth			0.5-0.7				0.6-0.7				0.1-0.2			
Date			8-May-08				8-May-08				9-May-08			
Laboratory			Envirolab				Envirolab				Envirolab			
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate	
					Average	RPD			Average	RPD			Average	RPD
Metals														
Arsenic	4	mg/kg	< 4	6.7	6.7	N/A	< 4	< 4	N/A	N/A	< 4	< 4	N/A	N/A
Cadmium	2	mg/kg	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
Chromium	1	mg/kg	7.2	12	9.6	50%	1.3	1.2	1.25	8%	9.7	4.2	6.95	79%
Copper	1	mg/kg	9.7	13	11.35	29%	1.6	1.8	1.7	12%	13	7.3	10.15	**56%**
Nickel	1	mg/kg	2.1	2.9	2.5	32%	< 1	< 1	N/A	N/A	12	4	8	**100%**
Lead	1	mg/kg	26	26	26	0%	7.8	9.1	8.45	15%	950	1200	1075	23%
Zinc	1	mg/kg	32	23	27.5	33%	9	12	10.5	29%	41	34	37.5	19%
Mercury	0.1	mg/kg	0.24	0.1	0.17	82%	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
TPH/BTEX														
TPH C6 - C9	25	mg/kg	nt	nt	N/A	N/A	< 25	< 25	N/A	N/A	nt	nt	N/A	N/A
TPH C10 - C14	50	mg/kg	nt	nt	N/A	N/A	< 50	< 50	N/A	N/A	nt	nt	N/A	N/A
TPH C15 - C28	100	mg/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
TPH C29 - C36	100	mg/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
Benzene	0.5	mg/kg	nt	nt	N/A	N/A	< 0.5	< 0.5	N/A	N/A	nt	nt	N/A	N/A
Toluene	0.5	mg/kg	nt	nt	N/A	N/A	< 0.5	< 0.5	N/A	N/A	nt	nt	N/A	N/A
Ethylbenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
meta- & para-Xylene	2	mg/kg	nt	nt	N/A	N/A	< 2	< 2	N/A	N/A	nt	nt	N/A	N/A
ortho-Xylene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
PAHs														
Naphthalene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Acenaphthylene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Acenaphthene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Fluorene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Phenanthrene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Anthracene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Fluoranthene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Pyrene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chrysene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	nt	nt	N/A	N/A	< 0.2	< 0.2	N/A	N/A	nt	nt	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	nt	nt	N/A	N/A	< 0.05	< 0.05	N/A	N/A	nt	nt	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
OCP														
alpha-BCH	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
b-BHC	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
d-BHC	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Heptachlor	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Aldrin	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlordane - trans	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlordane - cis	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endosulfan alpha	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Dieldrin	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
4,4-DDE	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
4,4-DDD	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endrin	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endosulfan II	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endrin aldehyde	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
4,4-DDT	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Methoxychlor	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
OPP														
Dimethoate	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Diazinon	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Ronnel	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Fenitrothion	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlorpyrifos	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Ethion	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
PCB														
Total PCB	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A

NOTES:

Relative Percentage Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage.

nd - Result is below the laboratory Estimated Quantitation Limit.

* EQL increased due to matrix interference

N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			080508-145-KW	080508-146-KW			080508-152-KW	080508-153-KW			090508-194-KW	090508-195-KW		
Location			ABH242				ABH231				ABH2103			
Depth			0.5-0.7				0.6-0.7				0.1-0.2			
Date			8-May-08				8-May-08				9-May-08			
Laboratory			Envirolab				Envirolab				Envirolab			
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate	
					Average	RPD			Average	RPD			Average	RPD
VOC														
Styrene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Cumene (isopropylbenzene)	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
n-Propylbenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,3,5-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
sec-butylbenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,2,4-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
tert-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
p-isopropyltoluene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
n-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
2,2-Dichloropropane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,2-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
cis-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
trans-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromoethane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Dichlorodifluoromethane	10	mg/kg	nt	nt	N/A	N/A	< 10	< 10	N/A	N/A	nt	nt	N/A	N/A
Chloromethane	10	mg/kg	nt	nt	N/A	N/A	< 10	< 10	N/A	N/A	nt	nt	N/A	N/A
Vinyl chloride	10	mg/kg	nt	nt	N/A	N/A	< 10	< 10	N/A	N/A	nt	nt	N/A	N/A
Bromomethane	10	mg/kg	nt	nt	N/A	N/A	< 10	< 10	N/A	N/A	nt	nt	N/A	N/A
Chloroethane	10	mg/kg	nt	nt	N/A	N/A	< 10	< 10	N/A	N/A	nt	nt	N/A	N/A
Trichlorofluoromethane	10	mg/kg	nt	nt	N/A	N/A	< 10	< 10	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
trans-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
cis-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,1,1-Trichloroethane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Carbon tetrachloride	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Trichloroethene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Dibromomethane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,1,2-trichloroethane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,3-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Tetrachloroethene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,1,1,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,1,2,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,2,3-Trichloropropane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromo-3-chloropropane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobutadiene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Bromocholoromethane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Chlorobenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Bromobenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
o-Chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
4-chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,3-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,4-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,2,4-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
1,2,3-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Chloroform	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Bromodichloromethane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Chlorodibromomethane	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
Bromoform	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
PAAH														
2,4-DB	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dicamba	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4-DP (Dichloroprop)	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4-D	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Triclopyr	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4,5-T	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Phenols														
Total Phenols	5	mg/kg	nt	nt	N/A	N/A	< 5	< 5	N/A	N/A	nt	nt	N/A	N/A
Nutrients														
Ammonia as N	0.5	mg/kg	2.5	2.5	2.5	0%	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Kjeldahl Nitrogen	30	mg/kg	320	220	270	37%	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nitrite as N	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nitrate as N	0.5	mg/kg	0.8	0.7	0.75	13%	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Phosphorous	10	mg/kg	120	72	96	50%	nt	nt	N/A	N/A	nt	nt	N/A	N/A

NOTES:
Relative Percentage Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage.
nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			120508-239-KW	120508-240-KW			120508-245-KW	120508-246-KW		
Location			ABH262				ABH260			
Depth			1.7-1.9				0.6-0.8			
Date			12-May-08				12-May-08			
Laboratory			Envirolab				Envirolab			
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate	
					Average	RPD			Average	RPD
Metals										
Arsenic	4	mg/kg	< 4	< 4	N/A	N/A	< 4	< 4	N/A	N/A
Cadmium	2	mg/kg	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
Chromium	1	mg/kg	1.5	1.6	1.55	6%	< 1	< 1	N/A	N/A
Copper	1	mg/kg	2.9	3.2	3.05	10%	< 1	1.1	1.1	N/A
Nickel	1	mg/kg	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
Lead	1	mg/kg	4.5	2.4	3.45	61%	< 1	1.3	1.3	N/A
Zinc	1	mg/kg	12	26	19	**74%**	1.9	3.4	2.65	57%
Mercury	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
TPH/BTEX										
TPH C6 - C9	25	mg/kg	nt	nt	N/A	N/A	< 25	< 25	N/A	N/A
TPH C10 - C14	50	mg/kg	nt	nt	N/A	N/A	< 50	< 50	N/A	N/A
TPH C15 - C28	100	mg/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A
TPH C29 - C36	100	mg/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A
Benzene	0.5	mg/kg	nt	nt	N/A	N/A	< 0.5	< 0.5	N/A	N/A
Toluene	0.5	mg/kg	nt	nt	N/A	N/A	< 0.5	< 0.5	N/A	N/A
Ethylbenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
meta- & para-Xylene	2	mg/kg	nt	nt	N/A	N/A	< 2	< 2	N/A	N/A
ortho-Xylene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
PAHs										
Naphthalene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Acenaphthylene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Acenaphthene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Fluorene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Phenanthrene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Anthracene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Fluoranthene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Pyrene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chrysene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	nt	nt	N/A	N/A	< 0.2	< 0.2	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	nt	nt	N/A	N/A	< 0.05	< 0.05	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
OCP										
alpha-BCH	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
b-BHC	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
d-BHC	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Heptachlor	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Aldrin	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlordane - trans	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlordane - cis	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Endosulfan alpha	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dieldrin	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4,4-DDE	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4,4-DDD	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Endrin	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Endosulfan II	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Endrin aldehyde	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4,4-DDT	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Methoxychlor	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
OPP										
Dimethoate	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Diazinon	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Ronnel	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Fenitrothion	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorpyrifos	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Ethion	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
PCB										
Total PCB	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A

NOTES:

Relative Percentage Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage.

nd - Result is below the laboratory Estimated Quantitation Limit.

* EQL increased due to matrix interference

N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			120508-239-KW	120508-240-KW			120508-245-KW	120508-246-KW		
Location			ABH262				ABH260			
Depth			1.7-1.9				0.6-0.8			
Date			12-May-08				12-May-08			
Laboratory			Envirolab				Envirolab			
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate	
					Average	RPD			Average	RPD
VOC										
Styrene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Cumene (isopropylbenzene)	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Propylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3,5-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
sec-butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,4-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
tert-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
p-isopropyltoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,2-Dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
trans-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromoethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dichlorodifluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Vinyl chloride	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromomethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Trichlorofluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
trans-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1-Trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Carbon tetrachloride	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Trichloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2-trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Tetrachloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,3-Trichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromo-3-chloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobutadiene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromocholoromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
o-Chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4-chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,4-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,4-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,3-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromodichloromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorodibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromoform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
PAAH										
2,4-DB	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dicamba	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4-DP (Dichloroprop)	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4-D	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Triclopyr	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4,5-T	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Phenols										
Total Phenols	5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nutrients										
Ammonia as N	0.5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Kjeldahl Nitrogen	30	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nitrite as N	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nitrate as N	0.5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Phosphorous	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A

NOTES:

Relative Percentage Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage.

nd - Result is below the laboratory Estimated Quantitation Limit.

* EQL increased due to matrix interference

N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			130508-304-KW	130508-305-KW			130508-323-KW	130508-324-KW		
Location			ABH272				ABH295			
Depth			0.1-0.5				1.2-1.4			
Date			13-May-08				13-May-08			
Laboratory			Envirolab				Envirolab			
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate	
					Average	RPD			Average	RPD
Metals										
Arsenic	4	mg/kg	< 4	< 4	N/A	N/A	< 4	< 4	N/A	N/A
Cadmium	2	mg/kg	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
Chromium	1	mg/kg	4.1	4.8	4.45	16%	< 1	1.6	1.6	N/A
Copper	1	mg/kg	13	17	15	27%	< 1	1.1	1.1	N/A
Nickel	1	mg/kg	2	2.2	2.1	10%	< 1	< 1	N/A	N/A
Lead	1	mg/kg	72	81	76.5	12%	< 1	1.1	1.1	N/A
Zinc	1	mg/kg	120	110	115	9%	< 1	1.5	1.5	N/A
Mercury	0.1	mg/kg	0.12	0.18	0.15	40%	< 0.1	< 0.1	N/A	N/A
TPH/BTEX										
TPH C6 - C9	25	mg/kg	nt	nt	N/A	N/A	< 25	< 25	N/A	N/A
TPH C10 - C14	50	mg/kg	nt	nt	N/A	N/A	< 50	< 50	N/A	N/A
TPH C15 - C28	100	mg/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A
TPH C29 - C36	100	mg/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A
Benzene	0.5	mg/kg	nt	nt	N/A	N/A	< 0.5	< 0.5	N/A	N/A
Toluene	0.5	mg/kg	nt	nt	N/A	N/A	< 0.5	< 0.5	N/A	N/A
Ethylbenzene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
meta- & para-Xylene	2	mg/kg	nt	nt	N/A	N/A	< 2	< 2	N/A	N/A
ortho-Xylene	1	mg/kg	nt	nt	N/A	N/A	< 1	< 1	N/A	N/A
PAHs										
Naphthalene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Acenaphthylene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Acenaphthene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Fluorene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Phenanthrene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Anthracene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Fluoranthene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Pyrene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chrysene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
OCP										
alpha-BCH	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
b-BHC	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
d-BHC	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Heptachlor	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Aldrin	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chlordane - trans	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chlordane - cis	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endosulfan alpha	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Dieldrin	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
4,4-DDE	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
4,4-DDD	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endrin	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endosulfan II	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endrin aldehyde	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
4,4-DDT	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Methoxychlor	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
OPP										
Dimethoate	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Diazinon	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Ronnel	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Fenitrothion	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chlorpyrifos	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Ethion	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
PCB										
Total PCB	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A

NOTES:

Relative Percentage Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage.

nd - Result is below the laboratory Estimated Quantitation Limit.

* EQL increased due to matrix interference

N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			130508-304-KW	130508-305-KW			130508-323-KW	130508-324-KW		
Location			ABH272				ABH295			
Depth			0.1-0.5				1.2-1.4			
Date			13-May-08				13-May-08			
Laboratory			Envirolab				Envirolab			
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate		Original Sample	Blind Sample	Blind Replicate	
					Average	RPD			Average	RPD
VOC										
Styrene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Cumene (isopropylbenzene)	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Propylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3,5-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
sec-butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,4-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
tert-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
p-isopropyltoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,2-Dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
trans-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromoethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dichlorodifluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Vinyl chloride	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromomethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Trichlorofluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
trans-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1-Trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Carbon tetrachloride	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Trichloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2-trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Tetrachloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,3-Trichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromo-3-chloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobutadiene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromocholoromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
o-Chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4-chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,4-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,4-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,3-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromodichloromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorodibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromoform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
PAAH										
2,4-DB	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
Dicamba	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
2,4-DP (Dichloroprop)	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
2,4-D	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
Triclopyr	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
2,4,5-T	100	ug/kg	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
Phenols										
Total Phenols	5	mg/kg	nt	nt	N/A	N/A	< 5	< 5	N/A	N/A
Nutrients										
Ammonia as N	0.5	mg/kg	< 0.5	0.6	0.6	N/A	nt	nt	N/A	N/A
Total Kjeldahl Nitrogen	30	mg/kg	480	560	520	15%	nt	nt	N/A	N/A
Nitrite as N	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Nitrate as N	0.5	mg/kg	< 0.5	< 0.5	N/A	N/A	nt	nt	N/A	N/A
Total Phosphorous	10	mg/kg	340	340	340	0%	nt	nt	N/A	N/A

NOTES:

Relative Percentage Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage.
nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			150508-370-KW	150508-371-KW			150508-378-KW	150508-379-KW			150508-393-KW	150508-394-KW		
Location			ABH289				ABH287				ABH286			
Depth			0.0-0.3				0.0-0.4				2.3-2.5			
Date			15-May-08				15-May-08				15-May-08			
Laboratory			Envirolab				Envirolab				Envirolab			
					Blind Replicate				Blind Replicate				Blind Replicate	
Parameter	PQL	Units	Original Sample	Blind Sample	Average	RPD	Original Sample	Blind Sample	Average	RPD	Original Sample	Blind Sample	Average	RPD
Metals														
Arsenic	4	mg/kg	22	25	23.5	13%	4.5	< 4	4.5	N/A	< 4	< 4	N/A	N/A
Cadmium	2	mg/kg	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A
Chromium	1	mg/kg	42	53	47.5	23%	7.4	5.9	6.65	23%	4.2	4.1	4.15	2%
Copper	1	mg/kg	28	40	34	35%	5.4	5.7	5.55	5%	< 1	< 1	N/A	N/A
Nickel	1	mg/kg	8.5	9.5	9	11%	2.3	1.8	2.05	24%	< 1	1	1	N/A
Lead	1	mg/kg	65	77	71	17%	14	18	16	25%	2.1	1.8	1.95	15%
Zinc	1	mg/kg	88	100	94	13%	31	26	28.5	18%	1.9	1.2	1.55	45%
Mercury	0.1	mg/kg	0.3	0.44	0.37	38%	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
TPH/BTEX														
TPH C6 - C9	25	mg/kg	< 25	< 25	N/A	N/A	< 25	< 25	N/A	N/A	nt	nt	N/A	N/A
TPH C10 - C14	50	mg/kg	< 50	< 50	N/A	N/A	< 50	< 50	N/A	N/A	nt	nt	N/A	N/A
TPH C15 - C28	100	mg/kg	< 100	< 100	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
TPH C29 - C36	100	mg/kg	< 100	< 100	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
Benzene	0.5	mg/kg	< 0.5	< 0.5	N/A	N/A	< 0.5	< 0.5	N/A	N/A	nt	nt	N/A	N/A
Toluene	0.5	mg/kg	< 0.5	< 0.5	N/A	N/A	< 0.5	< 0.5	N/A	N/A	nt	nt	N/A	N/A
Ethylbenzene	1	mg/kg	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
meta- & para-Xylene	2	mg/kg	< 2	< 2	N/A	N/A	< 2	< 2	N/A	N/A	nt	nt	N/A	N/A
ortho-Xylene	1	mg/kg	< 1	< 1	N/A	N/A	< 1	< 1	N/A	N/A	nt	nt	N/A	N/A
PAHs														
Naphthalene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Acenaphthylene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Acenaphthene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Fluorene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Phenanthrene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Anthracene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Fluoranthene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Pyrene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(a)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chrysene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(b)&(k)fluoranthene	0.2	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(a)pyrene	0.05	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Indeno(1,2,3-cd)pyrene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dibenz(a,h)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Benzo(g,h,i)perylene	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
OCP														
alpha-BCH	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
b-BHC	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
gamma-BHC (Lindane)	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
d-BHC	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Heptachlor	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Aldrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Heptachlor epoxide	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chlordane - trans	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chlordane - cis	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endosulfan alpha	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Dieldrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
4,4-DDE	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
4,4-DDD	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endosulfan II	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endrin aldehyde	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Endosulfan sulphate	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
4,4-DDT	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Methoxychlor	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
OPP														
Dimethoate	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Diazinon	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chlorpyrifos-methyl	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Ronnel	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Fenitrothion	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Chlorpyrifos	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Ethion	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
PCB														
Total PCB	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A

NOTES:

Relative Percentage Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage.
nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Sample ID			150508-370-KW	150508-371-KW			150508-378-KW	150508-379-KW			150508-393-KW	150508-394-KW		
Location			ABH289				ABH287				ABH286			
Depth			0.0-0.3				0.0-0.4				2.3-2.5			
Date			15-May-08				15-May-08				15-May-08			
Laboratory			Envirolab				Envirolab				Envirolab			
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate Average	Blind Replicate RPD	Original Sample	Blind Sample	Blind Replicate Average	Blind Replicate RPD	Original Sample	Blind Sample	Blind Replicate Average	Blind Replicate RPD
VOC														
Styrene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Cumene (isopropylbenzene)	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Propylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3,5-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
sec-butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,4-Trimethylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
tert-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
p-isopropyltoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Butylbenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,2-Dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
trans-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromoethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dichlorodifluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Vinyl chloride	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromomethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Trichlorofluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
trans-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1-Trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Carbon tetrachloride	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Trichloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2-trichloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3-dichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Tetrachloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2,2-Tetrachloroethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,3-Trichloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dibromo-3-chloropropane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobutadiene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromocholoromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
o-Chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4-chlorotoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,3-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,4-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,4-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2,3-trichlorobenzene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromodichloromethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorodibromomethane	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromoform	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
PAAH														
2,4-DB	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dicamba	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4-DP (Dichloroprop)	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4-D	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Triclopyr	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4,5-T	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Phenols														
Total Phenols	5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nutrients														
Ammonia as N	0.5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Kjeldahl Nitrogen	30	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nitrite as N	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Nitrate as N	0.5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Phosphorous	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A

NOTES:

Relative Percentage Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage.

nd - Result is below the laboratory Estimated Quantitation Limit.

* EQL increased due to matrix interference

N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Split Replicate RPD Results - Groundwater

Sample ID			170608-03-KW	170608-04-KW			300508-10-KW	300508-11-KW			290508-05-KW	250508-06-KW	290508-07-KW					AMW203	QAQC1	QAQC2				
Location			BMW404				MB015				BH101C							AMW203						
Date			17 June 2008				30 May 2008				29 May 2008							17 February 2017						
Laboratory			Envirolab	ALS			Envirolab				Envirolab	Envirolab	ALS					Envirolab	Envirolab	ALS				
Parameter	**PQL**	**Units**	**Original Sample**	**Split Sample**	**Blind Replicate**		**Original Sample**	**Blind Sample**	**Blind Replicate**		**Original Sample**	**Blind Replicate**	**Split Sample**	**Blind Replicate**		**Split Sample**		**Original Sample**	**Blind Replicate**	**Split Sample**	**Blind Replicate**		**Split Sample**	
					Average	**RPD**			**Average**	**RPD**				**Average**	**RPD**	**Average**	**RPD**				**Average**	**RPD**	**Average**	**RPD**
Chloride	20	mg/L	5900	6140	6020	4%	2000	2100	2050	5%	210	230	234	220	9%	222	11%	nt	nt	nt	N/A	N/A	N/A	N/A
Sulphate	5	mg/l	830	696	763	18%	2300	2400	2350	4%	140	130	129	135	7%	134.5	8%	nt	nt	nt	N/A	N/A	N/A	N/A
Total Dissolved Solids	5	mg/l	11000	11000	11000	0%	8900	7600	8250	16%	800	900	726	850	12%	763	10%	nt	nt	nt	N/A	N/A	N/A	N/A
Salinity	1	g/l	10000	9350	9675	7%	6.2	6.1	6.15	2%	<1	<1	0.62	N/A	N/A	0.62	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Carbonate Alkalinity as	0.1	mg/l	<0.1	nt	N/A	N/A	<0.1	<0.1	N/A	N/A	<0.1	<0.1	<1	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Bicarbonate Alkalinity as	0.1	mg/l	280	nt	280	N/A	810	810	810	0%	150	150	153	150	0%	151.5	2%	nt	nt	nt	N/A	N/A	N/A	N/A
Total Alkalinity	0.1	mg/l	nt	272	272	N/A	nt	nt	N/A	N/A	nt	nt	153	N/A	N/A	153	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Calcium (II) Ion	0.03	mg/l	170	163	166.5	4%	610	610	610	0%	81	78	76	79.5	4%	78.5	6%	nt	nt	nt	N/A	N/A	N/A	N/A
Potassium (I) Ion	0.03	mg/l	130	130	130	0%	93	92	92.5	1%	19	19	20	19	0%	19.5	5%	nt	nt	nt	N/A	N/A	N/A	N/A
Sodium (Na)	0.03	mg/l	3500	3160	3330	10%	1600	1500	1550	6%	120	120	122	120	0%	121	2%	nt	nt	nt	N/A	N/A	N/A	N/A
Magnesium (II) Ion	0.03	mg/l	30	336	183	**167%**	330	320	325	3%	24	24	24	24	0%	24	0%	nt	nt	nt	N/A	N/A	N/A	N/A
Metals																								
Arsenic	1	ug/l	1.6	<1	1.6	N/A	5.7	5.5	5.6	4%	11	11	10	11	0%	10.5	10%	32	32	22	32	0%	27	37%
Cadmium	0.1	ug/l	0.2	<0.01	0.2	N/A	0.2	0.1	0.15	67%	<0.1	<0.1	<0.1	N/A	N/A	N/A	N/A	<0.1	<0.1	<0.1	N/A	N/A	N/A	N/A
Chromium	1	ug/l	23	24	23.5	4%	1.5	1.5	1.5	0%	<1	1.1	<0.1	1.1	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Copper	1	ug/l	6.6	2	4.3	107%	<1	<1	N/A	N/A	<1	<1	<0.1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Nickel	1	ug/l	<1	4	4	N/A	<1	<1	N/A	N/A	<1	<1	<0.1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Lead	1	ug/l	<0.5	<1	N/A	N/A	11	11	11	0%	1.1	1	<0.1	1.05	10%	1.1	N/A	<0.05	<0.05	<0.1	N/A	N/A	N/A	N/A
Zinc	1	ug/l	2.5	6	4.25	82%	5.9	5.7	5.8	3%	<1	<1	<0.5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Mercury	0.5	ug/l	4.1	<0.1	4.1	N/A	<0.5	<0.5	N/A	N/A	<0.5	<0.5	<0.01	N/A	N/A	N/A	N/A	<0.05	<0.05	<0.1	N/A	N/A	N/A	N/A
TPH/BTEX																								
TPH C6 - C9	10	ug/l	<10	<20	N/A	N/A	<10	<10	N/A	N/A	<10	<10	<20	N/A	N/A	N/A	N/A	<10	<10	<20	N/A	N/A	N/A	N/A
TPH C10 - C14	50	ug/l	<50	<50	N/A	N/A	<50	<50	N/A	N/A	<50	<50	<50	N/A	N/A	N/A	N/A	<50	<50	<50	N/A	N/A	N/A	N/A
TPH C15 - C28	100	ug/l	<100	<100	N/A	N/A	<100	<100	N/A	N/A	<100	<100	<100	N/A	N/A	N/A	N/A	<100	<100	<100	N/A	N/A	N/A	N/A
TPH C29 - C36	100	ug/l	<100	<50	N/A	N/A	<100	<100	N/A	N/A	<100	<100	<50	N/A	N/A	N/A	N/A	<100	<100	<50	N/A	N/A	N/A	N/A
Benzene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Toluene	1	ug/l	1.5	<5	1.5	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<2	N/A	N/A	N/A	N/A
Ethylbenzene	1	ug/l	<1	<2	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<2	N/A	N/A	N/A	N/A	<1	<1	<2	N/A	N/A	N/A	N/A
meta- & para-Xylene	2	ug/l	<2	<2	N/A	N/A	<2	<2	N/A	N/A	<2	<2	<2	N/A	N/A	N/A	N/A	<2	<2	<2	N/A	N/A	N/A	N/A
ortho-Xylene	1	ug/l	<1	<2	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<2	N/A	N/A	N/A	N/A	<1	<1	<2	N/A	N/A	N/A	N/A
PAHs																								
Naphthalene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Acenaphthylene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Acenaphthene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Fluorene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Phenanthrene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Anthracene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Fluoranthene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Pyrene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Benzo(a)anthracene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Chrysene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Benzo(b)&(k)fluoranthene	2	ug/l	<2	<1	N/A	N/A	<2	<2	N/A	N/A	<2	<2	<0.5	N/A	N/A	N/A	N/A	<2	<2	<1	N/A	N/A	N/A	N/A
Benzo(a)pyrene	1	ug/l	<1	<0.5	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<0.5	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
Benzo(g,h,i)perylene	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A	<1	<1	<1	N/A	N/A	N/A	N/A
OCP																								
alpha-BCH	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	nt	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.2	N/A	N/A	N/A	N/A
Hexachlorobenzene	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.2	N/A	N/A	N/A	N/A
b-BHC	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
gamma-BHC (Lindane)	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
d-BHC	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Heptachlor	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
Aldrin	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Heptachlor epoxide	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Chlordane - trans	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	nt	N/A	N/A	N/A	N/A
Chlordane - cis	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	nt	N/A	N/A	N/A	N/A
Endosulfan alpha	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Dieldrin	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
4,4-DDE	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
4,4-DDD	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Endrin	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Endosulfan II	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Endrin aldehyde	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<2	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Endosulfan sulphate	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
4,4-DDT	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Methoxychlor	0.2	ug/l	<0.2	<0.2	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<2	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
OPP																								
Diazinon	0.2	ug/l	<0.2	<0.5	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Dimethoate	0.2	ug/l	<0.2	<0.5	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Chlorpyriphos-methyl	0.2	ug/l	<0.2	<0.5	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Ronnel	0.2	ug/l	<0.2	nt	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	nt	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Chlorpyriphos	0.2	ug/l	<0.2	<0.5	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Fenitrothion	0.2	ug/l	<0.2	<0.5	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	nt	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Bromophos ethyl	0.2	ug/l	<0.2	<0.5	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
Ethion	0.2	ug/l	<0.2	<0.5	N/A	N/A	<0.2	<0.2	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A	<0.2	<0.2	<0.5	N/A	N/A	N/A	N/A
PCB																								
Total PCB	2	ug/l	<2	<2	N/A	N/A	<2	<2	N/A	N/A	<2	<2	<2	N/A	N/A	N/A	N/A	nt	nt	nt	N/A	N/A	N/A	N/A
VOC																								
Dichlorodifluoromethane	50	ug/l	<10	<10	N/A	N/A	<10	<10	N/A	N/A	<10	<10	<50	N/A	N/A	N/A	N/A	<10	<10	<50	N/A	N/A	N/A	N/A
Chloromethane	50	ug/l	<10	<10	N/A	N/A	<10	<10	N/A	N/A	<10	<10	<50	N/A	N/A	N/A	N/A	<10	<10	<50	N/A	N/A	N/A	N/A
Vinyl Chloride	50	ug/l	<10	<10	N/A	N/A	<10	<10	N/A	N/A	<10	<10	<50	N/A	N/A	N/A	N/A	<10	<10	<50	N/A	N/A	N/A	N/A
Bromomethane	50	ug/l	<10	<10	N/A	N/A	<10	<10	N/A	N/A	<10	<10	<50	N/A	N/A	N/A	N/A	<10	<10	<50	N/A	N/A	N/A	N/A
Chloroethane	50	ug/l	<10	<10	N/A	N/A	<10	<10	N/A	N/A	<10	<10	<50	N/A	N/A	N/A	N/A	<10	<10	<50	N/A	N/A	N/A	N/A
Trichlorofluoromethane	50	ug/l	<10	<10	N/A	N/A	<10	<10	N/A	N/A	<10	<10	<50	N/A	N/A	N/A	N/A	<10	<10	<50	N/A	N/A	N/A	N/A
1,1-Dichloroethene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Trans-1,2-dichloroethene	50	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,1-dichloroethane	50	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Cis-1,2-dichloroethene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Bromochloromethane	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Chloroform	50	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
2,2-dichloropropane	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,2-dichloroethane	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,1,1-trichloroethane	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,1-dichloropropene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A
Carbon tetrachloride	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Dibromomethane	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,2-dichloropropane	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Trichloroethene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Bromodichloromethane	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
trans-1,3-dichloropropene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
cis-1,3-dichloropropene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A
1,1,2-trichloroethane	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A
1,3-dichloropropane	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Dibromochloromethane	1	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,2-dibromoethane	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A
Tetrachloroethene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,1,1,2-tetrachloroethane	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Chlorobenzene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Bromoform	50	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Styrene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,1,2,2-tetrachloroethane	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,2,3-trichloropropane*	50	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Isopropylbenzene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Bromobenzene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
n-propyl benzene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
2-chlorotoluene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
4-chlorotoluene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,3,5-trimethyl benzene	2	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Tert-butyl benzene	2	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,2,4-trimethyl benzene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,3-dichlorobenzene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Sec-butyl benzene	2	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,4-dichlorobenzene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
4-isopropyl toluene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A
1,2-dichlorobenzene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
n-butyl benzene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	nt	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,2-dibromo-3-chloropropane	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,2,4-trichlorobenzene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Hexachlorobutadiene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
1,2,3-trichlorobenzene	5	ug/l	<1	<1	N/A	N/A	<1	<1	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A	<1	<1	<5	N/A	N/A	N/A	N/A
Nutrients																								
Ammonia as N	0.1	mg/l	4.4	4.69	4.545	6%	3.1	3.1	3.1	0%	2	2.1	0.971	2.05	5%	1.4855	**69%**	**1.1**	**1.1**	**0.96**	1.1	0%	1.03	14%
Total Nitrogen	0.05	mg/l	5.6	7	6.3	22%	7	6.9	6.95	1%	3.4	3.4	2.7	3.4	0%	3.05	23%	1.4	1.3	1.5	1.35	7%	1.45	7%
Total Phosphorous	0.05	mg/l	1	0.76	0.88	27%	1.1	1.3	1.2	17%	1.3	1.1	2.7	1.2	17%	2	**70%**	nt	nt	0.62	N/A	N/A	0.62	N/A

NOTES:

nd - Result is below the laboratory Estimated Quantitation Limit.
* EQL increased due to matrix interference
N/A - not applicable.

BOLD Signifies RPD > 50% where the average concentration exceeds ten times the EQL,
or where the RPD > 75% where the average concentration is between 5-10 times the EQL.
or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Trip Blank and Trip Spike Results

Laboratory: Envirolab
Laboratory Report Number: 19069

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		**Trip Blank**	**Trip Spike**
Total Petroleum Hydrocarbons			
TPH 6-9	25	< 25	--
Benzene, Toluene, Ethylbenzene and Total Xylenes			
Benzene	0.5	< 0.5	87%
Toluene	0.5	< 0.5	89%
Ethylbenzene	1	< 1	93%
meta- & para Xylene	2	< 2	92%
ortho-Xylene	1	< 1	95%

Laboratory: Envirolab
Laboratory Report Number: 19035

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		**Trip Blank**	**Trip Spike**
Total Petroleum Hydrocarbons			
TPH 6-9	25	< 25	--
Benzene, Toluene, Ethylbenzene and Total Xylenes			
Benzene	0.5	< 0.5	86%
Toluene	0.5	< 0.5	83%
Ethylbenzene	1	< 1	88%
meta- & para Xylene	2	< 2	87%
ortho-Xylene	1	< 1	85%

Laboratory: Envirolab
Laboratory Report Number: 18941

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		**Trip Blank**	**Trip Spike**
Total Petroleum Hydrocarbons			
TPH 6-9	25	< 25	--
Benzene, Toluene, Ethylbenzene and Total Xylenes			
Benzene	0.5	< 0.5	103%
Toluene	0.5	< 0.5	109%
Ethylbenzene	1	< 1	115%
meta- & para Xylene	2	< 2	114%
ortho-Xylene	1	< 1	115%

NOTES:

Trip Blank and Trip Spike units are mg kg^{-1}

BOLD	Indicates detection of analyte in trip blank above detection

limit or trip spike recovery outside the range 70%-130%

Trip Blank and Trip Spike Results - Soil

Laboratory: **Envirolab**
Laboratory Report Number: **19177**

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		**Trip Blank**	**Trip Spike**
Total Petroleum Hydrocarbons			
TPH 6-9	25	< 25	--
Benzene, Toluene, Ethylbenzene and Total Xylenes			
Benzene	0.5	< 0.5	**69%**
Toluene	0.5	< 0.5	**64%**
Ethylbenzene	1	< 1	**64%**
meta- & para Xylene	2	< 2	**65%**
ortho-Xylene	1	< 1	**63%**

Laboratory: **Envirolab**
Laboratory Report Number: **19222**

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		**Trip Blank**	**Trip Spike**
Total Petroleum Hydrocarbons			
TPH 6-9	25	< 25	--
Benzene, Toluene, Ethylbenzene and Total Xylenes			
Benzene	0.5	< 0.5	82%
Toluene	0.5	< 0.5	104%
Ethylbenzene	1	< 1	90%
meta- & para Xylene	2	< 2	85%
ortho-Xylene	1	< 1	95%

Laboratory: **Envirolab and ALS**
Laboratory Report Number: **19257 and ES0807086**

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		**Trip Blank**	**Trip Spike**
Total Petroleum Hydrocarbons			
TPH 6-9	25	< 25	--
Benzene, Toluene, Ethylbenzene and Total Xylenes			
Benzene	0.5	< 0.5	100%
Toluene	0.5	< 0.5	121%
Ethylbenzene	1	< 1	100%
meta- & para Xylene	2	< 2	**133%**
ortho-Xylene	1	< 1	129%

Note: Trip spike was provided by ALS and sent to Envirolab, ALS control was analysed to provide

NOTES:

Trip Blank and Trip Spike units are mg kg^{-1}

BOLD indicates detection of analyte in trip blank above detection limit or trip spike recovery outside the range 70%-130%

Trip Blank and Trip Spike Results - Soil

Laboratory: Envirolab
Laboratory Report Number: 19282

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		**Trip Blank**	**Trip Spike**
Total Petroleum Hydrocarbons			
TPH 6-9	25	< 25	--
Benzene, Toluene, Ethylbenzene and Total Xylenes			
Benzene	0.5	< 0.5	76%
Toluene	0.5	< 0.5	73%
Ethylbenzene	1	< 1	84%
meta- & para Xylene	2	< 2	98%
ortho-Xylene	1	< 1	117%

Laboratory: Envirolab
Laboratory Report Number: 19325

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		**Trip Blank**	**Trip Spike**
Total Petroleum Hydrocarbons			
TPH 6-9	25	< 25	--
Benzene, Toluene, Ethylbenzene and Total Xylenes			
Benzene	0.5	< 0.5	80%
Toluene	0.5	< 0.5	73%
Ethylbenzene	1	< 1	**65%**
meta- & para Xylene	2	< 2	**65%**
ortho-Xylene	1	< 1	**60%**

Laboratory: Envirolab
Laboratory Report Number: 19432

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		**Trip Blank**	**Trip Spike**
Total Petroleum Hydrocarbons			
TPH 6-9	25	< 25	--
Benzene, Toluene, Ethylbenzene and Total Xylenes			
Benzene	0.5	< 0.5	83%
Toluene	0.5	< 0.5	119%
Ethylbenzene	1	< 1	95%
meta- & para Xylene	2	< 2	99%
ortho-Xylene	1	< 1	100%

NOTES:

Trip Blank and Trip Spike units are mg kg^{-1}

BOLD indicates detection of analyte in trip blank above detection limit or trip spike recovery outside the range 70%-130%

Trip Blank and Trip Spike Results - Groundwater

Laboratory: Envirolab
Laboratory Report Number: 20315

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		**Trip Blank**	**Trip Spike**
Total Petroleum Hydrocarbons			
TPH 6-9	10	< 10	--
Benzene, Toluene, Ethylbenzene and Total Xylenes			
Benzene	1	< 1	104%
Toluene	1	< 1	90%
Ethylbenzene	1	< 1	91%
meta- & para Xylene	2	< 2	89%
ortho-Xylene	1	< 1	89%

NOTES:

Trip Blank and Trip Spike units are $\mu g\ L^{-1}$

BOLD	Indicates detection of analyte in trip blank above detection limit or trip spike recovery outside the range 70%-130%

Trip Blank and Trip Spike Results - Groundwater

Laboratory: **Envirolab**
Laboratory Report Number: **19834**

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		**Trip Blank**	**Trip Spike**
Total Petroleum Hydrocarbons			
TPH 6-9	10	< 10	--
Benzene, Toluene, Ethylbenzene and Total Xylenes			
Benzene	1	< 1	89%
Toluene	1	< 1	121%
Ethylbenzene	1	< 1	123%
meta- & para Xylene	2	< 2	122%
ortho-Xylene	1	< 1	123%

NOTES:

Trip Blank and Trip Spike units are $\mu g\ L^{-1}$

BOLD	Indicates detection of analyte in trip blank above detection

Trip Blank and Trip Spike Results - Groundwater

Laboratory: Envirolab
Laboratory Report Number: 162123

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		**Trip Blank**	**Trip Spike**
Total Petroleum Hydrocarbons			
TPH 6-9	10	< 10	--
Benzene, Toluene, Ethylbenzene and Total Xylenes			
Benzene	1	< 1	82%
Toluene	1	< 1	92%
Ethylbenzene	1	< 1	94%
meta- & para Xylene	2	< 2	94%
ortho-Xylene	1	< 1	96%

NOTES:

Trip Blank and Trip Spike units are µg L^{-1}

BOLD Indicates detection of analyte in trip blank above detection limit or trip spike recovery outside

Appendix 3
Laboratory Certificates of Analysis

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 18941-A

Client:
Consulting Earth Scientists
Suite 121,
26-32 Pirrama Rd
Pyrmont
NSW 2009

Attention: Michael Petrozzi / Kelly Weir / Luke Jenkins

Sample log in details:

Your Reference:	**CES050706-BCC, Area B**
No. of samples:	Additional Testing on 4 Soils
Date samples received:	30/04/08
Date completed instructions received:	27/05/08

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	3/06/08
Date of Preliminary Report:	Not Issued
Issue Date:	2/06/08

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Tests not covered by NATA are denoted with *.

Results Approved By:

Jacinta Hurst
Operations Manager

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

sTPH in Soil (C10-C36)			
Our Reference:	UNITS	18941-A-54	18941-A-63
Your Reference	-------------	290408-56-KW	290408-65-KW
Date Sampled	------------	29/04/2008	29/04/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	SO
Time Sampled		00:00	00:00
Date extracted	-	28/05/2008	28/05/2008
Date analysed	-	29/05/2008	29/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100
Surrogate o-Terphenyl	%	93	95

Acid Extractable metals in soil					
Our Reference:	UNITS	18941-A-27	18941-A-52	18941-A-54	18941-A-63
Your Reference	-------------	280408-28-KW	290408-54-KW	290408-56-KW	290408-65-KW
Date Sampled	------------	28/04/2008	29/04/2008	29/04/2008	29/04/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date digested	-	30/05/2008	30/05/2008	30/05/2008	30/05/2008
Date analysed	-	30/05/2008	30/05/2008	30/05/2008	30/05/2008
Lead	mg/kg	<1.0	77	1.5	3.2

Moisture Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	18941-A-27 280408-28-K W 28/04/2008 Soil SO 00:00	18941-A-52 290408-54-K W 29/04/2008 Soil SO 00:00	18941-A-54 290408-56-K W 29/04/2008 Soil SO 00:00	18941-A-63 290408-65-K W 29/04/2008 Soil SO 00:00
Date prepared	-	28/05/2008	28/05/2008	28/05/2008	28/05/2008
Date analysed	-	28/05/2008	28/05/2008	28/05/2008	28/05/2008
Moisture	%	17	27	20	26

ACCREDITED FOR TECHNICAL COMPETENCE

Method ID	Methodology Summary
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.

QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			28/5/08	[NT]	[NT]	LCS-6	28/5/08%
Date analysed	-			29/5/08	[NT]	[NT]	LCS-6	29/5/08%
TPH C_{10} - C_{14}	mg/kg	50	GC.3	<50	[NT]	[NT]	LCS-6	96%
TPH C_{15} - C_{28}	mg/kg	100	GC.3	<100	[NT]	[NT]	LCS-6	94%
TPH C_{29} - C_{36}	mg/kg	100	GC.3	<100	[NT]	[NT]	LCS-6	109%
Surrogate o-Terphenyl	%		GC.3	100	[NT]	[NT]	LCS-6	99%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			30/5/08	[NT]	[NT]	LCS-9	30/5/08%
Date analysed	-			30/5/08	[NT]	[NT]	LCS-9	30/5/08%
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	[NT]	[NT]	LCS-9	96%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			28/5/08
Date analysed	-			28/5/08
Moisture	%	0.1	LAB.8	[NT]

Report Comments:

Samples analysed out of holding time for TPH C10-C36 analysis.
Asbestos was analysed by Approved Identifier: Not applicable for this job

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 19072

Client:
Consulting Earth Scientists
Suite 121,
26-32 Pirrama Rd
Pyrmont
NSW 2009

Attention: Kelly Weir / Luke Jenkins

Sample log in details:

Your Reference:	**CES050706-BCC, Area B**
No. of samples:	19 Soils
Date samples received:	05/05/08
Date completed instructions received:	05/05/08

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	12/05/08
Date of Preliminary Report:	Not issued
Issue Date:	12/05/08

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Results Approved By:

Joshua Lim
Chemist

Asbestos ID - soils Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	19072-1 010508-120-KW 1/05/2008 Soil	19072-2 300408-106-KW 30/04/2008 Soil	19072-3 010508-133-KW 1/05/2008 Soil	19072-4 290408-72-KW 29/04/2008 Soil	19072-5 300408-78-KW 30/04/2008 Soil
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Sample Description	-	40g soil	40g soil	40g soil	40g soil	40g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Asbestos ID - soils Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	19072-6 290408-43-KW 29/04/2008 Soil	19072-7 010508-146-KWK 1/05/2008 Soil	19072-8 300408-96-KW 30/04/2008 Soil	19072-9 010508-160-KW 1/05/2008 Soil	19072-10 010508-162-KW 1/05/2008 Soil
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Sample Description	-	40g soil	40g soil	40g soil	40g soil	40g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Asbestos ID - soils Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	19072-11 010508-131-KW 1/05/2008 Soil	19072-12 010508-126-KW 1/05/2008 Soil	19072-13 300408-92-KW 30/04/2008 Soil	19072-14 280408-21-KW 29/04/2008 Soil	19072-15 290408-32-KW 29/04/2008 Soil
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Sample Description	-	40g soil	40g soil	40g soil	40g soil	40g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Asbestos ID - soils **Our Reference:** **Your Reference** **Date Sampled** **Type of sample**	**UNITS** **-------------** **------------**	**19072-16** **300408-110-KW** **30/04/2008** **Soil**	**19072-17** **290408-50-KW** **29/04/2008** **Soil**	**19072-18** **300408-101-KW** **30/04/2008** **Soil**	**19072-19** **010508-116-KW** **1/05/2008** **Soil**
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Sample Description	-	40g soil	40g soil	40g soil	40g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Method ID	Methodology Summary
ASB.1	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.

Report Comments:

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 30-40g of sample in it's own container.

Asbestos was analysed by Approved Identifier: Joshua Lim

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

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Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 19222

Client:
Consulting Earth Scientists
Suite 121,
26-32 Pirrama Rd
Pyrmont
NSW 2009

Attention: Kelly Weir / Luke Jenkins

Sample log in details:

Your Reference:	**CES050706-BCC Area A**
No. of samples:	63 Soils
Date samples received:	09/05/08
Date completed instructions received:	09/05/08

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	20/05/08
Date of Preliminary Report:	Not Issued
Issue Date:	22/05/08

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Results Approved By:

David Springer
Business Development & Quality Manager

VOC's in soil						
Our Reference:	UNITS	19222-9	19222-24	19222-49	19222-50	19222-58
Your Reference	-------------	080508-110 -KW	080508-126 -KW	080508-152 -KW	080508-153 -KW	080508-161 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Dichlorodifluoromethane	mg/kg	<10	<10	<10	<10	<10
Chloromethane	mg/kg	<10	<10	<10	<10	<10
Vinyl Chloride	mg/kg	<10	<10	<10	<10	<10
Bromomethane	mg/kg	<10	<10	<10	<10	<10
Chloroethane	mg/kg	<10	<10	<10	<10	<10
Trichlorofluoromethane	mg/kg	<10	<10	<10	<10	<10
1,1-Dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
chloroform	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
carbon tetrachloride	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
dibromomethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
trichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromodichloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
dibromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
tetrachloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
chlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromoform	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0

VOC's in soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19222-9 080508-110-KW 8/05/2008 Soil SO 00:00	19222-24 080508-126-KW 8/05/2008 Soil SO 00:00	19222-49 080508-152-KW 8/05/2008 Soil SO 00:00	19222-50 080508-153-KW 8/05/2008 Soil SO 00:00	19222-58 080508-161-KW 8/05/2008 Soil SO 00:00
styrene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
isopropylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
tert-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
sec-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
hexachlorobutadiene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluorometha	%	88	84	88	88	94
Surrogate aaa-Trifluorotoluene	%	96	89	98	94	90
Surrogate Toluene-d_8	%	98	94	98	95	93
Surrogate 4-Bromofluorobenzene	%	75	74	73	74	80

VOC's in soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19222-61 Trip Blank 8/05/2008 Soil SO 00:00
Date extracted	-	12/05/2008
Date analysed	-	12/05/2008
Dichlorodifluoromethane	mg/kg	<10
Chloromethane	mg/kg	<10
Vinyl Chloride	mg/kg	<10
Bromomethane	mg/kg	<10
Chloroethane	mg/kg	<10
Trichlorofluoromethane	mg/kg	<10
1,1-Dichloroethene	mg/kg	<1.0
trans-1,2-dichloroethene	mg/kg	<1.0
1,1-dichloroethane	mg/kg	<1.0
cis-1,2-dichloroethene	mg/kg	<1.0
bromochloromethane	mg/kg	<1.0
chloroform	mg/kg	<1.0
2,2-dichloropropane	mg/kg	<1.0
1,2-dichloroethane	mg/kg	<1.0
1,1,1-trichloroethane	mg/kg	<1.0
1,1-dichloropropene	mg/kg	<1.0
carbon tetrachloride	mg/kg	<1.0
Benzene	mg/kg	<0.5
dibromomethane	mg/kg	<1.0
1,2-dichloropropane	mg/kg	<1.0
trichloroethene	mg/kg	<1.0
bromodichloromethane	mg/kg	<1.0
trans-1,3-dichloropropene	mg/kg	<1.0
cis-1,3-dichloropropene	mg/kg	<1.0
1,1,2-trichloroethane	mg/kg	<1.0
Toluene	mg/kg	<0.5
1,3-dichloropropane	mg/kg	<1.0
dibromochloromethane	mg/kg	<1.0
1,2-dibromoethane	mg/kg	<1.0
tetrachloroethene	mg/kg	<1.0
1,1,1,2-tetrachloroethane	mg/kg	<1.0
chlorobenzene	mg/kg	<1.0
Ethylbenzene	mg/kg	<1.0
bromoform	mg/kg	<1.0
m+p-xylene	mg/kg	<2.0
styrene	mg/kg	<1.0

VOC's in soil		
Our Reference:	UNITS	19222-61
Your Reference	-------------	Trip Blank
Date Sampled	------------	8/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
1,1,2,2-tetrachloroethane	mg/kg	<1.0
o-Xylene	mg/kg	<1.0
1,2,3-trichloropropane*	mg/kg	<1.0
isopropylbenzene	mg/kg	<1.0
bromobenzene	mg/kg	<1.0
n-propyl benzene	mg/kg	<1.0
2-chlorotoluene	mg/kg	<1.0
4-chlorotoluene	mg/kg	<1.0
1,3,5-trimethyl benzene	mg/kg	<1.0
tert-butyl benzene	mg/kg	<1.0
1,2,4-trimethyl benzene	mg/kg	<1.0
1,3-dichlorobenzene	mg/kg	<1.0
sec-butyl benzene	mg/kg	<1.0
1,4-dichlorobenzene	mg/kg	<1.0
4-isopropyl toluene	mg/kg	<1.0
1,2-dichlorobenzene	mg/kg	<1.0
n-butyl benzene	mg/kg	<1.0
1,2-dibromo-3-chloropropane	mg/kg	<1.0
1,2,4-trichlorobenzene	mg/kg	<1.0
hexachlorobutadiene	mg/kg	<1.0
1,2,3-trichlorobenzene	mg/kg	<1.0
Surrogate Dibromofluorometha	%	81
Surrogate aaa-Trifluorotoluene	%	113
Surrogate Toluene-d_8	%	95
Surrogate 4-Bromofluorobenzene	%	72

vTPH & BTEX in Soil						
Our Reference:	UNITS	19222-7	19222-9	19222-13	19222-19	19222-22
Your Reference	-------------	080508-108 -KW	080508-110 -KW	080508-114 -KW	080508-120 -KW	080508-123 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	90	96	97	85	104

vTPH & BTEX in Soil						
Our Reference:	UNITS	19222-23	19222-26	19222-32	19222-33	19222-37
Your Reference	-------------	080508-124 -KW	080508-128 -KW	080508-135 -KW	080508-136 -KW	080508-140 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	99	106	73	101	97

vTPH & BTEX in Soil **Our Reference:** **Your Reference** **Date Sampled** **Type of sample** **Sample Matrix Code** **Time Sampled**	**UNITS** **-------------** **------------**	**19222-39** **080508-142 -KW** **8/05/2008** **Soil** **SO** **00:00**	**19222-46** **080508-149 -KW** **8/05/2008** **Soil** **SO** **00:00**	**19222-49** **080508-152 -KW** **8/05/2008** **Soil** **SO** **00:00**	**19222-50** **080508-153 -KW** **8/05/2008** **Soil** **SO** **00:00**	**19222-54** **080508-157 -KW** **8/05/2008** **Soil** **SO** **00:00**
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	83	106	98	94	98

vTPH & BTEX in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19222-56 080508-159 -KW 8/05/2008 Soil SO 00:00	19222-58 080508-161 -KW 8/05/2008 Soil SO 00:00	19222-61 Trip Blank 8/05/2008 Soil SO 00:00	19222-62 Trip Spike 8/05/2008 Soil SO 00:00	19222-63 080508-131 -KW 8/05/2008 Soil SO 00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	[NA]	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	82%	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	104%	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	90%	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	85%	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	95%	<1.0
Surrogate aaa-Trifluorotoluene	%	106	96	113	80	89

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19222-7	19222-9	19222-13	19222-19	19222-22
Your Reference	-------------	080508-108 -KW	080508-110 -KW	080508-114 -KW	080508-120 -KW	080508-123 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	130	135	102	97	101

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19222-23	19222-26	19222-32	19222-33	19222-37
Your Reference	-------------	080508-124 -KW	080508-128 -KW	080508-135 -KW	080508-136 -KW	080508-140 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	98	100	96	100	95

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19222-39	19222-46	19222-49	19222-50	19222-54
Your Reference	-------------	080508-142 -KW	080508-149 -KW	080508-152 -KW	080508-153 -KW	080508-157 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	99	103	98	98	100

sTPH in Soil (C10-C36) **Our Reference:** **Your Reference** **Date Sampled** **Type of sample** **Sample Matrix Code** **Time Sampled**	**UNITS** ------------- ------------	**19222-56** **080508-159 -KW** **8/05/2008** **Soil** **SO** **00:00**	**19222-58** **080508-161 -KW** **8/05/2008** **Soil** **SO** **00:00**	**19222-63** **080508-131 -KW** **8/05/2008** **Soil** **SO** **00:00**
Date extracted	-	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100
Surrogate o-Terphenyl	%	100	101	95

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19222-7 080508-108 -KW 8/05/2008 Soil SO 00:00	19222-9 080508-110 -KW 8/05/2008 Soil SO 00:00	19222-10 080508-111 -KW 8/05/2008 Soil SO 00:00	19222-13 080508-114 -KW 8/05/2008 Soil SO 00:00	19222-14 080508-115 -KW 8/05/2008 Soil SO 00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<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
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	91	96	101	95	99

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19222-19 080508-120-KW 8/05/2008 Soil SO 00:00	19222-21 080508-122-KW 8/05/2008 Soil SO 00:00	19222-22 080508-123-KW 8/05/2008 Soil SO 00:00	19222-23 080508-124-KW 8/05/2008 Soil SO 00:00	19222-34 080508-137-KW 8/05/2008 Soil SO 00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.8
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	1.0
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.4
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.9
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.5
Dibenzo(a,h)anthracene	mg/kg	<0.1	<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	0.3
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Surrogate p-Terphenyl-d_{14}	%	91	98	99	104	99

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19222-39 080508-142-KW 8/05/2008 Soil SO 00:00	19222-49 080508-152-KW 8/05/2008 Soil SO 00:00	19222-50 080508-153-KW 8/05/2008 Soil SO 00:00	19222-54 080508-157-KW 8/05/2008 Soil SO 00:00	19222-56 080508-159-KW 8/05/2008 Soil SO 00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.6	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.6	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	0.9	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.5	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	100	100	100	100	102

PAHs in Soil **Our Reference:** **Your Reference** **Date Sampled** **Type of sample** **Sample Matrix Code** **Time Sampled**	**UNITS** ------------- ------------	**19222-58** **080508-161-KW** **8/05/2008** **Soil** **SO** **00:00**
Date extracted	-	12/05/2008
Date analysed	-	12/05/2008
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Surrogate p-Terphenyl-d_{14}	%	97

Organochlorine Pesticides in soil						
Our Reference:	UNITS	19222-15	19222-20	19222-22	19222-23	19222-30
Your Reference	-------------	080508-116 -KW	080508-121 -KW	080508-123 -KW	080508-124 -KW	080508-133 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	90	79	78	77	78

Organochlorine Pesticides in soil						
Our Reference:	**UNITS**	**19222-36**	**19222-38**	**19222-45**	**19222-52**	**19222-55**
Your Reference	-------------	**080508-139 -KW**	**080508-141 -KW**	**080508-148 -KW**	**080508-155 -KW**	**080508-158 -KW**
Date Sampled	------------	**8/05/2008**	**8/05/2008**	**8/05/2008**	**8/05/2008**	**8/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**	**00:00**
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	79	77	78	78	83

Organophosphorus Pesticides						
Our Reference:	UNITS	19222-15	19222-20	19222-22	19222-23	19222-30
Your Reference	-------------	080508-116 -KW	080508-121 -KW	080508-123 -KW	080508-124 -KW	080508-133 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	90	79	78	77	78

Organophosphorus Pesticides						
Our Reference:	UNITS	19222-36	19222-38	19222-45	19222-52	19222-55
Your Reference	-------------	080508-139 -KW	080508-141 -KW	080508-148 -KW	080508-155 -KW	080508-158 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	79	77	78	78	83

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19222-15 080508-116 -KW 8/05/2008 Soil SO 00:00	19222-20 080508-121 -KW 8/05/2008 Soil SO 00:00	19222-22 080508-123 -KW 8/05/2008 Soil SO 00:00	19222-23 080508-124 -KW 8/05/2008 Soil SO 00:00	19222-30 080508-133 -KW 8/05/2008 Soil SO 00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	90	79	78	77	78

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19222-36 080508-139 -KW 8/05/2008 Soil SO 00:00	19222-38 080508-141 -KW 8/05/2008 Soil SO 00:00	19222-45 080508-148 -KW 8/05/2008 Soil SO 00:00	19222-52 080508-155 -KW 8/05/2008 Soil SO 00:00	19222-55 080508-158 -KW 8/05/2008 Soil SO 00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	79	77	78	78	83

Total Phenolics in Soil						
Our Reference:	UNITS	19222-9	19222-21	19222-24	19222-39	19222-49
Your Reference	-------------	080508-110 -KW	080508-122 -KW	080508-126 -KW	080508-142 -KW	080508-152 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0

Total Phenolics in Soil			
Our Reference:	UNITS	19222-50	19222-58
Your Reference	-------------	080508-153 -KW	080508-161 -KW
Date Sampled	------------	8/05/2008	8/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	SO
Time Sampled		00:00	00:00
Date extracted	-	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0

Herbicides in Soil						
Our Reference:	UNITS	19222-15	19222-30	19222-42	19222-43	19222-45
Your Reference	-------------	080508-116-KW	080508-133-KW	080508-145-KW	080508-146-KW	080508-148-KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Date Extracted	-	22/05/2008	22/05/2008	22/05/2008	22/05/2008	22/05/2008
Dicamba	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
MCPA	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorprop	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-D	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-T	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-TP	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-DB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
MCPP	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Triclopyr	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1

Herbicides in Soil		
Our Reference:	UNITS	19222-55
Your Reference	-------------	080508-158-KW
Date Sampled	------------	8/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date analysed	-	20/05/2008
Date Extracted	-	22/05/2008
Dicamba	mg/kg	<0.1
MCPA	mg/kg	<0.1
Dichlorprop	mg/kg	<0.1
2,4-D	mg/kg	<0.1
2,4,5-T	mg/kg	<0.1
2,4,5-TP	mg/kg	<0.1
2,4-DB	mg/kg	<0.1
MCPP	mg/kg	<0.1
Triclopyr	mg/kg	<0.1

Acid Extractable metals in soil						
Our Reference:	UNITS	19222-1	19222-5	19222-6	19222-9	19222-10
Your Reference	-------------	080508-102 -KW	080508-106 -KW	080508-107 -KW	080508-110 -KW	080508-111 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/2008
Arsenic	mg/kg	<4.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	4.3	1.0	<1.0	1.9	1.6
Copper	mg/kg	7.9	<1.0	<1.0	8.5	<1.0
Lead	mg/kg	32	1.1	<1.0	2.7	<1.0
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	2.3	<1.0	<1.0	6.3	<1.0
Zinc	mg/kg	38	1.7	4.2	49	4.5

Acid Extractable metals in soil						
Our Reference:	UNITS	19222-13	19222-14	19222-15	19222-18	19222-19
Your Reference	-------------	080508-114 -KW	080508-115 -KW	080508-116 -KW	080508-119 -KW	080508-120 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/2008
Arsenic	mg/kg	<4.0	8.3	<4.0	19	22
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	3.2	5.6	3.0	27	6.7
Copper	mg/kg	6.3	1.5	6.3	8.1	<1.0
Lead	mg/kg	2.6	8.5	20	20	2.6
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	9.1	1.1	1.5	9.8	5.1
Zinc	mg/kg	14	12	32	29	3.2

Acid Extractable metals in soil						
Our Reference:	**UNITS**	**19222-20**	**19222-22**	**19222-23**	**19222-25**	**19222-30**
Your Reference	**-------------**	**080508-121 -KW**	**080508-123 -KW**	**080508-124 -KW**	**080508-127 -KW**	**080508-133 -KW**
Date Sampled	**------------**	**8/05/2008**	**8/05/2008**	**8/05/2008**	**8/05/2008**	**8/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**	**00:00**
Date digested	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/2008
Arsenic	mg/kg	<4.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	6.2	2.0	2.6	3.1	5.2
Copper	mg/kg	7.7	1.8	1.6	12	18
Lead	mg/kg	35	3.5	2.0	27	50
Mercury	mg/kg	0.12	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	1.9	<1.0	1.1	3.0	2.6
Zinc	mg/kg	34	5.3	3.3	48	73
Phosphorus	mg/kg	[NA]	[NA]	[NA]	550	[NA]

Acid Extractable metals in soil						
Our Reference:	UNITS	19222-33	19222-34	19222-36	19222-38	19222-39
Your Reference	-------------	080508-136 -KW	080508-137 -KW	080508-139 -KW	080508-141 -KW	080508-142 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/2008
Arsenic	mg/kg	4.9	28	6.3	[NA]	8.1
Cadmium	mg/kg	<1.0	2.0	<1.0	[NA]	1.8
Chromium	mg/kg	7.3	48	7.8	[NA]	20
Copper	mg/kg	16	36	9.7	[NA]	110
Lead	mg/kg	35	40	21	[NA]	180
Mercury	mg/kg	<0.10	0.29	0.15	[NA]	0.71
Nickel	mg/kg	3.6	12	2.8	[NA]	15
Zinc	mg/kg	48	150	36	[NA]	320
Phosphorus	mg/kg	[NA]	[NA]	[NA]	430	[NA]

Acid Extractable metals in soil						
Our Reference:	**UNITS**	**19222-42**	**19222-43**	**19222-44**	**19222-46**	**19222-48**
Your Reference	-------------	**080508-145 -KW**	**080508-146 -KW**	**080508-147 -KW**	**080508-149 -KW**	**080508-151 -KW**
Date Sampled	------------	**8/05/2008**	**8/05/2008**	**8/05/2008**	**8/05/2008**	**8/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**	**00:00**
Date digested	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/2008
Arsenic	mg/kg	<4.0	6.7	<4.0	4.9	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	7.2	12	<1.0	7.3	<1.0
Copper	mg/kg	9.7	13	<1.0	11	3.4
Lead	mg/kg	26	26	<1.0	26	18
Mercury	mg/kg	0.24	0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	2.1	2.9	<1.0	5.4	<1.0
Zinc	mg/kg	32	23	<1.0	29	18
Phosphorus	mg/kg	120	72	[NA]	[NA]	[NA]

Acid Extractable metals in soil						
Our Reference:	UNITS	19222-49	19222-50	19222-52	19222-54	19222-55
Your Reference	-------------	080508-152 -KW	080508-153 -KW	080508-155 -KW	080508-157 -KW	080508-158 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/2008
Arsenic	mg/kg	<4.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	1.3	1.2	1.5	2.4	1.9
Copper	mg/kg	1.6	1.8	<1.0	<1.0	7.6
Lead	mg/kg	7.8	9.1	5.8	1.1	34
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	0.29
Nickel	mg/kg	<1.0	<1.0	<1.0	1.3	1.5
Zinc	mg/kg	9.0	12	16	10	67
Phosphorus	mg/kg	[NA]	[NA]	[NA]	[NA]	160

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19222-58 080508-161 -KW 8/05/2008 Soil SO 00:00	19222-63 080508-131 -KW 8/05/2008 Soil SO 00:00
Date digested	-	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008
Arsenic	mg/kg	6.3	11
Cadmium	mg/kg	<1.0	<1.0
Chromium	mg/kg	7.2	14
Copper	mg/kg	240	9.6
Lead	mg/kg	33	22
Mercury	mg/kg	<0.10	<0.10
Nickel	mg/kg	8.6	5.5
Zinc	mg/kg	340	43

ACCREDITED FOR TECHNICAL COMPETENCE

Miscellaneous Inorg - soil						
Our Reference:	UNITS	19222-25	19222-28	19222-38	19222-42	19222-43
Your Reference	-------------	080508-127 -KW	080508-130 -KW	080508-141 -KW	080508-145 -KW	080508-146 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Ammonia as N in soil	mg/kg	14	[NA]	5.2	2.5	2.5
Nitrate as N in soil	mg/kg	1.8	[NA]	2.5	0.8	0.7
Nitrite as N in soil	mg/kg	0.5	[NA]	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/kg	2,000	[NA]	4,100	320	220
Total Nitrogen in soil	mg/kg	2,000	[NA]	4,100	320	220
pH 1:5 soil:water	pH Units	[NA]	8.1	[NA]	[NA]	[NA]
Electrical Conductivity 1:5 soil:water	µS/cm	[NA]	290	[NA]	[NA]	[NA]
Salinity as NACL *	mg/kg	[NA]	190	[NA]	[NA]	[NA]
Resistivity in soil*	ohm m	[NA]	35	[NA]	[NA]	[NA]
Chloride 1:5 soil:water	mg/kg	[NA]	380	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	31	[NA]	[NA]	[NA]

Miscellaneous Inorg - soil		
Our Reference:	UNITS	19222-55
Your Reference	-------------	080508-158 -KW
Date Sampled	------------	8/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date analysed	-	12/05/2008
Ammonia as N in soil	mg/kg	3.5
Nitrate as N in soil	mg/kg	0.8
Nitrite as N in soil	mg/kg	<0.1
Total Kjeldahl Nitrogen	mg/kg	1,500
Total Nitrogen in soil	mg/kg	1,500
pH 1:5 soil:water	pH Units	7.8
Electrical Conductivity 1:5 soil:water	µS/cm	61
Salinity as NACL *	mg/kg	39
Resistivity in soil*	ohm m	160
Chloride 1:5 soil:water	mg/kg	<100
Sulphate, SO4 1:5 soil:water	mg/kg	29

Moisture						
Our Reference:	UNITS	19222-1	19222-5	19222-6	19222-7	19222-9
Your Reference	-------------	080508-102 -KW	080508-106 -KW	080508-107 -KW	080508-108 -KW	080508-110 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	27	16	14	17	25

Moisture						
Our Reference:	UNITS	19222-10	19222-13	19222-14	19222-15	19222-18
Your Reference	-------------	080508-111 -KW	080508-114 -KW	080508-115 -KW	080508-116 -KW	080508-119 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	25	27	39	22	38

Moisture						
Our Reference:	UNITS	19222-19	19222-20	19222-21	19222-22	19222-23
Your Reference	-------------	080508-120 -KW	080508-121 -KW	080508-122 -KW	080508-123 -KW	080508-124 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	26	27	27	17	18

Moisture						
Our Reference:	UNITS	19222-24	19222-25	19222-26	19222-30	19222-32
Your Reference	-------------	080508-126 -KW	080508-127 -KW	080508-128 -KW	080508-133 -KW	080508-135 -KW
Date Sampled	------------	8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	19	32	14	24	33

Moisture **Our Reference:** **Your Reference** **Date Sampled** **Type of sample** **Sample Matrix Code** **Time Sampled**	**UNITS** **-------------** **------------**	**19222-33** **080508-136** **-KW** **8/05/2008** **Soil** **SO** **00:00**	**19222-34** **080508-137** **-KW** **8/05/2008** **Soil** **SO** **00:00**	**19222-36** **080508-139** **-KW** **8/05/2008** **Soil** **SO** **00:00**	**19222-37** **080508-140** **-KW** **8/05/2008** **Soil** **SO** **00:00**	**19222-38** **080508-141** **-KW** **8/05/2008** **Soil** **SO** **00:00**
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	24	44	23	27	29

Moisture Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19222-39 080508-142 -KW 8/05/2008 Soil SO 00:00	19222-42 080508-145 -KW 8/05/2008 Soil SO 00:00	19222-43 080508-146 -KW 8/05/2008 Soil SO 00:00	19222-44 080508-147 -KW 8/05/2008 Soil SO 00:00	19222-45 080508-148 -KW 8/05/2008 Soil SO 00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	20	30	15	19	19

Moisture Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19222-46 080508-149 -KW 8/05/2008 Soil SO 00:00	19222-48 080508-151 -KW 8/05/2008 Soil SO 00:00	19222-49 080508-152 -KW 8/05/2008 Soil SO 00:00	19222-50 080508-153 -KW 8/05/2008 Soil SO 00:00	19222-52 080508-155 -KW 8/05/2008 Soil SO 00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	9.7	6.4	14	15	14

Moisture Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19222-54 080508-157 -KW 8/05/2008 Soil SO 00:00	19222-55 080508-158 -KW 8/05/2008 Soil SO 00:00	19222-56 080508-159 -KW 8/05/2008 Soil SO 00:00	19222-58 080508-161 -KW 8/05/2008 Soil SO 00:00	19222-61 Trip Blank 8/05/2008 Soil SO 00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	21	5.0	12	14	0.10

Moisture		
Our Reference:	**UNITS**	**19222-63**
Your Reference	**-------------**	**080508-131 -KW**
Date Sampled	**------------**	**8/05/2008**
Type of sample		**Soil**
Sample Matrix Code		**SO**
Time Sampled		**00:00**
Date prepared	-	12/05/2008
Date analysed	-	12/05/2008
Moisture	%	23

Method ID	Methodology Summary
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
LAB.55	Nitrate water extractable - determined colourimetrically based on EPA114A.
LAB.56	Nitrite water extractable - determined colourimetrically based on EPA116A.
LAB.66	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen.
LAB.1	pH - Measured using pH meter and electrode in accordance with APHA 20th ED, 4500-H+.
LAB.2	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA2510 20th ED and Rayment & Higginson.
LAB.11	Chloride determined by argentometric titration.
LAB.9	Sulphate determined turbidimetrically.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.

QUALITY CONTROL VOC's in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/5/08	19222-9	12/05/2008 || 12/05/2008	LCS-6	12/5/08%
Date analysed	-			12/5/08	19222-9	12/05/2008 || 12/05/2008	LCS-6	12/5/08%
Dichlorodifluoromethane	mg/kg	10	GC.14	<10	19222-9	<10 || <10	[NR]	[NR]
Chloromethane	mg/kg	10	GC.14	<10	19222-9	<10 || <10	[NR]	[NR]
Vinyl Chloride	mg/kg	10	GC.14	<10	19222-9	<10 || <10	[NR]	[NR]
Bromomethane	mg/kg	10	GC.14	<10	19222-9	<10 || <10	[NR]	[NR]
Chloroethane	mg/kg	10	GC.14	<10	19222-9	<10 || <10	[NR]	[NR]
Trichlorofluoromethane	mg/kg	10	GC.14	<10	19222-9	<10 || <10	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	LCS-6	102%
cis-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
bromochloromethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
chloroform	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	LCS-6	94%
2,2-dichloropropane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	LCS-6	98%
1,1,1-trichloroethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	LCS-6	89%
1,1-dichloropropene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
carbon tetrachloride	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
Benzene	mg/kg	0.5	GC.14	<0.5	19222-9	<0.5 || <0.5	[NR]	[NR]
dibromomethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
trichloroethene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	LCS-6	113%
bromodichloromethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	LCS-6	121%
trans-1,3-dichloropropene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
Toluene	mg/kg	0.5	GC.14	<0.5	19222-9	<0.5 || <0.5	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
dibromochloromethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	LCS-6	121%
1,2-dibromoethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
tetrachloroethene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	LCS-6	115%
1,1,1,2-tetrachloroethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
chlorobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
Ethylbenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
bromoform	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
m+p-xylene	mg/kg	2	GC.14	<2.0	19222-9	<2.0 || <2.0	[NR]	[NR]
styrene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
o-Xylene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]

QUALITY CONTROL VOC's in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
1,2,3-trichloropropane*	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
isopropylbenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
bromobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
n-propyl benzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
2-chlorotoluene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
4-chlorotoluene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
tert-butyl benzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
sec-butyl benzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
n-butyl benzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	[NR]	[NR]
Surrogate Dibromofluorometha	%		GC.14	86	19222-9	88 || 89 || RPD: 1	LCS-6	92%
Surrogate aaa-Trifluorotoluene	%		GC.14	91	19222-9	96 || 91 || RPD: 5	LCS-6	101%
Surrogate Toluene-d8	%		GC.14	96	19222-9	98 || 96 || RPD: 2	LCS-6	95%
Surrogate 4-Bromofluorobenzene	%		GC.14	78	19222-9	75 || 78 || RPD: 4	LCS-6	70%

QUALITY CONTROL **vTPH & BTEX in Soil**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-			12/5/08	19222-9	12/05/2008 || 12/05/2008	LCS-6	12/5/08%
Date analysed	-			12/5/08	19222-9	12/05/2008 || 12/05/2008	LCS-6	12/5/08%
vTPH C_6 - C_9	mg/kg	25	GC.16	<25	19222-9	<25 || <25	LCS-6	108%
Benzene	mg/kg	0.5	GC.14	<0.5	19222-9	<0.5 || <0.5	LCS-6	88%
Toluene	mg/kg	0.5	GC.14	<0.5	19222-9	<0.5 || <0.5	LCS-6	136%
Ethylbenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	LCS-6	108%
m+p-xylene	mg/kg	2	GC.14	<2.0	19222-9	<2.0 || <2.0	LCS-6	105%
o-Xylene	mg/kg	1	GC.14	<1.0	19222-9	<1.0 || <1.0	LCS-6	83%
Surrogate aaa-Trifluorotoluene	%		GC.14	91	19222-9	96 || 91 || RPD: 5	LCS-6	85%
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/5/08	19222-9	12/05/2008 || 12/05/2008	LCS-6	12/5/08%
Date analysed	-			12/5/08	19222-9	12/05/2008 || 12/05/2008	LCS-6	12/5/08%
TPH C_{10} - C_{14}	mg/kg	50	GC.3	<50	19222-9	<50 || <50	LCS-6	86%
TPH C_{15} - C_{28}	mg/kg	100	GC.3	<100	19222-9	<100 || <100	LCS-6	83%
TPH C_{29} - C_{36}	mg/kg	100	GC.3	<100	19222-9	<100 || <100	LCS-6	97%
Surrogate o-Terphenyl	%		GC.3	97	19222-9	135 || 103 || RPD: 27	LCS-6	101%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/5/08	19222-9	12/05/2008 || 12/05/2008	LCS-6	12/5/08%
Date analysed	-			12/5/08	19222-9	12/05/2008 || 12/05/2008	LCS-6	12/5/08%
Naphthalene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	LCS-6	102%
Acenaphthylene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	LCS-6	107%
Phenanthrene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	LCS-6	106%
Anthracene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	LCS-6	105%
Pyrene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	LCS-6	106%
Benzo(a)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	LCS-6	118%
Benzo(b+k)fluoranthene	mg/kg	0.2	GC.12 subset	<0.2	19222-9	<0.2 || <0.2	[NR]	[NR]

QUALITY CONTROL **PAHs in Soil**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	19222-9	<0.05 || <0.05	LCS-6	85%
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1 || <0.1	[NR]	[NR]
*Surrogate p-*Terphenyl-d_{14}	%		GC.12 subset	82	19222-9	96 || 100 || RPD: 4	LCS-6	102%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/5/08	19222-15	12/05/2008 || 12/05/2008	LCS-6	12/5/08%
Date analysed	-			13/5/08	19222-15	13/05/2008 || 13/05/2008	LCS-6	13/5/08%
HCB	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	LCS-6	88%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	LCS-6	83%
Heptachlor	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	LCS-6	60%
delta-BHC	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	LCS-6	99%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	LCS-6	90%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	LCS-6	89%
Dieldrin	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	LCS-6	95%
Endrin	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	LCS-6	63%
pp-DDD	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	LCS-6	92%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	LCS-6	80%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	82	19222-15	90 || 85 || RPD: 6	LCS-6	82%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/5/08	19222-15	12/05/2008 || 12/05/2008	LCS-6	12/5/08%
Date analysed	-			13/5/08	19222-15	13/05/2008 || 13/05/2008	LCS-6	13/5/08%
Diazinon	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1 || <0.1	LCS-6	97%
Fenitrothion	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1 || <0.1	LCS-6	79%
Bromophos-ethyl	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1 || <0.1	LCS-6	121%
Surrogate TCLMX	%		GC.8	82	19222-15	90 || 85 || RPD: 6	LCS-6	83%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/5/08	19222-15	12/05/2008 || 12/05/2008	LCS-6	12/5/08%
Date analysed	-			13/5/08	19222-15	13/05/2008 || 13/05/2008	LCS-6	13/5/08%
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	19222-15	<0.1 || <0.1	LCS-6	87%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	19222-15	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	82	19222-15	90 || 85 || RPD: 6	LCS-6	127%

QUALITY CONTROL Total Phenolics in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19222-24	16/05/2008 || 16/05/2008	LCS-1	16/5/08%
Date analysed	-			16/5/08	19222-24	16/05/2008 || 16/05/2008	LCS-1	16/5/08%
Total Phenolics (as Phenol)	mg/kg	5	LAB.30	<5.0	19222-24	<5.0 || <5.0	LCS-1	106%

QUALITY CONTROL Herbicides in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Dicamba	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	102%
MCPA	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	103%
Dichlorprop	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	101%
2,4-D	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	105%
2,4,5-T	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	101%
2,4,5-TP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	115%
2,4-DB	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	105%
MCPP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	103%
Triclopyr	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	104%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			13/05/08	19222-1	13/05/2008 || 13/05/2008	LCS-6	13/05/08%
Date analysed	-			14/05/08	19222-1	14/05/2008 || 14/05/2008	LCS-6	14/05/08%
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4.0	19222-1	<4.0 || <4.0	LCS-6	92%
Cadmium	mg/kg	1	Metals.20 ICP-AES	<1.0	19222-1	<1.0 || <1.0	LCS-6	96%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1.0	19222-1	4.3 || 4.2 || RPD: 2	LCS-6	93%
Copper	mg/kg	1	Metals.20 ICP-AES	<1.0	19222-1	7.9 || 7.6 || RPD: 4	LCS-6	94%
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	19222-1	32 || 33 || RPD: 3	LCS-6	92%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.10	19222-1	<0.10 || <0.10	LCS-6	109%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1.0	19222-1	2.3 || 2.5 || RPD: 8	LCS-6	93%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1.0	19222-1	38 || 37 || RPD: 3	LCS-6	93%
Phosphorus	mg/kg	10	Metals.20 ICP-AES	<10	[NT]	[NT]	LCS-6	97%

QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Ammonia as N in soil	mg/kg	0.5	LAB.57	<0.5	[NT]	[NT]	LCS-1	101%
Nitrate as N in soil	mg/kg	0.5	LAB.55	<0.5	[NT]	[NT]	LCS-1	93%
Nitrite as N in soil	mg/kg	0.1	LAB.56	<0.1	[NT]	[NT]	LCS-1	105%
Total Kjeldahl Nitrogen	mg/kg	30	Ext-020	<30	[NT]	[NT]	[NR]	[NR]
Total Nitrogen in soil	mg/kg	10	LAB.66	<10	[NT]	[NT]	[NR]	[NR]
pH 1:5 soil:water	pH Units		LAB.1	[NT]	[NT]	[NT]	LCS-1	100%
Electrical Conductivity 1:5 soil:water	µS/cm	1	LAB.2	<1.0	[NT]	[NT]	LCS-1	105%
Salinity as NACL *	mg/kg	1	LAB.2	<1.0	[NT]	[NT]	LCS-1	105%
Resistivity in soil*	ohm m	1	LAB.2	<1.0	[NT]	[NT]	LCS-1	105%
Chloride 1:5 soil:water	mg/kg	100	LAB.11	<100	[NT]	[NT]	LCS-1	105%
Sulphate, SO4 1:5 soil:water	mg/kg	25	LAB.9	<25	[NT]	[NT]	LCS-1	110%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD
Date prepared	-			12/5/08	19222-1	12/05/2008 || 12/05/2008
Date analysed	-			12/5/08	19222-1	12/05/2008 || 12/05/2008
Moisture	%	0.1	LAB.8	<0.10	19222-1	27 || 27 || RPD: 0

QUALITY CONTROL VOC's in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19222-24	12/5/08%
Date analysed	-	[NT]	[NT]	19222-24	12/5/08%
Dichlorodifluoromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Chloromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	mg/kg	[NT]	[NT]	[NR]	[NR]
Bromomethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Chloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	mg/kg	[NT]	[NT]	19222-24	88%
cis-1,2-dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromochloromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
chloroform	mg/kg	[NT]	[NT]	19222-24	81%
2,2-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	mg/kg	[NT]	[NT]	19222-24	84%
1,1,1-trichloroethane	mg/kg	[NT]	[NT]	19222-24	77%
1,1-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
carbon tetrachloride	mg/kg	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VOC's in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
dibromomethane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
trichloroethene	mg/kg	[NT]	[NT]	19222-24	94%
bromodichloromethane	mg/kg	[NT]	[NT]	19222-24	103%
trans-1,3-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
dibromochloromethane	mg/kg	[NT]	[NT]	19222-24	103%
1,2-dibromoethane	mg/kg	[NT]	[NT]	[NR]	[NR]
tetrachloroethene	mg/kg	[NT]	[NT]	19222-24	95%
1,1,1,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromoform	mg/kg	[NT]	[NT]	[NR]	[NR]
m+p-xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
styrene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
o-Xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	mg/kg	[NT]	[NT]	[NR]	[NR]
isopropylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
tert-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
sec-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VOC's in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
hexachlorobutadiene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%	[NT]	[NT]	19222-24	95%
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	19222-24	89%
Surrogate Toluene-d8	%	[NT]	[NT]	19222-24	97%
Surrogate 4-Bromofluorobenzene	%	[NT]	[NT]	19222-24	74%

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19222-39	12/05/2008 || 12/05/2008	19222-22	12/5/08%
Date analysed	-	19222-39	12/05/2008 || 12/05/2008	19222-22	12/5/08%
vTPH C_6 - C_9	mg/kg	19222-39	<25 || <25	19222-22	104%
Benzene	mg/kg	19222-39	<0.5 || <0.5	19222-22	112%
Toluene	mg/kg	19222-39	<0.5 || <0.5	19222-22	122%
Ethylbenzene	mg/kg	19222-39	<1.0 || <1.0	19222-22	91%
m+p-xylene	mg/kg	19222-39	<2.0 || <2.0	19222-22	97%
o-Xylene	mg/kg	19222-39	<1.0 || <1.0	19222-22	99%
Surrogate aaa-Trifluorotoluene	%	19222-39	83 || 98 || RPD: 17	19222-22	99%

QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19222-39	12/05/2008 || 12/05/2008	19222-22	12/5/08%
Date analysed	-	19222-39	13/05/2008 || 13/05/2008	19222-22	12/5/08%
TPH C_{10} - C_{14}	mg/kg	19222-39	<50 || <50	19222-22	79%
TPH C_{15} - C_{28}	mg/kg	19222-39	<100 || <100	19222-22	80%
TPH C_{29} - C_{36}	mg/kg	19222-39	<100 || <100	19222-22	86%
Surrogate o-Terphenyl	%	19222-39	99 || 98 || RPD: 1	19222-22	99%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19222-39	12/05/2008 || 12/05/2008	19222-22	12/5/08%
Date analysed	-	19222-39	12/05/2008 || 12/05/2008	19222-22	12/5/08%
Naphthalene	mg/kg	19222-39	<0.1 || <0.1	19222-22	79%
Acenaphthylene	mg/kg	19222-39	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	19222-39	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	19222-39	<0.1 || <0.1	19222-22	102%
Phenanthrene	mg/kg	19222-39	0.2 || 0.1 || RPD: 67	19222-22	101%
Anthracene	mg/kg	19222-39	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	19222-39	0.6 || 0.6 || RPD: 0	19222-22	102%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	19222-39	0.6 || 0.7 || RPD: 15	19222-22	103%
Benzo(a)anthracene	mg/kg	19222-39	0.3 || 0.4 || RPD: 29	[NR]	[NR]
Chrysene	mg/kg	19222-39	0.4 || 0.5 || RPD: 22	19222-22	110%
Benzo(b+k)fluoranthene	mg/kg	19222-39	0.9 || 1.0 || RPD: 11	[NR]	[NR]
Benzo(a)pyrene	mg/kg	19222-39	0.5 || 0.6 || RPD: 18	19222-22	85%
Dibenzo(a,h)anthracene	mg/kg	19222-39	<0.1 || <0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	19222-39	0.4 || 0.4 || RPD: 0	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	19222-39	0.4 || 0.4 || RPD: 0	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%	19222-39	100 || 101 || RPD: 1	19222-22	100%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19222-55	12/05/2008 || 12/05/2008	19222-22	12/5/08%
Date analysed	-	19222-55	13/05/2008 || 13/05/2008	19222-22	13/5/08%
HCB	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	19222-55	<0.1 || <0.1	19222-22	86%
gamma-BHC	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	19222-55	<0.1 || <0.1	19222-22	92%
Heptachlor	mg/kg	19222-55	<0.1 || <0.1	19222-22	90%
delta-BHC	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	19222-55	<0.1 || <0.1	19222-22	94%
Heptachlor Epoxide	mg/kg	19222-55	<0.1 || <0.1	19222-22	92%
gamma-Chlordane	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	19222-55	<0.1 || <0.1	19222-22	90%
Dieldrin	mg/kg	19222-55	<0.1 || <0.1	19222-22	95%
Endrin	mg/kg	19222-55	<0.1 || <0.1	19222-22	83%
pp-DDD	mg/kg	19222-55	<0.1 || <0.1	19222-22	93%
Endosulfan II	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	19222-55	<0.1 || <0.1	19222-22	85%
Methoxychlor	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	19222-55	83 || 83 || RPD: 0	19222-22	80%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19222-55	12/05/2008 || 12/05/2008	19222-22	12/5/08%
Date analysed	-	19222-55	13/05/2008 || 13/05/2008	19222-22	13/5/08%
Diazinon	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	19222-55	<0.1 || <0.1	19222-22	83%
Fenitrothion	mg/kg	19222-55	<0.1 || <0.1	19222-22	64%
Bromophos-ethyl	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	19222-55	<0.1 || <0.1	19222-22	98%
Surrogate TCLMX	%	19222-55	83 || 83 || RPD: 0	19222-22	78%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19222-55	12/05/2008 || 12/05/2008	19222-22	12/5/08%
Date analysed	-	19222-55	13/05/2008 || 13/05/2008	19222-22	13/5/08%
Arochlor 1016	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	19222-55	<0.1 || <0.1	19222-22	87%
Arochlor 1260	mg/kg	19222-55	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	19222-55	83 || 83 || RPD: 0	19222-22	119%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19222-20	13/05/2008 || 13/05/2008	LCS-7	13/05/08%
Date analysed	-	19222-20	14/05/2008 || 14/05/2008	LCS-7	14/05/08%
Arsenic	mg/kg	19222-20	<4.0 || <4.0	LCS-7	91%
Cadmium	mg/kg	19222-20	<1.0 || <1.0	LCS-7	94%
Chromium	mg/kg	19222-20	6.2 || 5.1 || RPD: 19	LCS-7	92%
Copper	mg/kg	19222-20	7.7 || 9.8 || RPD: 24	LCS-7	93%
Lead	mg/kg	19222-20	35 || 35 || RPD: 0	LCS-7	92%
Mercury	mg/kg	19222-20	0.12 || 0.14 || RPD: 15	LCS-7	110%
Nickel	mg/kg	19222-20	1.9 || 1.8 || RPD: 5	LCS-7	91%
Zinc	mg/kg	19222-20	34 || 32 || RPD: 6	LCS-7	92%
Phosphorus	mg/kg	[NT]	[NT]	LCS-7	95%

QUALITY CONTROL Moisture	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**
Date prepared	-	19222-9	12/05/2008 || 12/05/2008
Date analysed	-	19222-9	12/05/2008 || 12/05/2008
Moisture	%	19222-9	25 || 25 || RPD: 0

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19222-42	13/05/2008 || 13/05/2008	19222-5	13/05/08%
Date analysed	-	19222-42	14/05/2008 || 14/05/2008	19222-5	14/05/08%
Arsenic	mg/kg	19222-42	<4.0 || 7.1	19222-5	98%
Cadmium	mg/kg	19222-42	<1.0 || <1.0	19222-5	99%
Chromium	mg/kg	19222-42	7.2 || 13 || RPD: 57	19222-5	98%
Copper	mg/kg	19222-42	9.7 || 15 || RPD: 43	19222-5	99%
Lead	mg/kg	19222-42	26 || 42 || RPD: 47	19222-5	97%
Mercury	mg/kg	19222-42	0.24 || 0.21 || RPD: 13	19222-5	109%
Nickel	mg/kg	19222-42	2.1 || 3.8 || RPD: 58	19222-5	96%
Zinc	mg/kg	19222-42	32 || 43 || RPD: 29	19222-5	98%
Phosphorus	mg/kg	19222-42	120 || 200 || RPD: 50	19222-5	107%

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19222-15	12/05/2008 || 12/05/2008
Date analysed	-	19222-15	12/05/2008 || 12/05/2008
Moisture	%	19222-15	22 || 22 || RPD: 0

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19222-58	13/05/2008 || 13/05/2008	19222-43	13/05/08%
Date analysed	-	19222-58	14/05/2008 || 14/05/2008	19222-43	14/05/08%
Arsenic	mg/kg	19222-58	6.3 || 4.7 || RPD: 29	19222-43	90%
Cadmium	mg/kg	19222-58	<1.0 || <1.0	19222-43	94%
Chromium	mg/kg	19222-58	7.2 || 5.0 || RPD: 36	19222-43	87%
Copper	mg/kg	19222-58	240 || 210 || RPD: 13	19222-43	88%
Lead	mg/kg	19222-58	33 || 29 || RPD: 13	19222-43	83%
Mercury	mg/kg	19222-58	<0.10 || <0.10	19222-43	106%
Nickel	mg/kg	19222-58	8.6 || 5.0 || RPD: 53	19222-43	89%
Zinc	mg/kg	19222-58	340 || 210 || RPD: 47	19222-43	88%
Phosphorus	mg/kg	[NT]	[NT]	19222-43	93%

QUALITY CONTROL Moisture	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**
Date prepared	-	19222-20	12/05/2008 || 12/05/2008
Date analysed	-	19222-20	12/05/2008 || 12/05/2008
Moisture	%	19222-20	27 || 27 || RPD: 0
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19222-39	12/05/2008 || 12/05/2008
Date analysed	-	19222-39	12/05/2008 || 12/05/2008
Moisture	%	19222-39	20 || 20 || RPD: 0
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19222-42	12/05/2008 || 12/05/2008
Date analysed	-	19222-42	12/05/2008 || 12/05/2008
Moisture	%	19222-42	30 || 30 || RPD: 0
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19222-55	12/05/2008 || 12/05/2008
Date analysed	-	19222-55	12/05/2008 || 12/05/2008
Moisture	%	19222-55	5.0 || 5.0 || RPD: 0
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19222-58	12/05/2008 || 12/05/2008
Date analysed	-	19222-58	12/05/2008 || 12/05/2008
Moisture	%	19222-58	14 || 14 || RPD: 0

Report Comments:

Texture Classification:
28 = Sandy Loam
55 = Sandy Loam

TKN - samples 25 & 38 - analysed by NMI: Report Number - RN679927.

Herbicides and TKN analysed by NMI: Report Number - RN680257.

Asbestos was analysed by Approved Identifier: Not applicable for this job

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 19257

Client:
Consulting Earth Scientists
Suite 121,
26-32 Pirrama Rd
Pyrmont
NSW 2009

Attention: Luke Jenkins / Kelly Weir

Sample log in details:

Your Reference:	**CES050706-BCC Area A**
No. of samples:	49 Soils, 1 Water
Date samples received:	12/05/08
Date completed instructions received:	12/05/08

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	21/05/08
Date of Preliminary Report:	Not Issued
Issue Date:	23/05/08

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Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:

David Springer
Business Development & Quality Manager

ACCREDITED FOR TECHNICAL COMPETENCE

VOC's in soil						
Our Reference:	UNITS	19257-7	19257-21	19257-29	19257-34	19257-46
Your Reference	-------------	090508-168 -KW	090508-178 -KW	090508-202 -KW	090508-197 -KW	090508-205 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
Dichlorodifluoromethane	mg/kg	<10	<10	<10	<10	<10
Chloromethane	mg/kg	<10	<10	<10	<10	<10
Vinyl Chloride	mg/kg	<10	<10	<10	<10	<10
Bromomethane	mg/kg	<10	<10	<10	<10	<10
Chloroethane	mg/kg	<10	<10	<10	<10	<10
Trichlorofluoromethane	mg/kg	<10	<10	<10	<10	<10
1,1-Dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
chloroform	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
carbon tetrachloride	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
dibromomethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
trichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromodichloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
dibromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
tetrachloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
chlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromoform	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0

VOC's in soil						
Our Reference:	UNITS	19257-7	19257-21	19257-29	19257-34	19257-46
Your Reference	-------------	090508-168 -KW	090508-178 -KW	090508-202 -KW	090508-197 -KW	090508-205 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
styrene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
isopropylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
tert-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
sec-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
hexachlorobutadiene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluorometha	%	86	76	98	83	92
Surrogate aaa-Trifluorotoluene	%	95	101	79	95	88
Surrogate Toluene-d_8	%	91	91	90	91	92
Surrogate 4-Bromofluorobenzene	%	85	84	82	80	80

VOC's in soil		
Our Reference:	**UNITS**	**19257-49**
Your Reference	**-------------**	**Trip Blank**
Date Sampled	**------------**	**9/05/2008**
Type of sample		**Soil**
Sample Matrix Code		**SO**
Time Sampled		**00:00**
Date extracted	-	16/05/2008
Date analysed	-	17/05/2008
Dichlorodifluoromethane	mg/kg	<10
Chloromethane	mg/kg	<10
Vinyl Chloride	mg/kg	<10
Bromomethane	mg/kg	<10
Chloroethane	mg/kg	<10
Trichlorofluoromethane	mg/kg	<10
1,1-Dichloroethene	mg/kg	<1.0
trans-1,2-dichloroethene	mg/kg	<1.0
1,1-dichloroethane	mg/kg	<1.0
cis-1,2-dichloroethene	mg/kg	<1.0
bromochloromethane	mg/kg	<1.0
chloroform	mg/kg	<1.0
2,2-dichloropropane	mg/kg	<1.0
1,2-dichloroethane	mg/kg	<1.0
1,1,1-trichloroethane	mg/kg	<1.0
1,1-dichloropropene	mg/kg	<1.0
carbon tetrachloride	mg/kg	<1.0
Benzene	mg/kg	<0.5
dibromomethane	mg/kg	<1.0
1,2-dichloropropane	mg/kg	<1.0
trichloroethene	mg/kg	<1.0
bromodichloromethane	mg/kg	<1.0
trans-1,3-dichloropropene	mg/kg	<1.0
cis-1,3-dichloropropene	mg/kg	<1.0
1,1,2-trichloroethane	mg/kg	<1.0
Toluene	mg/kg	<0.5
1,3-dichloropropane	mg/kg	<1.0
dibromochloromethane	mg/kg	<1.0
1,2-dibromoethane	mg/kg	<1.0
tetrachloroethene	mg/kg	<1.0
1,1,1,2-tetrachloroethane	mg/kg	<1.0
chlorobenzene	mg/kg	<1.0
Ethylbenzene	mg/kg	<1.0
bromoform	mg/kg	<1.0
m+p-xylene	mg/kg	<2.0
styrene	mg/kg	<1.0

VOC's in soil		
Our Reference:	UNITS	19257-49
Your Reference	-------------	Trip Blank
Date Sampled	------------	9/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
1,1,2,2-tetrachloroethane	mg/kg	<1.0
o-Xylene	mg/kg	<1.0
1,2,3-trichloropropane*	mg/kg	<1.0
isopropylbenzene	mg/kg	<1.0
bromobenzene	mg/kg	<1.0
n-propyl benzene	mg/kg	<1.0
2-chlorotoluene	mg/kg	<1.0
4-chlorotoluene	mg/kg	<1.0
1,3,5-trimethyl benzene	mg/kg	<1.0
tert-butyl benzene	mg/kg	<1.0
1,2,4-trimethyl benzene	mg/kg	<1.0
1,3-dichlorobenzene	mg/kg	<1.0
sec-butyl benzene	mg/kg	<1.0
1,4-dichlorobenzene	mg/kg	<1.0
4-isopropyl toluene	mg/kg	<1.0
1,2-dichlorobenzene	mg/kg	<1.0
n-butyl benzene	mg/kg	<1.0
1,2-dibromo-3-chloropropane	mg/kg	<1.0
1,2,4-trichlorobenzene	mg/kg	<1.0
hexachlorobutadiene	mg/kg	<1.0
1,2,3-trichlorobenzene	mg/kg	<1.0
Surrogate Dibromofluorometha	%	81
Surrogate aaa-Trifluorotoluene	%	99
Surrogate Toluene-d8	%	91
Surrogate 4-Bromofluorobenzene	%	79

vTPH & BTEX in Soil						
Our Reference:	UNITS	19257-2	19257-3	19257-7	19257-10	19257-12
Your Reference	-------------	090508-165 -KW	090508-166 -KW	090508-168 -KW	090508-182 -KW	090508-171 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	104	125	95	93	96

vTPH & BTEX in Soil						
Our Reference:	UNITS	19257-14	19257-18	19257-21	19257-26	19257-29
Your Reference	-------------	090508-173 -KW	090508-175 -KW	090508-178 -KW	090508-192 -KW	090508-202 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	105	101	101	107	79

vTPH & BTEX in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19257-34 090508-197 -KW 9/05/2008 Soil SO 00:00	19257-35 090508-199 -KW 9/05/2008 Soil SO 00:00	19257-37 090508-198 -KW 9/05/2008 Soil SO 00:00	19257-46 090508-205 -KW 9/05/2008 Soil SO 00:00	19257-49 Trip Blank 9/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	95	98	91	88	99

vTPH & BTEX in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19257-50 Trip Spike 9/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008
Date analysed	-	16/05/2008
Benzene	mg/kg	0.7
Toluene	mg/kg	14
Ethylbenzene	mg/kg	1.6
m+p-xylene	mg/kg	11
o-Xylene	mg/kg	4.0
Surrogate aaa-Trifluorotoluene	%	97

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sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19257-2	19257-3	19257-7	19257-10	19257-12
Your Reference	-------------	090508-165 -KW	090508-166 -KW	090508-168 -KW	090508-182 -KW	090508-171 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	85	85	90	92	92

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19257-14	19257-18	19257-21	19257-26	19257-29
Your Reference	-------------	090508-173 -KW	090508-175 -KW	090508-178 -KW	090508-192 -KW	090508-202 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	93	94	92	95	88

sTPH in Soil (C10-C36)					
Our Reference:	UNITS	19257-34	19257-35	19257-37	19257-46
Your Reference	-------------	090508-197 -KW	090508-199 -KW	090508-198 -KW	090508-205 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
Surrogate o-Terphenyl	%	90	90	92	94

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19257-3 090508-166 -KW 9/05/2008 Soil SO 00:00	19257-12 090508-171 -KW 9/05/2008 Soil SO 00:00	19257-18 090508-175 -KW 9/05/2008 Soil SO 00:00	19257-23 090508-186 -KW 9/05/2008 Soil SO 00:00	19257-29 090508-202 -KW 9/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.06	0.07	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<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
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	106	103	106	104	103

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19257-37 090508-198 -KW 9/05/2008 Soil SO 00:00	19257-38 090508-207 -KW 9/05/2008 Soil SO 00:00	19257-40 090508-209 -KW 9/05/2008 Soil SO 00:00	19257-42 090508-188 -KW 9/05/2008 Soil SO 00:00	19257-43 090508-189 -KW 9/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.3	0.7
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	0.8	0.4
Pyrene	mg/kg	0.1	<0.1	<0.1	1.0	0.4
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.5	0.2
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.5	0.3
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.8	0.3
Benzo(a)pyrene	mg/kg	0.1	<0.05	<0.05	0.5	0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Surrogate p-Terphenyl-d_{14}	%	108	107	100	104	100

PAHs in Soil **Our Reference:** **Your Reference** **Date Sampled** **Type of sample** **Sample Matrix Code** **Time Sampled**	**UNITS** **-------------** **------------**	**19257-44** **090508-190-KW** **9/05/2008** **Soil** **SO** **00:00**	**19257-46** **090508-205-KW** **9/05/2008** **Soil** **SO** **00:00**
Date extracted	-	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	101	109

Organochlorine Pesticides in soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19257-22 090508-185 -KW 9/05/2008 Soil SO 00:00	19257-31 090508-194 -KW 9/05/2008 Soil SO 00:00	19257-32 090508-195 -KW 9/05/2008 Soil SO 00:00	19257-38 090508-207 -KW 9/05/2008 Soil SO 00:00	19257-39 090508-208 -KW 9/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	83	81	80	78	80

Organochlorine Pesticides in soil		
Our Reference:	**UNITS**	**19257-45**
Your Reference	**-------------**	**090508-204 -KW**
Date Sampled	**------------**	**9/05/2008**
Type of sample		**Soil**
Sample Matrix Code		**SO**
Time Sampled		**00:00**
Date extracted	-	16/05/2008
Date analysed	-	16/05/2008
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Surrogate TCLMX	%	77

Organophosphorus Pesticides						
Our Reference:	UNITS	19257-22	19257-31	19257-32	19257-38	19257-39
Your Reference	-------------	090508-185 -KW	090508-194 -KW	090508-195 -KW	090508-207 -KW	090508-208 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	83	81	80	78	80

Organophosphorus Pesticides		
Our Reference:	UNITS	19257-45
Your Reference	-------------	090508-204 -KW
Date Sampled	------------	9/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date extracted	-	16/05/2008
Date analysed	-	16/05/2008
Diazinon	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Ethion	mg/kg	<0.1
Surrogate TCLMX	%	77

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19257-22 090508-185-KW 9/05/2008 Soil SO 00:00	19257-31 090508-194-KW 9/05/2008 Soil SO 00:00	19257-32 090508-195-KW 9/05/2008 Soil SO 00:00	19257-38 090508-207-KW 9/05/2008 Soil SO 00:00	19257-39 090508-208-KW 9/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	83	81	80	78	80

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19257-45 090508-204-KW 9/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008
Date analysed	-	16/05/2008
Arochlor 1016	mg/kg	<0.1
Arochlor 1232	mg/kg	<0.1
Arochlor 1242	mg/kg	<0.1
Arochlor 1248	mg/kg	<0.1
Arochlor 1254	mg/kg	<0.1
Arochlor 1260	mg/kg	<0.1
Surrogate TCLMX	%	77

Total Phenolics in Soil						
Our Reference:	UNITS	19257-7	19257-21	19257-29	19257-35	19257-46
Your Reference	-------------	090508-168 -KW	090508-178 -KW	090508-202 -KW	090508-199 -KW	090508-205 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0

Acid Extractable metals in soil						
Our Reference:	UNITS	19257-2	19257-3	19257-7	19257-10	19257-12
Your Reference	-------------	090508-165 -KW	090508-166 -KW	090508-168 -KW	090508-182 -KW	090508-171 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	6.2	4.5	5.1	<4.0	8.3
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	2.1	2.3	3.8	1.7	13
Copper	mg/kg	3.6	8.5	2.0	<1.0	34
Lead	mg/kg	14	31	5.7	3.0	24
Mercury	mg/kg	0.28	0.14	<0.10	<0.10	0.52
Nickel	mg/kg	<1.0	1.6	1.8	<1.0	19
Zinc	mg/kg	11	51	7.9	28	43

Acid Extractable metals in soil						
Our Reference:	UNITS	19257-14	19257-18	19257-21	19257-23	19257-26
Your Reference	-------------	090508-173 -KW	090508-175 -KW	090508-178 -KW	090508-186 -KW	090508-192 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	<4.0	4.3	<4.0	4.6	7.1
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	1.4	2.1	2.7	3.9	8.5
Copper	mg/kg	3.0	3.6	<1.0	13	24
Lead	mg/kg	19	16	7.9	40	180
Mercury	mg/kg	<0.10	<0.10	<0.10	0.26	<0.10
Nickel	mg/kg	<1.0	<1.0	<1.0	7.2	4.7
Zinc	mg/kg	9.6	20	1.2	44	69

Acid Extractable metals in soil						
Our Reference:	**UNITS**	**19257-29**	**19257-31**	**19257-32**	**19257-34**	**19257-37**
Your Reference	**-------------**	**090508-202 -KW**	**090508-194 -KW**	**090508-195 -KW**	**090508-197 -KW**	**090508-198 -KW**
Date Sampled	**------------**	**9/05/2008**	**9/05/2008**	**9/05/2008**	**9/05/2008**	**9/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**	**00:00**
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	8.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	3.6	9.7	4.2	2.8	11
Copper	mg/kg	<1.0	13	7.3	13	22
Lead	mg/kg	1.7	950	1,200	61	990
Mercury	mg/kg	<0.10	<0.10	<0.10	0.53	<0.10
Nickel	mg/kg	1.6	12	4.0	1.5	15
Zinc	mg/kg	1.4	41	34	57	200

Acid Extractable metals in soil						
Our Reference:	UNITS	19257-38	19257-39	19257-40	19257-42	19257-43
Your Reference	-------------	090508-207 -KW	090508-208 -KW	090508-209 -KW	090508-188 -KW	090508-189 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	<4.0	<4.0	<4.0	4.5	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	6.0	3.1	<1.0	5.4	2.4
Copper	mg/kg	2.2	11	1.9	16	33
Lead	mg/kg	6.3	47	<1.0	68	21
Mercury	mg/kg	<0.10	0.90	<0.10	0.23	<0.10
Nickel	mg/kg	1.7	2.7	<1.0	4.5	15
Zinc	mg/kg	7.1	36	33	47	33
Phosphorus	mg/kg	[NA]	220	[NA]	[NA]	[NA]

Acid Extractable metals in soil		
Our Reference:	**UNITS**	**19257-45**
Your Reference	**-------------**	**090508-204 -KW**
Date Sampled	**------------**	**9/05/2008**
Type of sample		**Soil**
Sample Matrix Code		**SO**
Time Sampled		**00:00**
Date digested	-	19/05/2008
Date analysed	-	20/05/2008
Arsenic	mg/kg	<4.0
Cadmium	mg/kg	<1.0
Chromium	mg/kg	6.7
Copper	mg/kg	25
Lead	mg/kg	130
Mercury	mg/kg	<0.10
Nickel	mg/kg	9.2
Zinc	mg/kg	89

Miscellaneous Inorg - soil		
Our Reference:	UNITS	19257-39
Your Reference	-------------	090508-208 -KW
Date Sampled	------------	9/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date analysed	-	13/05/2008
Ammonia as N in soil	mg/kg	<0.5
Nitrate as N in soil	mg/kg	4.9
Nitrite as N in soil	mg/kg	<0.1
Total Kjeldahl Nitrogen	mg/kg	2,300
Total Nitrogen in soil	mg/kg	2,300

Moisture						
Our Reference:	UNITS	19257-2	19257-3	19257-7	19257-10	19257-12
Your Reference	-------------	090508-165 -KW	090508-166 -KW	090508-168 -KW	090508-182 -KW	090508-171 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	6.6	6.1	6.4	8.8	5.2

Moisture						
Our Reference:	UNITS	19257-14	19257-18	19257-21	19257-22	19257-23
Your Reference	-------------	090508-173 -KW	090508-175 -KW	090508-178 -KW	090508-185 -KW	090508-186 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	6.9	4.8	14	5.4	4.3

Moisture						
Our Reference:	UNITS	19257-26	19257-29	19257-31	19257-32	19257-34
Your Reference	-------------	090508-192 -KW	090508-202 -KW	090508-194 -KW	090508-195 -KW	090508-197 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	5.5	23	4.7	3.5	19

Moisture						
Our Reference:	UNITS	19257-35	19257-37	19257-38	19257-39	19257-40
Your Reference	-------------	090508-199 -KW	090508-198 -KW	090508-207 -KW	090508-208 -KW	090508-209 -KW
Date Sampled	------------	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	17	4.5	5.3	10	8.8

Moisture **Our Reference:**	**UNITS**	**19257-42**	**19257-43**	**19257-44**	**19257-45**	**19257-46**
Your Reference	**-------------**	**090508-188-KW**	**090508-189-KW**	**090508-190-KW**	**090508-204-KW**	**090508-205-KW**
Date Sampled	**------------**	**9/05/2008**	**9/05/2008**	**9/05/2008**	**9/05/2008**	**9/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**	**00:00**
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	7.7	20	16	1.6	3.6

Moisture Our Reference:	UNITS	19257-49
Your Reference	-------------	Trip Blank
Date Sampled	------------	9/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date prepared	-	16/05/2008
Date analysed	-	16/05/2008
Moisture	%	5.6

Herbicides in Soil			
Our Reference:	UNITS	19257-22	19257-39
Your Reference	-------------	090508-185 -KW	090508-208 -KW
Date Sampled	------------	9/05/2008	9/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	SO
Time Sampled		00:00	00:00
Date analysed	-	14/05/2008	14/05/2008
Date Extracted	-	15/05/2008	15/05/2008
Dicamba	mg/kg	<0.1	<0.1
MCPA	mg/kg	<0.1	<0.1
Dichlorprop	mg/kg	<0.1	<0.1
2,4-D	mg/kg	<0.1	<0.1
2,4,5-T	mg/kg	<0.1	<0.1
2,4,5-TP	mg/kg	<0.1	<0.1
2,4-DB	mg/kg	<0.1	<0.1
MCPP	mg/kg	<0.1	<0.1
Triclopyr	mg/kg	<0.1	<0.1

VOC's in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19257-48 090508-500 -KW 9/05/2008 Water WG 00:00
Date extracted	-	18/05/2008
Date analysed	-	18/05/2008
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1.0
Trans-1,2-dichloroethene	µg/L	<1.0
1,1-dichloroethane	µg/L	<1.0
Cis-1,2-dichloroethene	µg/L	<1.0
Bromochloromethane	µg/L	<1.0
Chloroform	µg/L	<1.0
2,2-dichloropropane	µg/L	<1.0
1,2-dichloroethane	µg/L	<1.0
1,1,1-trichloroethane	µg/L	<1.0
1,1-dichloropropene	µg/L	<1.0
Carbon tetrachloride	µg/L	<1.0
Benzene	µg/L	<1.0
Dibromomethane	µg/L	<1.0
1,2-dichloropropane	µg/L	<1.0
Trichloroethene	µg/L	<1.0
Bromodichloromethane	µg/L	<1.0
trans-1,3-dichloropropene	µg/L	<1.0
cis-1,3-dichloropropene	µg/L	<1.0
1,1,2-trichloroethane	µg/L	<1.0
Toluene	µg/L	<1.0
1,3-dichloropropane	µg/L	<1.0
Dibromochloromethane	µg/L	<1.0
1,2-dibromoethane	µg/L	<1.0
Tetrachloroethene	µg/L	<1.0
1,1,1,2-tetrachloroethane	µg/L	<1.0
Chlorobenzene	µg/L	<1.0
Ethylbenzene	µg/L	<1.0
Bromoform	µg/L	<1.0
m+p-xylene	µg/L	<2.0

VOC's in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19257-48 090508-500 -KW 9/05/2008 Water WG 00:00
Styrene	µg/L	<1.0
1,1,2,2-tetrachloroethane	µg/L	<1.0
o-xylene	µg/L	<1.0
1,2,3-trichloropropane*	µg/L	<1.0
Isopropylbenzene	µg/L	<1.0
Bromobenzene	µg/L	<1.0
n-propyl benzene	µg/L	<1.0
2-chlorotoluene	µg/L	<1.0
4-chlorotoluene	µg/L	<1.0
1,3,5-trimethyl benzene	µg/L	<1.0
Tert-butyl benzene	µg/L	<1.0
1,2,4-trimethyl benzene	µg/L	<1.0
1,3-dichlorobenzene	µg/L	<1.0
Sec-butyl benzene	µg/L	<1.0
1,4-dichlorobenzene	µg/L	<1.0
4-isopropyl toluene	µg/L	<1.0
1,2-dichlorobenzene	µg/L	<1.0
n-butyl benzene	µg/L	<1.0
1,2-dibromo-3-chloropropane	µg/L	<1.0
1,2,4-trichlorobenzene	µg/L	<1.0
Hexachlorobutadiene	µg/L	<1.0
1,2,3-trichlorobenzene	µg/L	<1.0
Surrogate Dibromofluoromethane	%	76
Surrogate toluene-d8	%	88
Surrogate 4-BFB	%	76

vTPH & BTEX in Water		
Our Reference:	UNITS	19257-48
Your Reference	-------------	090508-500 -KW
Date Sampled	------------	9/05/2008
Type of sample		Water
Sample Matrix Code		WG
Time Sampled		00:00
Date extracted	-	18/05/2008
Date analysed	-	18/05/2008
TPH C_6 - C_9	µg/L	<10
Benzene	µg/L	<1.0
Toluene	µg/L	<1.0
Ethylbenzene	µg/L	<1.0
m+p-xylene	µg/L	<2.0
o-xylene	µg/L	<1.0
Surrogate Dibromofluoromethane	%	76
Surrogate toluene-d8	%	88
Surrogate 4-BFB	%	76

sTPH in Water (C10-C36)		
Our Reference:	UNITS	19257-48
Your Reference	-------------	090508-500-KW
Date Sampled	------------	9/05/2008
Type of sample		Water
Sample Matrix Code		WG
Time Sampled		00:00
Date extracted	-	16/05/2008
Date analysed	-	16/05/2008
TPH C_{10} - C_{14}	μg/L	<50
TPH C_{15} - C_{28}	μg/L	<100
TPH C_{29} - C_{36}	μg/L	<100
Surrogate o-Terphenyl	%	92

PAHs in Water		
Our Reference:	UNITS	19257-48
Your Reference	-------------	090508-500 -KW
Date Sampled	------------	9/05/2008
Type of sample		Water
Sample Matrix Code		WG
Time Sampled		00:00
Date extracted	-	16/05/2008
Date analysed	-	17/05/2008
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Surrogate p-Terphenyl-d_{14}	%	117

Total Phenolics in Water		
Our Reference:	UNITS	19257-48
Your Reference	-------------	090508-500 -KW
Date Sampled	------------	9/05/2008
Type of sample		Water
Sample Matrix Code		WG
Time Sampled		00:00
Date extracted	-	19/05/2008
Date analysed	-	20/05/2008
Total Phenolics (as Phenol)	mg/L	<0.050

HM in water - total		
Our Reference:	UNITS	19257-48
Your Reference	-------------	090508-500-KW
Date Sampled	------------	9/05/2008
Type of sample		Water
Sample Matrix Code		WG
Time Sampled		00:00
Date prepared	-	19/05/2008
Date analysed	-	20/05/2008
Arsenic-Total	µg/L	<1.0
Cadmium-Total	µg/L	<0.10
Chromium-Total	µg/L	<1.0
Copper-Total	µg/L	<1.0
Lead-Total	µg/L	<1.0
Mercury-Total	µg/L	<0.50
Nickel-Total	µg/L	<1.0
Zinc-Total	µg/L	5.5

Method ID	Methodology Summary
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
LAB.55	Nitrate water extractable - determined colourimetrically based on EPA114A.
LAB.56	Nitrite water extractable - determined colourimetrically based on EPA116A.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
LAB.66	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
GC.13	Water samples are analysed directly by purge and trap GC-MS.
Metals.22 ICP-MS	Determination of various metals by ICP-MS.

QUALITY CONTROL VOC's in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19257-34	16/05/2008 || 16/05/2008	LCS-1	16/5/08%
Date analysed	-			17/5/08	19257-34	17/05/2008 || 17/05/2008	LCS-1	17/5/08%
Dichlorodifluoromethane	mg/kg	10	GC.14	<10	19257-34	<10 || <10	[NR]	[NR]
Chloromethane	mg/kg	10	GC.14	<10	19257-34	<10 || <10	[NR]	[NR]
Vinyl Chloride	mg/kg	10	GC.14	<10	19257-34	<10 || <10	[NR]	[NR]
Bromomethane	mg/kg	10	GC.14	<10	19257-34	<10 || <10	[NR]	[NR]
Chloroethane	mg/kg	10	GC.14	<10	19257-34	<10 || <10	[NR]	[NR]
Trichlorofluoromethane	mg/kg	10	GC.14	<10	19257-34	<10 || <10	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	LCS-1	95%
cis-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
bromochloromethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
chloroform	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	LCS-1	86%
2,2-dichloropropane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	LCS-1	90%
1,1,1-trichloroethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	LCS-1	85%
1,1-dichloropropene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
carbon tetrachloride	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
Benzene	mg/kg	0.5	GC.14	<0.5	19257-34	<0.5 || <0.5	[NR]	[NR]
dibromomethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
trichloroethene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	LCS-1	113%
bromodichloromethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	LCS-1	106%
trans-1,3-dichloropropene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
Toluene	mg/kg	0.5	GC.14	<0.5	19257-34	<0.5 || <0.5	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
dibromochloromethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	LCS-1	106%
1,2-dibromoethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
tetrachloroethene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	LCS-1	108%
1,1,1,2-tetrachloroethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
chlorobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
Ethylbenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
bromoform	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
m+p-xylene	mg/kg	2	GC.14	<2.0	19257-34	<2.0 || <2.0	[NR]	[NR]
styrene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
o-Xylene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]

QUALITY CONTROL VOC's in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
1,2,3-trichloropropane*	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
isopropylbenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
bromobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
n-propyl benzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
2-chlorotoluene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
4-chlorotoluene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
tert-butyl benzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
sec-butyl benzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
n-butyl benzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0 || <1.0	[NR]	[NR]
Surrogate Dibromofluorometha	%		GC.14	87	19257-34	83 || 90 || RPD: 8	LCS-1	85%
Surrogate aaa-Trifluorotoluene	%		GC.14	89	19257-34	95 || 87 || RPD: 9	LCS-1	107%
Surrogate Toluene-d_8	%		GC.14	94	19257-34	91 || 93 || RPD: 2	LCS-1	93%
Surrogate 4-Bromofluorobenzene	%		GC.14	83	19257-34	80 || 79 || RPD: 1	LCS-1	77%

QUALITY CONTROL **vTPH & BTEX in Soil**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-			[NT]	19257-3	16/05/2008 || 16/05/2008	LCS-1	16/5/08%
Date analysed	-			[NT]	19257-3	16/05/2008 || 16/05/2008	LCS-1	16/5/08%
vTPH C_6 - C_9	mg/kg	25	GC.16	<25	19257-3	<25 || <25	LCS-1	121%
Benzene	mg/kg	0.5	GC.14	<0.5	19257-3	<0.5 || <0.5	LCS-1	125%
Toluene	mg/kg	0.5	GC.14	<0.5	19257-3	<0.5 || <0.5	LCS-1	130%
Ethylbenzene	mg/kg	1	GC.14	<1.0	19257-3	<1.0 || <1.0	LCS-1	122%
m+p-xylene	mg/kg	2	GC.14	<2.0	19257-3	<2.0 || <2.0	LCS-1	135%
o-Xylene	mg/kg	1	GC.14	<1.0	19257-3	<1.0 || <1.0	LCS-1	140%
Surrogate aaa-Trifluorotoluene	%		GC.14	[NT]	19257-3	125 || 96 || RPD: 26	LCS-1	90%
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19257-3	16/05/2008 || 16/05/2008	LCS-1	16/5/08%
Date analysed	-			16/5/08	19257-3	16/05/2008 || 16/05/2008	LCS-1	16/5/08%
TPH C_{10} - C_{14}	mg/kg	50	GC.3	<50	19257-3	<50 || <50	LCS-1	87%
TPH C_{15} - C_{28}	mg/kg	100	GC.3	<100	19257-3	<100 || <100	LCS-1	83%
TPH C_{29} - C_{36}	mg/kg	100	GC.3	<100	19257-3	<100 || <100	LCS-1	96%
Surrogate o-Terphenyl	%		GC.3	94	19257-3	85 || 86 || RPD: 1	LCS-1	92%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19257-3	16/05/2008 || 16/05/2008	LCS-1	16/5/08%
Date analysed	-			17/5/08	19257-3	17/05/2008 || 17/05/2008	LCS-1	17/5/08%
Naphthalene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	LCS-1	109%
Acenaphthylene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	LCS-1	108%
Phenanthrene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	LCS-1	105%
Anthracene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	LCS-1	109%
Pyrene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	LCS-1	112%
Benzo(a)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	LCS-1	114%
Benzo(b+k)fluoranthene	mg/kg	0.2	GC.12 subset	<0.2	19257-3	<0.2 || <0.2	[NR]	[NR]

QUALITY CONTROL **PAHs in Soil**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	19257-3	<0.05 || <0.05	LCS-1	109%
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1 || <0.1	[NR]	[NR]
*Surrogate p-*Terphenyl-d_{14}	%		GC.12 subset	113	19257-3	106 || 105 || RPD: 1	LCS-1	110%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19257-22	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19257-22	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
HCB	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	LCS-3	91%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	LCS-3	106%
Heptachlor	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	LCS-3	101%
delta-BHC	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	LCS-3	98%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	LCS-3	100%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	LCS-3	103%
Dieldrin	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	LCS-3	103%
Endrin	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	LCS-3	94%
pp-DDD	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	LCS-3	107%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	LCS-3	100%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	81	19257-22	83 || 77 || RPD: 8	LCS-3	84%

QUALITY CONTROL **Organophosphorus Pesticides**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-			16/5/08	19257-22	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19257-22	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Diazinon	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1 || <0.1	LCS-3	100%
Fenitrothion	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1 || <0.1	LCS-3	91%
Bromophos-ethyl	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1 || <0.1	LCS-3	122%
Surrogate TCLMX	%		GC.8	81	19257-22	83 || 77 || RPD: 8	LCS-3	88%
QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19257-22	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19257-22	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	19257-22	<0.1 || <0.1	LCS-3	95%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	19257-22	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	81	19257-22	83 || 77 || RPD: 8	LCS-3	130%
QUALITY CONTROL Total Phenolics in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	[NT]	[NT]	LCS-1	16/5/08%
Date analysed	-			19/5/08	[NT]	[NT]	LCS-1	19/5/08%
Total Phenolics (as Phenol)	mg/kg	5	LAB.30	<5.0	[NT]	[NT]	LCS-1	112%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			19/5/08	19257-2	19/05/2008 || 19/05/2008	LCS-5	19/5/08%
Date analysed	-			20/5/08	19257-2	20/05/2008 || 20/05/2008	LCS-5	20/5/08%
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4.0	19257-2	6.2 || 6.4 || RPD: 3	LCS-5	94%
Cadmium	mg/kg	1	Metals.20 ICP-AES	<1.0	19257-2	<1.0 || <1.0	LCS-5	100%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1.0	19257-2	2.1 || 2.2 || RPD: 5	LCS-5	100%
Copper	mg/kg	1	Metals.20 ICP-AES	<1.0	19257-2	3.6 || 3.7 || RPD: 3	LCS-5	102%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	19257-2	14 || 14 || RPD: 0	LCS-5	97%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.10	19257-2	0.28 || 0.27 || RPD: 4	LCS-5	114%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1.0	19257-2	<1.0 || <1.0	LCS-5	99%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1.0	19257-2	11 || 14 || RPD: 24	LCS-5	98%
Phosphorus	mg/kg	10	Metals.20 ICP-AES	<10	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Ammonia as N in soil	mg/kg	0.5	LAB.57	<0.5	[NT]	[NT]	LCS-1	101%
Nitrate as N in soil	mg/kg	0.5	LAB.55	<0.5	[NT]	[NT]	LCS-1	93%
Nitrite as N in soil	mg/kg	0.1	LAB.56	<0.1	[NT]	[NT]	LCS-1	100%
Total Kjeldahl Nitrogen	mg/kg	30	Ext-020	<30	[NT]	[NT]	LCS-1	116%
Total Nitrogen in soil	mg/kg	10	LAB.66	<10	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD
Date prepared	-			16/5/08	19257-3	16/05/2008 || 16/05/2008
Date analysed	-			16/5/08	19257-3	16/05/2008 || 16/05/2008
Moisture	%	0.1	LAB.8	<0.10	19257-3	6.1 || 6.1 || RPD: 0

QUALITY CONTROL Herbicides in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Dicamba	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	102%
MCPA	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	103%
Dichlorprop	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	101%
2,4-D	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	105%
2,4,5-T	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	101%
2,4,5-TP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	115%
2,4-DB	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	105%
MCPP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	103%
Triclopyr	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	104%

QUALITY CONTROL VOC's in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			18/5/08	[NT]	[NT]	LCS-W1	18/5/08%
Date analysed	-			18/5/08	[NT]	[NT]	LCS-W1	18/5/08%
Dichlorodifluoromethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	86%
Cis-1,2-dichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	87%
2,2-dichloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	88%
1,1,1-trichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	87%
1,1-dichloropropene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	114%
Bromodichloromethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	100%
trans-1,3-dichloropropene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	97%
1,2-dibromoethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	95%
1,1,1,2-tetrachloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
m+p-xylene	µg/L	2	GC.13	<2.0	[NT]	[NT]	[NR]	[NR]
Styrene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VOC's in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
o-xylene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		GC.13	75	[NT]	[NT]	LCS-W1	100%
Surrogate toluene-d8	%		GC.13	108	[NT]	[NT]	LCS-W1	110%
Surrogate 4-BFB	%		GC.13	96	[NT]	[NT]	LCS-W1	96%

QUALITY CONTROL vTPH & BTEX in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			18/5/08	[NT]	[NT]	LCS-W1	18/5/08%
Date analysed	-			18/5/08	[NT]	[NT]	LCS-W1	18/5/08%
TPH C_6 - C_9	µg/L	10	GC.16	<10	[NT]	[NT]	LCS-W1	101%
Benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	96%
Toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	118%
Ethylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	111%
m+p-xylene	µg/L	2	GC.13	<2.0	[NT]	[NT]	LCS-W1	110%
o-xylene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	109%
Surrogate Dibromofluoromethane	%		GC.13	75	[NT]	[NT]	LCS-W1	79%
Surrogate toluene-d8	%		GC.13	108	[NT]	[NT]	LCS-W1	103%
Surrogate 4-BFB	%		GC.13	96	[NT]	[NT]	LCS-W1	97%
QUALITY CONTROL sTPH in Water (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	[NT]	[NT]	LCS-W1	16/5/08%
Date analysed	-			16/5/08	[NT]	[NT]	LCS-W1	16/5/08%
TPH C_{10} - C_{14}	µg/L	50	GC.3	<50	[NT]	[NT]	LCS-W1	84%
TPH C_{15} - C_{28}	µg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	92%
TPH C_{29} - C_{36}	µg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	102%
Surrogate o-Terphenyl	%		GC.3	105	[NT]	[NT]	LCS-W1	108%
QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			[NT]	[NT]	[NT]	LCS-W2	16/5/08%
Date analysed	-			[NT]	[NT]	[NT]	LCS-W2	17/5/08%
Naphthalene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	91%
Acenaphthylene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	89%
Phenanthrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	89%
Anthracene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	85%
Pyrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	88%
Benzo(a)anthracene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	92%

QUALITY CONTROL **PAHs in Water**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Benzo(b+k)fluoranthene	µg/L	2	GC.12 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	70%
Dibenzo(a,h)anthracene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		GC.12 subset	[NT]	[NT]	[NT]	LCS-W2	108%

QUALITY CONTROL Total Phenolics in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			19/5/08	[NT]	[NT]	LCS-W1	19/5/08%
Date analysed	-			20/5/08	[NT]	[NT]	LCS-W1	20/5/08%
Total Phenolics (as Phenol)	mg/L	0.05	LAB.30	<0.050	[NT]	[NT]	LCS-W1	120%

QUALITY CONTROL HM in water - total	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			19/5/08	[NT]	[NT]	LCS-W1	19/5/08%
Date analysed	-			20/5/08	[NT]	[NT]	LCS-W1	20/5/08%
Arsenic-Total	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	94%
Cadmium-Total	µg/L	0.1	Metals.22 ICP-MS	<0.10	[NT]	[NT]	LCS-W1	97%
Chromium-Total	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	100%
Copper-Total	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	97%
Lead-Total	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	96%
Mercury-Total	µg/L	0.5	Metals.21 CV-AAS	<0.50	[NT]	[NT]	LCS-W1	99%
Nickel-Total	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	98%
Zinc-Total	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	99%

QUALITY CONTROL VOC's in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19257-7	16/5/08%
Date analysed	-	[NT]	[NT]	19257-7	17/5/08%
Dichlorodifluoromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Chloromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	mg/kg	[NT]	[NT]	[NR]	[NR]
Bromomethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Chloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	mg/kg	[NT]	[NT]	19257-7	106%
cis-1,2-dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromochloromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
chloroform	mg/kg	[NT]	[NT]	19257-7	92%
2,2-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	mg/kg	[NT]	[NT]	19257-7	96%
1,1,1-trichloroethane	mg/kg	[NT]	[NT]	19257-7	91%
1,1-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
carbon tetrachloride	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
dibromomethane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
trichloroethene	mg/kg	[NT]	[NT]	19257-7	118%
bromodichloromethane	mg/kg	[NT]	[NT]	19257-7	108%
trans-1,3-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
dibromochloromethane	mg/kg	[NT]	[NT]	19257-7	108%
1,2-dibromoethane	mg/kg	[NT]	[NT]	[NR]	[NR]
tetrachloroethene	mg/kg	[NT]	[NT]	19257-7	116%
1,1,1,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromoform	mg/kg	[NT]	[NT]	[NR]	[NR]
m+p-xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
styrene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VOC's in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
o-Xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	mg/kg	[NT]	[NT]	[NR]	[NR]
isopropylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
tert-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
sec-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
hexachlorobutadiene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%	[NT]	[NT]	19257-7	84%
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	19257-7	108%
Surrogate Toluene-d_8	%	[NT]	[NT]	19257-7	94%
Surrogate 4-Bromofluorobenzene	%	[NT]	[NT]	19257-7	78%

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

QUALITY CONTROL vTPH & BTEX in Soil	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-	19257-34	16/05/2008 || 16/05/2008	19257-7	16/5/08%
Date analysed	-	19257-34	16/05/2008 || 16/05/2008	19257-7	16/5/08%
vTPH C_6 - C_9	mg/kg	19257-34	<25 || <25	19257-7	125%
Benzene	mg/kg	19257-34	<0.5 || <0.5	19257-7	125%
Toluene	mg/kg	19257-34	<0.5 || <0.5	19257-7	133%
Ethylbenzene	mg/kg	19257-34	<1.0 || <1.0	19257-7	123%
m+p-xylene	mg/kg	19257-34	<2.0 || <2.0	19257-7	133%
o-Xylene	mg/kg	19257-34	<1.0 || <1.0	19257-7	135%
Surrogate aaa-Trifluorotoluene	%	19257-34	95 || 87 || RPD: 9	19257-7	103%

QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19257-37	16/05/2008 || 16/05/2008	19257-12	16/5/08%
Date analysed	-	19257-37	16/05/2008 || 16/05/2008	19257-12	16/5/08%
TPH C_{10} - C_{14}	mg/kg	19257-37	<50 || <50	19257-12	88%
TPH C_{15} - C_{28}	mg/kg	19257-37	<100 || <100	19257-12	84%
TPH C_{29} - C_{36}	mg/kg	19257-37	<100 || <100	19257-12	96%
Surrogate o-Terphenyl	%	19257-37	92 || 94 || RPD: 2	19257-12	92%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19257-37	16/05/2008 || 16/05/2008	19257-12	16/5/08%
Date analysed	-	19257-37	17/05/2008 || 17/05/2008	19257-12	17/5/08%
Naphthalene	mg/kg	19257-37	<0.1 || <0.1	19257-12	110%
Acenaphthylene	mg/kg	19257-37	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	19257-37	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	19257-37	<0.1 || <0.1	19257-12	105%
Phenanthrene	mg/kg	19257-37	<0.1 || 0.3	19257-12	107%
Anthracene	mg/kg	19257-37	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	19257-37	0.1 || 0.3 || RPD: 100	19257-12	109%
Pyrene	mg/kg	19257-37	0.1 || 0.5 || RPD: 133	19257-12	113%
Benzo(a)anthracene	mg/kg	19257-37	<0.1 || 0.2	[NR]	[NR]
Chrysene	mg/kg	19257-37	<0.1 || 0.2	19257-12	113%
Benzo(b+k)fluoranthene	mg/kg	19257-37	<0.2 || 0.3	[NR]	[NR]
Benzo(a)pyrene	mg/kg	19257-37	0.1 || 0.2 || RPD: 67	19257-12	109%
Dibenzo(a,h)anthracene	mg/kg	19257-37	<0.1 || <0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	19257-37	<0.1 || 0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	19257-37	<0.1 || 0.1	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%	19257-37	108 || 108 || RPD: 0	19257-12	103%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19257-31	16/5/08%
Date analysed	-	[NT]	[NT]	19257-31	16/5/08%
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	19257-31	95%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	19257-31	105%
Heptachlor	mg/kg	[NT]	[NT]	19257-31	108%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	19257-31	105%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	19257-31	100%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	19257-31	99%
Dieldrin	mg/kg	[NT]	[NT]	19257-31	102%
Endrin	mg/kg	[NT]	[NT]	19257-31	94%
pp-DDD	mg/kg	[NT]	[NT]	19257-31	103%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	19257-31	100%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19257-31	86%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19257-31	16/5/08%
Date analysed	-	[NT]	[NT]	19257-31	16/5/08%
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	19257-31	97%
Fenitrothion	mg/kg	[NT]	[NT]	19257-31	88%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	19257-31	123%
Surrogate TCLMX	%	[NT]	[NT]	19257-31	85%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19257-31	16/5/08%
Date analysed	-	[NT]	[NT]	19257-31	16/5/08%
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	19257-31	81%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19257-31	127%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19257-29	19/05/2008 || 19/05/2008	LCS-6	19/5/08%
Date analysed	-	19257-29	20/05/2008 || 20/05/2008	LCS-6	20/5/08%
Arsenic	mg/kg	19257-29	8.0 || 7.8 || RPD: 3	LCS-6	95%
Cadmium	mg/kg	19257-29	<1.0 || <1.0	LCS-6	100%
Chromium	mg/kg	19257-29	3.6 || 4.0 || RPD: 11	LCS-6	101%
Copper	mg/kg	19257-29	<1.0 || 1.5	LCS-6	103%
Lead	mg/kg	19257-29	1.7 || 1.9 || RPD: 11	LCS-6	98%
Mercury	mg/kg	19257-29	<0.10 || <0.10	LCS-6	114%
Nickel	mg/kg	19257-29	1.6 || 1.4 || RPD: 13	LCS-6	100%
Zinc	mg/kg	19257-29	1.4 || 1.4 || RPD: 0	LCS-6	99%
Phosphorus	mg/kg	[NT]	[NT]	LCS-6	88%

QUALITY CONTROL Moisture	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**
Date prepared	-	19257-2	16/05/2008 || 16/05/2008
Date analysed	-	19257-2	16/05/2008 || 16/05/2008
Moisture	%	19257-2	6.6 || 6.6 || RPD: 0

QUALITY CONTROL Total Phenolics in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19257-48	19/5/08%
Date analysed	-	[NT]	[NT]	19257-48	20/5/08%
Total Phenolics (as Phenol)	mg/L	[NT]	[NT]	19257-48	98%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	19257-3	195/08%
Date analysed	-	[NT]	[NT]	19257-3	20/5/08%
Arsenic	mg/kg	[NT]	[NT]	19257-3	96%
Cadmium	mg/kg	[NT]	[NT]	19257-3	96%
Chromium	mg/kg	[NT]	[NT]	19257-3	100%
Copper	mg/kg	[NT]	[NT]	19257-3	103%
Lead	mg/kg	[NT]	[NT]	19257-3	89%
Mercury	mg/kg	[NT]	[NT]	19257-3	103%
Nickel	mg/kg	[NT]	[NT]	19257-3	98%
Zinc	mg/kg	[NT]	[NT]	19257-3	96%
Phosphorus	mg/kg	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19257-22	16/05/2008 || 16/05/2008
Date analysed	-	19257-22	16/05/2008 || 16/05/2008
Moisture	%	19257-22	5.4 || 5.4 || RPD: 0

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19257-34	16/05/2008 || 16/05/2008
Date analysed	-	19257-34	16/05/2008 || 16/05/2008
Moisture	%	19257-34	19 || 19 || RPD: 0

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19257-37	16/05/2008 || 16/05/2008
Date analysed	-	19257-37	16/05/2008 || 16/05/2008
Moisture	%	19257-37	4.5 || 4.5 || RPD: 0

Report Comments:

Herbicides and TKN analysed by NMI: Report Number - RN680473.

Asbestos was analysed by Approved Identifier: Not applicable for this job

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 19282

Client:
Consulting Earth Scientists
Suite 121,
26-32 Pirrama Rd
Pyrmont
NSW 2009

Attention: Luke Jenkins / Kelly Weir

Sample log in details:

Your Reference:	**CES050706-BCC Area A**
No. of samples:	64 Soils, 3 Materials
Date samples received:	13/05/08
Date completed instructions received:	13/05/08

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	22/05/08
Date of Preliminary Report:	Not Issued
Issue Date:	26/05/08

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Tests not covered by NATA are denoted with *.

Results Approved By:

David Springer
Business Development & Quality Manager

Joshua Lim
Chemist

VOC's in soil					
Our Reference:	UNITS	19282-8	19282-17	19282-54	19282-62
Your Reference	-------------	120508-219 -KW	120508-228 -KW	120508-267 -KW	Trip Blank
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	18/05/2008	18/05/2008	18/05/2008	18/05/2008
Dichlorodifluoromethane	mg/kg	<10	<10	<10	<10
Chloromethane	mg/kg	<10	<10	<10	<10
Vinyl Chloride	mg/kg	<10	<10	<10	<10
Bromomethane	mg/kg	<10	<10	<10	<10
Chloroethane	mg/kg	<10	<10	<10	<10
Trichlorofluoromethane	mg/kg	<10	<10	<10	<10
1,1-Dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
trans-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
cis-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0
chloroform	mg/kg	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0
carbon tetrachloride	mg/kg	<1.0	<1.0	<1.0	<1.0
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5
dibromomethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
trichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromodichloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
dibromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	mg/kg	<1.0	<1.0	<1.0	<1.0
tetrachloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
chlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromoform	mg/kg	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0

VOC's in soil					
Our Reference:	**UNITS**	**19282-8**	**19282-17**	**19282-54**	**19282-62**
Your Reference	**-------------**	**120508-219 -KW**	**120508-228 -KW**	**120508-267 -KW**	**Trip Blank**
Date Sampled	**------------**	**12/05/2008**	**12/05/2008**	**12/05/2008**	**13/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**
styrene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	mg/kg	<1.0	<1.0	<1.0	<1.0
isopropylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
tert-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
sec-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
hexachlorobutadiene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluorometha	%	68	69	83	90
Surrogate aaa-Trifluorotoluene	%	107	99	88	90
Surrogate Toluene-d8	%	89	91	94	96
Surrogate 4-Bromofluorobenzene	%	79	78	79	77

vTPH & BTEX in Soil						
Our Reference:	UNITS	19282-16	19282-17	19282-24	19282-32	19282-33
Your Reference	-------------	120508-227 -KW	120508-228 -KW	120508-236 -KW	120508-244 -KW	120508-245 -KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	94	99	88	85	89

vTPH & BTEX in Soil						
Our Reference:	UNITS	19282-34	19282-37	19282-40	19282-43	19282-46
Your Reference	-------------	120508-246 -KW	120508-249 -KW	120508-252 -KW	120508-255 -KW	120508-258 -KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	93	102	98	87	101

vTPH & BTEX in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-47 120508-259 -KW 12/05/2008 Soil SO 00:00	19282-62 Trip Blank 13/05/2008 Soil SO 00:00	19282-63 Trip Spike 1 13/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	[NA]
Benzene	mg/kg	<0.5	<0.5	76%
Toluene	mg/kg	<0.5	<0.5	73%
Ethylbenzene	mg/kg	<1.0	<1.0	84%
m+p-xylene	mg/kg	<2.0	<2.0	98%
o-Xylene	mg/kg	<1.0	<1.0	117%
Surrogate aaa-Trifluorotoluene	%	91	90	101

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19282-16	19282-17	19282-24	19282-32	19282-33
Your Reference	-------------	120508-227 -KW	120508-228 -KW	120508-236 -KW	120508-244 -KW	120508-245 -KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	17/05/2008	17/05/2008	17/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	100	97	98	94	93

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19282-34	19282-37	19282-40	19282-43	19282-46
Your Reference	-------------	120508-246 -KW	120508-249 -KW	120508-252 -KW	120508-255 -KW	120508-258 -KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	95	98	95	93	92

sTPH in Soil (C10-C36)		
Our Reference:	UNITS	19282-47
Your Reference	-------------	120508-259 -KW
Date Sampled	------------	12/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date extracted	-	16/05/2008
Date analysed	-	17/05/2008
TPH C_{10} - C_{14}	mg/kg	<50
TPH C_{15} - C_{28}	mg/kg	<100
TPH C_{29} - C_{36}	mg/kg	<100
Surrogate o-Terphenyl	%	92

PAHs in Soil						
Our Reference:	UNITS	19282-2	19282-7	19282-8	19282-9	19282-10
Your Reference	-------------	120508-212 -KW	120508-218 -KW	120508-219 -KW	120508-220 -KW	120508-221 -KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	0.3
Pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	0.3
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Chrysene	mg/kg	<0.1	<0.1	0.1	<0.1	0.2
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.4
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.08	<0.05	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<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	0.2
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Surrogate p-Terphenyl-d_{14}	%	93	114	117	108	112

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-32 120508-244-KW 12/05/2008 Soil SO 00:00	19282-33 120508-245-KW 12/05/2008 Soil SO 00:00	19282-34 120508-246-KW 12/05/2008 Soil SO 00:00	19282-40 120508-252-KW 12/05/2008 Soil SO 00:00	19282-43 120508-255-KW 12/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.09	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<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
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	114	110	109	111	112

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-46 120508-258-KW 12/05/2008 Soil SO 00:00	19282-47 120508-259-KW 12/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	111	112

Organochlorine Pesticides in soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-4 120508-214-KW 12/05/2008 Soil SO 00:00	19282-12 120508-223-KW 12/05/2008 Soil SO 00:00	19282-15 120508-226-KW 12/05/2008 Soil SO 00:00	19282-20 120508-232-KW 12/05/2008 Soil SO 00:00	19282-23 120508-235-KW 12/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	7.0	70	73	73	73

Organochlorine Pesticides in soil						
Our Reference:	**UNITS**	**19282-31**	**19282-36**	**19282-39**	**19282-45**	**19282-67**
Your Reference	-------------	**120508-243 -KW**	**120508-248 -KW**	**120508-251 -KW**	**120508-257 -KW**	**120508-275 -KW**
Date Sampled	------------	**12/05/2008**	**12/05/2008**	**12/05/2008**	**12/05/2008**	**12/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**	**00:00**
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	73	71	71	75	76

Organophosphorus Pesticides Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-4 120508-214 -KW 12/05/2008 Soil SO 00:00	19282-12 120508-223 -KW 12/05/2008 Soil SO 00:00	19282-15 120508-226 -KW 12/05/2008 Soil SO 00:00	19282-20 120508-232 -KW 12/05/2008 Soil SO 00:00	19282-23 120508-235 -KW 12/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	73	70	73	73	73

Organophosphorus Pesticides Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-31 120508-243 -KW 12/05/2008 Soil SO 00:00	19282-36 120508-248 -KW 12/05/2008 Soil SO 00:00	19282-39 120508-251 -KW 12/05/2008 Soil SO 00:00	19282-45 120508-257 -KW 12/05/2008 Soil SO 00:00	19282-67 120508-275 -KW 12/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	73	71	71	75	76

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-4 120508-214 -KW 12/05/2008 Soil SO 00:00	19282-12 120508-223 -KW 12/05/2008 Soil SO 00:00	19282-15 120508-226 -KW 12/05/2008 Soil SO 00:00	19282-20 120508-232 -KW 12/05/2008 Soil SO 00:00	19282-23 120508-235 -KW 12/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	73	70	73	73	73

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-31 120508-243 -KW 12/05/2008 Soil SO 00:00	19282-36 120508-248 -KW 12/05/2008 Soil SO 00:00	19282-39 120508-251 -KW 12/05/2008 Soil SO 00:00	19282-45 120508-257 -KW 12/05/2008 Soil SO 00:00	19282-67 120508-275 -KW 12/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	73	71	71	75	76

Total Phenolics in Soil					
Our Reference:	UNITS	19282-9	19282-17	19282-46	19282-47
Your Reference	-------------	120508-220 -KW	120508-228 -KW	120508-258 -KW	120508-259 -KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0	<5.0	<5.0

Acid Extractable metals in soil						
Our Reference:	UNITS	19282-2	19282-5	19282-8	19282-9	19282-12
Your Reference	-------------	120508-212 -KW	120508-215 -KW	120508-219 -KW	120508-220 -KW	120508-223 -KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	<4.0	<4.0	9.9	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	2.2	1.6	20	3.8	2.3
Copper	mg/kg	3.1	<1.0	7,500	12	6.4
Lead	mg/kg	10	1.0	350	7.2	23
Mercury	mg/kg	0.56	0.14	<0.10	<0.10	<0.10
Nickel	mg/kg	1.3	<1.0	59	3.7	1.2
Zinc	mg/kg	11	2.1	540	13	26
Phosphorus	mg/kg	[NA]	[NA]	[NA]	[NA]	84

Acid Extractable metals in soil						
Our Reference:	UNITS	19282-16	19282-17	19282-18	19282-21	19282-24
Your Reference	-------------	120508-227 -KW	120508-228 -KW	120508-229 -KW	120508-233 -KW	120508-236 -KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	5.8	4.7	<4.0	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	15	5.1	<1.0	1.4	1.3
Copper	mg/kg	15	8.3	1.2	1.0	6.5
Lead	mg/kg	18	21	<1.0	2.9	5.3
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	2.8	2.3	<1.0	<1.0	<1.0
Zinc	mg/kg	59	32	2.1	5.4	5.6

Acid Extractable metals in soil						
Our Reference:	**UNITS**	**19282-26**	**19282-27**	**19282-28**	**19282-30**	**19282-31**
Your Reference	-------------	**120508-238 -KW**	**120508-239 -KW**	**120508-240 -KW**	**120508-242 -KW**	**120508-243 -KW**
Date Sampled	------------	**12/05/2008**	**12/05/2008**	**12/05/2008**	**12/05/2008**	**12/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**	**00:00**
Date digested	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	[NA]	<4.0	<4.0	4.7	[NA]
Cadmium	mg/kg	[NA]	<1.0	<1.0	<1.0	[NA]
Chromium	mg/kg	[NA]	1.6	1.5	5.2	[NA]
Copper	mg/kg	[NA]	3.2	2.9	1.4	[NA]
Lead	mg/kg	[NA]	24	4.5	3.7	[NA]
Mercury	mg/kg	[NA]	<0.10	<0.10	<0.10	[NA]
Nickel	mg/kg	[NA]	<1.0	<1.0	<1.0	[NA]
Zinc	mg/kg	[NA]	26	12	2.7	[NA]
Phosphorus	mg/kg	77	[NA]	[NA]	[NA]	210

Acid Extractable metals in soil						
Our Reference:	UNITS	19282-32	19282-33	19282-34	19282-36	19282-39
Your Reference	-------------	120508-244 -KW	120508-245 -KW	120508-246 -KW	120508-248 -KW	120508-251 -KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	<4.0	<4.0	<4.0	4.8	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	4.1	<1.0	<1.0	4.3	2.8
Copper	mg/kg	22	<1.0	1.1	12	8.7
Lead	mg/kg	100	<1.0	1.3	38	300
Mercury	mg/kg	<0.10	<0.10	<0.10	0.21	<0.10
Nickel	mg/kg	1.6	<1.0	<1.0	4.5	1.5
Zinc	mg/kg	130	1.9	3.4	28	29

Acid Extractable metals in soil						
Our Reference:	**UNITS**	**19282-41**	**19282-43**	**19282-45**	**19282-46**	**19282-47**
Your Reference	-------------	**120508-253 -KW**	**120508-255 -KW**	**120508-257 -KW**	**120508-258 -KW**	**120508-259 -KW**
Date Sampled	------------	**12/05/2008**	**12/05/2008**	**12/05/2008**	**12/05/2008**	**12/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**	**00:00**
Date digested	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	<4.0	<4.0	8.6	10	16
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	3.3	8.0	21	1.9	2.7
Copper	mg/kg	1.2	11	30	<1.0	1.0
Lead	mg/kg	1.1	33	50	<1.0	1.2
Mercury	mg/kg	<0.10	<0.10	0.21	<0.10	<0.10
Nickel	mg/kg	<1.0	<1.0	1.8	<1.0	<1.0
Zinc	mg/kg	9.6	21	20	1.6	2.0
Phosphorus	mg/kg	[NA]	[NA]	1,700	[NA]	[NA]

Acid Extractable metals in soil						
Our Reference:	UNITS	19282-48	19282-51	19282-54	19282-56	19282-57
Your Reference	-------------	120508-261 -KW	120508-264 -KW	120508-267 -KW	120508-269 -KW	120508-270 -KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	6.9	20	150	12	[NA]
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	[NA]
Chromium	mg/kg	5.8	12	14	1.5	[NA]
Copper	mg/kg	14	16	33	1.0	[NA]
Lead	mg/kg	22	39	99	2.8	[NA]
Mercury	mg/kg	<0.10	<0.10	0.26	<0.10	[NA]
Nickel	mg/kg	1.6	1.3	10	<1.0	[NA]
Zinc	mg/kg	19	17	54	2.1	[NA]
Phosphorus	mg/kg	1,000	1,500	[NA]	[NA]	200

Acid Extractable metals in soil				
Our Reference:	**UNITS**	**19282-58**	**19282-59**	**19282-67**
Your Reference	**-------------**	**120508-271 -KW**	**120508-272 -KW**	**120508-275 -KW**
Date Sampled	**------------**	**12/05/2008**	**12/05/2008**	**12/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**
Date digested	-	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	<4.0	4.5	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0
Chromium	mg/kg	8.9	15	4.6
Copper	mg/kg	6.3	5.8	11
Lead	mg/kg	47	23	28
Mercury	mg/kg	<0.10	<0.10	0.24
Nickel	mg/kg	1.7	1.7	2.6
Zinc	mg/kg	74	38	33

Miscellaneous Inorg - soil						
Our Reference:	UNITS	19282-12	19282-26	19282-31	19282-45	19282-48
Your Reference	-------------	120508-223 -KW	120508-238 -KW	120508-243 -KW	120508-257 -KW	120508-261 -KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date analysed	-	15/05/2008	15/05/2008	15/05/2008	15/05/2008	15/05/2008
Ammonia as N in soil	mg/kg	1.3	0.7	2.5	0.8	2.9
Nitrate as N in soil	mg/kg	<0.5	<0.5	0.8	<0.5	<0.5
Nitrite as N in soil	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/kg	1,700	240	2,000	5,100	17,000
Total Nitrogen in soil	mg/kg	1,700	240	2,000	5,100	17,000
pH 1:5 soil:water	pH Units	[NA]	8.6	6.8	[NA]	4.8
Electrical Conductivity 1:5 soil:water	µS/cm	[NA]	70	130	[NA]	99
Salinity as NACL *	mg/kg	[NA]	45	83	[NA]	63
Resistivity in soil*	ohm m	[NA]	140	77	[NA]	100
Chloride 1:5 soil:water	mg/kg	[NA]	<100	<100	[NA]	<100
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	<25	<25	[NA]	<25

Miscellaneous Inorg - soil			
Our Reference:	UNITS	19282-51	19282-57
Your Reference	-------------	120508-264 -KW	120508-270 -KW
Date Sampled	------------	12/05/2008	12/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	SO
Time Sampled		00:00	00:00
Date analysed	-	15/05/2008	15/05/2008
Ammonia as N in soil	mg/kg	0.9	2.4
Nitrate as N in soil	mg/kg	0.7	<0.5
Nitrite as N in soil	mg/kg	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/kg	710	520
Total Nitrogen in soil	mg/kg	710	520
pH 1:5 soil:water	pH Units	7.1	6.3
Electrical Conductivity 1:5 soil:water	µS/cm	90	84
Salinity as NACL *	mg/kg	58	54
Resistivity in soil*	ohm m	110	120
Chloride 1:5 soil:water	mg/kg	<100	<100
Sulphate, SO4 1:5 soil:water	mg/kg	<25	<25

Moisture Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-2 120508-212-KW 12/05/2008 Soil SO 00:00	19282-4 120508-214-KW 12/05/2008 Soil SO 00:00	19282-5 120508-215-KW 12/05/2008 Soil SO 00:00	19282-7 120508-218-KW 12/05/2008 Soil SO 00:00	19282-8 120508-219-KW 12/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	10	15	23	7.6	9.0

Moisture Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-9 120508-220-KW 12/05/2008 Soil SO 00:00	19282-10 120508-221-KW 12/05/2008 Soil SO 00:00	19282-12 120508-223-KW 12/05/2008 Soil SO 00:00	19282-15 120508-226-KW 12/05/2008 Soil SO 00:00	19282-16 120508-227-KW 12/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	27	32	15	15	21

Moisture Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-17 120508-228-KW 12/05/2008 Soil SO 00:00	19282-18 120508-229-KW 12/05/2008 Soil SO 00:00	19282-20 120508-232-KW 12/05/2008 Soil SO 00:00	19282-21 120508-233-KW 12/05/2008 Soil SO 00:00	19282-23 120508-235-KW 12/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	23	19	16	5.7	2.7

Moisture Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-24 120508-236-KW 12/05/2008 Soil SO 00:00	19282-26 120508-238-KW 12/05/2008 Soil SO 00:00	19282-27 120508-239-KW 12/05/2008 Soil SO 00:00	19282-28 120508-240-KW 12/05/2008 Soil SO 00:00	19282-30 120508-242-KW 12/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	13	2.5	20	19	28

Moisture **Our Reference:** **Your Reference** **Date Sampled** **Type of sample** **Sample Matrix Code** **Time Sampled**	**UNITS** ------------- ------------	**19282-31** **120508-243-KW** **12/05/2008** **Soil** **SO** **00:00**	**19282-32** **120508-244-KW** **12/05/2008** **Soil** **SO** **00:00**	**19282-33** **120508-245-KW** **12/05/2008** **Soil** **SO** **00:00**	**19282-34** **120508-246-KW** **12/05/2008** **Soil** **SO** **00:00**	**19282-36** **120508-248-KW** **12/05/2008** **Soil** **SO** **00:00**
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	7.8	11	5.3	5.2	20

Moisture Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-37 120508-249-KW 12/05/2008 Soil SO 00:00	19282-39 120508-251-KW 12/05/2008 Soil SO 00:00	19282-40 120508-252-KW 12/05/2008 Soil SO 00:00	19282-41 120508-253-KW 12/05/2008 Soil SO 00:00	19282-42 120508-254-KW 12/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	18	15	29	24	34

Moisture Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-43 120508-255-KW 12/05/2008 Soil SO 00:00	19282-45 120508-257-KW 12/05/2008 Soil SO 00:00	19282-46 120508-258-KW 12/05/2008 Soil SO 00:00	19282-47 120508-259-KW 12/05/2008 Soil SO 00:00	19282-48 120508-261-KW 12/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	14	13	19	18	13

Moisture Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-51 120508-264-KW 12/05/2008 Soil SO 00:00	19282-54 120508-267-KW 12/05/2008 Soil SO 00:00	19282-56 120508-269-KW 12/05/2008 Soil SO 00:00	19282-58 120508-271-KW 12/05/2008 Soil SO 00:00	19282-59 120508-272-KW 12/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	19	18	22	14	14

Moisture Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19282-62 Trip Blank 13/05/2008 Soil SO 00:00	19282-67 120508-275 -KW 12/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008
Moisture	%	0.30	21

Herbicides in Soil						
Our Reference:	UNITS	19282-20	19282-32	19282-36	19282-42	19282-51
Your Reference	-------------	120508-232 -KW	120508-244 -KW	120508-248 -KW	120508-254 -KW	120508-264 -KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Date Extracted	-	22/05/2008	22/05/2008	22/05/2008	22/05/2008	22/05/2008
Dicamba	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
MCPA	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorprop	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-D	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-T	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-TP	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-DB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
MCPP	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Triclopyr	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1

Herbicides in Soil		
Our Reference:	UNITS	19282-67
Your Reference	-------------	120508-275 -KW
Date Sampled	------------	12/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date analysed	-	20/05/2008
Date Extracted	-	22/05/2008
Dicamba	mg/kg	<0.1
MCPA	mg/kg	<0.1
Dichlorprop	mg/kg	<0.1
2,4-D	mg/kg	<0.1
2,4,5-T	mg/kg	<0.1
2,4,5-TP	mg/kg	<0.1
2,4-DB	mg/kg	<0.1
MCPP	mg/kg	<0.1
Triclopyr	mg/kg	<0.1

Asbestos ID - materials				
Our Reference:	UNITS	19282-64	19282-65	19282-66
Your Reference	-------------	120508-A1-KW	120508-A2-KW	120508-A3-KW
Date Sampled	------------	12/05/2008	12/05/2008	12/05/2008
Type of sample		Material	Material	Material
Sample Matrix Code		SO	SO	SO
Time Sampled		00:00	00:00	00:00
Date analysed	-	14/05/2008	14/05/2008	14/05/2008
Sample Description	-	200g fibre cement sheet fragments	15g fibre cement sheet fragments	15g fibre cement sheet fragments
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected Crocidolite asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected

ACCREDITED FOR TECHNICAL COMPETENCE

Method ID	Methodology Summary
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
LAB.55	Nitrate water extractable - determined colourimetrically based on EPA114A.
LAB.56	Nitrite water extractable - determined colourimetrically based on EPA116A.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
LAB.66	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen.
LAB.1	pH - Measured using pH meter and electrode in accordance with APHA 20th ED, 4500-H+.
LAB.2	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA2510 20th ED and Rayment & Higginson.
LAB.11	Chloride determined by argentometric titration.
LAB.9	Sulphate determined turbidimetrically.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
AS4964-2004	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.

QUALITY CONTROL VOC's in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19282-8	16/05/2008 || 16/05/2008	LCS-2	16/5/08%
Date analysed	-			18/5/08	19282-8	18/05/2008 || 18/05/2008	LCS-2	18/5/08%
Dichlorodifluoromethane	mg/kg	10	GC.14	<10	19282-8	<10 || <10	[NR]	[NR]
Chloromethane	mg/kg	10	GC.14	<10	19282-8	<10 || <10	[NR]	[NR]
Vinyl Chloride	mg/kg	10	GC.14	<10	19282-8	<10 || <10	[NR]	[NR]
Bromomethane	mg/kg	10	GC.14	<10	19282-8	<10 || <10	[NR]	[NR]
Chloroethane	mg/kg	10	GC.14	<10	19282-8	<10 || <10	[NR]	[NR]
Trichlorofluoromethane	mg/kg	10	GC.14	<10	19282-8	<10 || <10	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	LCS-2	93%
cis-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
bromochloromethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
chloroform	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	LCS-2	84%
2,2-dichloropropane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	LCS-2	87%
1,1,1-trichloroethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	LCS-2	81%
1,1-dichloropropene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
carbon tetrachloride	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
Benzene	mg/kg	0.5	GC.14	<0.5	19282-8	<0.5 || <0.5	[NR]	[NR]
dibromomethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
trichloroethene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	LCS-2	116%
bromodichloromethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	LCS-2	114%
trans-1,3-dichloropropene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
Toluene	mg/kg	0.5	GC.14	<0.5	19282-8	<0.5 || <0.5	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
dibromochloromethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	LCS-2	111%
1,2-dibromoethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
tetrachloroethene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	LCS-2	111%
1,1,1,2-tetrachloroethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
chlorobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
Ethylbenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
bromoform	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
m+p-xylene	mg/kg	2	GC.14	<2.0	19282-8	<2.0 || <2.0	[NR]	[NR]
styrene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
o-Xylene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]

QUALITY CONTROL VOC's in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
1,2,3-trichloropropane*	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
isopropylbenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
bromobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
n-propyl benzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
2-chlorotoluene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
4-chlorotoluene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
tert-butyl benzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
sec-butyl benzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
n-butyl benzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0 || <1.0	[NR]	[NR]
Surrogate Dibromofluorometha	%		GC.14	87	19282-8	68 || 87 || RPD: 25	LCS-2	85%
Surrogate aaa-Trifluorotoluene	%		GC.14	89	19282-8	107 || 87 || RPD: 21	LCS-2	105%
Surrogate Toluene-d_8	%		GC.14	94	19282-8	89 || 93 || RPD: 4	LCS-2	92%
Surrogate 4-Bromofluorobenzene	%		GC.14	83	19282-8	79 || 79 || RPD: 0	LCS-2	70%

QUALITY CONTROL **vTPH & BTEX in Soil**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-			16/5/08	19282-16	16/05/2008 || 16/05/2008	LCS-2	16/5/08%
Date analysed	-			17/5/08	19282-16	17/05/2008 || 17/05/2008	LCS-2	17/5/08%
vTPH C_6 - C_9	mg/kg	25	GC.16	<25	19282-16	<25 || <25	LCS-2	129%
Benzene	mg/kg	0.5	GC.14	<0.5	19282-16	<0.5 || <0.5	LCS-2	122%
Toluene	mg/kg	0.5	GC.14	<0.5	19282-16	<0.5 || <0.5	LCS-2	135%
Ethylbenzene	mg/kg	1	GC.14	<1.0	19282-16	<1.0 || <1.0	LCS-2	125%
m+p-xylene	mg/kg	2	GC.14	<2.0	19282-16	<2.0 || <2.0	LCS-2	131%
o-Xylene	mg/kg	1	GC.14	<1.0	19282-16	<1.0 || <1.0	LCS-2	134%
Surrogate aaa-Trifluorotoluene	%		GC.14	94	19282-16	94 || 87 || RPD: 8	LCS-2	104%
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			[NT]	19282-16	16/05/2008 || 16/05/2008	LCS-2	16/5/08%
Date analysed	-			[NT]	19282-16	16/05/2008 || 16/05/2008	LCS-2	17/5/08%
TPH C_{10} - C_{14}	mg/kg	50	GC.3	<50	19282-16	<50 || <50	LCS-2	95%
TPH C_{15} - C_{28}	mg/kg	100	GC.3	<100	19282-16	<100 || <100	LCS-2	89%
TPH C_{29} - C_{36}	mg/kg	100	GC.3	<100	19282-16	<100 || <100	LCS-2	102%
Surrogate o-Terphenyl	%		GC.3	[NT]	19282-16	100 || 98 || RPD: 2	LCS-2	109%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			[NT]	19282-2	16/05/2008 || 16/05/2008	LCS-2	16/5/08%
Date analysed	-			[NT]	19282-2	17/05/2008 || 17/05/2008	LCS-2	17/5/08%
Naphthalene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || <0.1	LCS-2	114%
Acenaphthylene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || <0.1	LCS-2	107%
Phenanthrene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || 0.4	LCS-2	107%
Anthracene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || 0.3	LCS-2	107%
Pyrene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || 0.3	LCS-2	111%
Benzo(a)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || 0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || 0.1	LCS-2	116%
Benzo(b+k)fluoranthene	mg/kg	0.2	GC.12 subset	<0.2	19282-2	<0.2 || <0.2	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	19282-2	<0.05 || 0.07	LCS-2	108%
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || <0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1 || <0.1	[NR]	[NR]
*Surrogate p-*Terphenyl-d_{14}	%		GC.12 subset	[NT]	19282-2	93 || 111 || RPD: 18	LCS-2	123%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19282-4	16/05/2008 || 16/05/2008	LCS-2	16/5/08%
Date analysed	-			16/5/08	19282-4	16/05/2008 || 16/05/2008	LCS-2	16/5/08%
HCB	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	LCS-2	118%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	LCS-2	121%
Heptachlor	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	LCS-2	127%
delta-BHC	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	LCS-2	119%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	LCS-2	123%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	LCS-2	121%
Dieldrin	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	LCS-2	122%
Endrin	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	LCS-2	106%
pp-DDD	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	LCS-2	110%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	LCS-2	129%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	97	19282-4	7.0 || 72 || RPD: 165	LCS-2	104%

QUALITY CONTROL **Organophosphorus Pesticides**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-			16/5/08	19282-4	16/05/2008 || 16/05/2008	LCS-2	16/5/08%
Date analysed	-			16/5/08	19282-4	16/05/2008 || 16/05/2008	LCS-2	16/5/08%
Diazinon	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1 || <0.1	LCS-2	106%
Fenitrothion	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1 || <0.1	LCS-2	92%
Bromophos-ethyl	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1 || <0.1	LCS-2	130%
Surrogate TCLMX	%		GC.8	97	19282-4	73 || 72 || RPD: 1	LCS-2	85%
QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19282-4	16/05/2008 || 16/05/2008	LCS-2	16/5/08%
Date analysed	-			16/5/08	19282-4	16/05/2008 || 16/05/2008	LCS-2	16/5/08%
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	19282-4	<0.1 || <0.1	LCS-2	109%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	19282-4	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	97	19282-4	73 || 72 || RPD: 1	LCS-2	91%
QUALITY CONTROL Total Phenolics in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19282-9	16/05/2008 || 16/05/2008	LCS-1	1/5/08%
Date analysed	-			19/5/08	19282-9	19/05/2008 || 19/05/2008	LCS-1	19/5/08%
Total Phenolics (as Phenol)	mg/kg	5	LAB.30	<5.0	19282-9	<5.0 || <5.0	LCS-1	114%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			16/05/08	19282-2	16/05/2008 || 16/05/2008	LCS-2	16/05/08%
Date analysed	-			20/05/08	19282-2	20/05/2008 || 20/05/2008	LCS-2	20/05/08%
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4.0	19282-2	<4.0 || <4.0	LCS-2	92%
Cadmium	mg/kg	1	Metals.20 ICP-AES	<1.0	19282-2	<1.0 || <1.0	LCS-2	97%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1.0	19282-2	2.2 || 2.2 || RPD: 0	LCS-2	97%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Copper	mg/kg	1	Metals.20 ICP-AES	<1.0	19282-2	3.1 || 3.7 || RPD: 18	LCS-2	100%
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	19282-2	10 || 10 || RPD: 0	LCS-2	95%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.10	19282-2	0.56 || 0.57 || RPD: 2	LCS-2	104%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1.0	19282-2	1.3 || 1.6 || RPD: 21	LCS-2	97%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1.0	19282-2	11 || 12 || RPD: 9	LCS-2	98%
Phosphorus	mg/kg	10	Metals.20 ICP-AES	<10	[NT]	[NT]	LCS-2	90%

QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Ammonia as N in soil	mg/kg	0.5	LAB.57	<0.5	19282-12	1.3 || 1.3 || RPD: 0	LCS-1	107%
Nitrate as N in soil	mg/kg	0.5	LAB.55	<0.5	19282-12	<0.5 || <0.5	LCS-1	98%
Nitrite as N in soil	mg/kg	0.1	LAB.56	<0.1	19282-12	<0.1 || <0.1	LCS-1	106%
Total Kjeldahl Nitrogen	mg/kg	30	Ext-020	<30	19282-12	1700 || [N/T]	[NR]	[NR]
Total Nitrogen in soil	mg/kg	10	LAB.66	<10	19282-12	1700 || [N/T]	[NR]	[NR]
pH 1:5 soil:water	pH Units		LAB.1	[NT]	[NT]	[NT]	LCS-1	100%
Electrical Conductivity 1:5 soil:water	µS/cm	1	LAB.2	<1.0	[NT]	[NT]	LCS-1	102%
Salinity as NACL *	mg/kg	1	LAB.2	<1.0	[NT]	[NT]	LCS-1	102%
Resistivity in soil*	ohm m	1	LAB.2	<1.0	[NT]	[NT]	LCS-1	102%
Chloride 1:5 soil:water	mg/kg	100	LAB.11	<100	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4 1:5 soil:water	mg/kg	25	LAB.9	<25	[NT]	[NT]	LCS-1	106%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD
Date prepared	-			16/5/08	19282-2	16/05/2008 || 16/05/2008
Date analysed	-			16/5/08	19282-2	16/05/2008 || 16/05/2008
Moisture	%	0.1	LAB.8	<0.10	19282-2	10 || 10 || RPD: 0

QUALITY CONTROL Herbicides in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Dicamba	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	98%
MCPA	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	114%
Dichlorprop	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	114%
2,4-D	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	126%
2,4,5-T	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	125%
2,4,5-TP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	112%
2,4-DB	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	104%

QUALITY CONTROL **Herbicides in Soil**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
MCPP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	100%
Triclopyr	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	136%

QUALITY CONTROL Asbestos ID - materials	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

QUALITY CONTROL VOC's in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19282-11	16/5/08%
Date analysed	-	[NT]	[NT]	19282-11	18/5/08%
Dichlorodifluoromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Chloromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	mg/kg	[NT]	[NT]	[NR]	[NR]
Bromomethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Chloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	mg/kg	[NT]	[NT]	19282-11	89%
cis-1,2-dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromochloromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
chloroform	mg/kg	[NT]	[NT]	19282-11	80%
2,2-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	mg/kg	[NT]	[NT]	19282-11	83%
1,1,1-trichloroethane	mg/kg	[NT]	[NT]	19282-11	79%
1,1-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
carbon tetrachloride	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
dibromomethane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
trichloroethene	mg/kg	[NT]	[NT]	19282-11	109%
bromodichloromethane	mg/kg	[NT]	[NT]	19282-11	107%
trans-1,3-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
dibromochloromethane	mg/kg	[NT]	[NT]	19282-11	104%
1,2-dibromoethane	mg/kg	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VOC's in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
tetrachloroethene	mg/kg	[NT]	[NT]	19282-11	102%
1,1,1,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromoform	mg/kg	[NT]	[NT]	[NR]	[NR]
m+p-xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
styrene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
o-Xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	mg/kg	[NT]	[NT]	[NR]	[NR]
isopropylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
tert-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
sec-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
hexachlorobutadiene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%	[NT]	[NT]	19282-11	81%
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	19282-11	98%
Surrogate Toluene-d8	%	[NT]	[NT]	19282-11	91%
Surrogate 4-Bromofluorobenzene	%	[NT]	[NT]	19282-11	69%

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19282-47	16/05/2008 || 16/05/2008	19282-17	16/5/08%
Date analysed	-	19282-47	17/05/2008 || 17/05/2008	19282-17	17/5/08%
vTPH C_6 - C_9	mg/kg	19282-47	<25 || <25	19282-17	104%
Benzene	mg/kg	19282-47	<0.5 || <0.5	19282-17	111%
Toluene	mg/kg	19282-47	<0.5 || <0.5	19282-17	106%
Ethylbenzene	mg/kg	19282-47	<1.0 || <1.0	19282-17	97%
m+p-xylene	mg/kg	19282-47	<2.0 || <2.0	19282-17	103%
o-Xylene	mg/kg	19282-47	<1.0 || <1.0	19282-17	107%
Surrogate aaa-Trifluorotoluene	%	19282-47	91 || 90 || RPD: 1	19282-17	92%

QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19282-46	16/05/2008 || 16/05/2008	19282-17	16/5/08%
Date analysed	-	19282-46	17/05/2008 || 17/05/2008	19282-17	17/5/08%
TPH C_{10} - C_{14}	mg/kg	19282-46	<50 || <50	19282-17	91%
TPH C_{15} - C_{28}	mg/kg	19282-46	<100 || <100	19282-17	86%
TPH C_{29} - C_{36}	mg/kg	19282-46	<100 || <100	19282-17	95%
Surrogate o-Terphenyl	%	19282-46	92 || 94 || RPD: 2	19282-17	110%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19282-46	16/05/2008 || 16/05/2008	19282-7	16/5/08%
Date analysed	-	19282-46	17/05/2008 || 17/05/2008	19282-7	16/5/08%
Naphthalene	mg/kg	19282-46	<0.1 || <0.1	19282-7	90%
Acenaphthylene	mg/kg	19282-46	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	19282-46	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	19282-46	<0.1 || <0.1	19282-7	97%
Phenanthrene	mg/kg	19282-46	<0.1 || <0.1	19282-7	100%
Anthracene	mg/kg	19282-46	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	19282-46	<0.1 || <0.1	19282-7	99%
Pyrene	mg/kg	19282-46	<0.1 || <0.1	19282-7	104%
Benzo(a)anthracene	mg/kg	19282-46	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	19282-46	<0.1 || <0.1	19282-7	108%
Benzo(b+k)fluoranthene	mg/kg	19282-46	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	19282-46	<0.05 || <0.05	19282-7	86%
Dibenzo(a,h)anthracene	mg/kg	19282-46	<0.1 || <0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	19282-46	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	19282-46	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%	19282-46	111 || 110 || RPD: 1	19282-7	108%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19282-12	16/5/08%
Date analysed	-	[NT]	[NT]	19282-12	16/5/08%
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	19282-12	101%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	19282-12	110%
Heptachlor	mg/kg	[NT]	[NT]	19282-12	113%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	19282-12	105%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	19282-12	107%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	19282-12	105%
Dieldrin	mg/kg	[NT]	[NT]	19282-12	107%
Endrin	mg/kg	[NT]	[NT]	19282-12	94%
pp-DDD	mg/kg	[NT]	[NT]	19282-12	96%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	19282-12	95%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19282-12	71%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19282-12	16/5/08%
Date analysed	-	[NT]	[NT]	19282-12	16/5/08%
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	19282-12	107%
Fenitrothion	mg/kg	[NT]	[NT]	19282-12	88%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	19282-12	129%
Surrogate TCLMX	%	[NT]	[NT]	19282-12	75%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19282-12	16/5/08%
Date analysed	-	[NT]	[NT]	19282-12	16/5/08%
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	19282-12	103%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19282-12	105%

QUALITY CONTROL Total Phenolics in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19282-17	16/5/08%
Date analysed	-	[NT]	[NT]	19282-17	19/5/08%
Total Phenolics (as Phenol)	mg/kg	[NT]	[NT]	19282-17	100%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19282-26	16/05/2008 || 16/05/2008	LCS-3	16/05/08%
Date analysed	-	19282-26	20/05/2008 || 20/05/2008	LCS-3	20/05/08%
Arsenic	mg/kg	[NT]	[NT]	LCS-3	92%
Cadmium	mg/kg	[NT]	[NT]	LCS-3	97%
Chromium	mg/kg	[NT]	[NT]	LCS-3	96%
Copper	mg/kg	[NT]	[NT]	LCS-3	99%
Lead	mg/kg	[NT]	[NT]	LCS-3	95%
Mercury	mg/kg	[NT]	[NT]	LCS-3	106%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Nickel	mg/kg	[NT]	[NT]	LCS-3	96%
Zinc	mg/kg	[NT]	[NT]	LCS-3	96%
Phosphorus	mg/kg	19282-26	77 || 63 || RPD: 20	LCS-3	87%
QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Ammonia as N in soil	mg/kg	[NT]	[NT]	19282-26	85%
Nitrate as N in soil	mg/kg	[NT]	[NT]	19282-26	90%
Nitrite as N in soil	mg/kg	[NT]	[NT]	19282-26	93%
Total Kjeldahl Nitrogen	mg/kg	[NT]	[NT]	[NR]	[NR]
Total Nitrogen in soil	mg/kg	[NT]	[NT]	[NR]	[NR]
pH 1:5 soil:water	pH Units	[NT]	[NT]	[NR]	[NR]
Electrical Conductivity 1:5 soil:water	µS/cm	[NT]	[NT]	[NR]	[NR]
Salinity as NACL *	mg/kg	[NT]	[NT]	[NR]	[NR]
Resistivity in soil*	ohm m	[NT]	[NT]	[NR]	[NR]
Chloride 1:5 soil:water	mg/kg	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4 1:5 soil:water	mg/kg	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date prepared	-	19282-8	16/05/2008 || 16/05/2008		
Date analysed	-	19282-8	16/05/2008 || 16/05/2008		
Moisture	%	19282-8	9.0 || 9.0 || RPD: 0		
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19282-41	16/05/2008 || 16/05/2008	19282-5	16/05/08%
Date analysed	-	19282-41	20/05/2008 || 20/05/2008	19282-5	20/05/08%
Arsenic	mg/kg	19282-41	<4.0 || <4.0	19282-5	100%
Cadmium	mg/kg	19282-41	<1.0 || <1.0	19282-5	100%
Chromium	mg/kg	19282-41	3.3 || 2.9 || RPD: 13	19282-5	102%
Copper	mg/kg	19282-41	1.2 || 1.1 || RPD: 9	19282-5	105%
Lead	mg/kg	19282-41	1.1 || 1.2 || RPD: 9	19282-5	99%
Mercury	mg/kg	19282-41	<0.10 || <0.10	19282-5	105%
Nickel	mg/kg	19282-41	<1.0 || <1.0	19282-5	102%
Zinc	mg/kg	19282-41	9.6 || 9.0 || RPD: 6	19282-5	103%
Phosphorus	mg/kg	[NT]	[NT]	19282-5	99%

QUALITY CONTROL Moisture	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**
Date prepared	-	19282-16	16/05/2008 || 16/05/2008
Date analysed	-	19282-16	16/05/2008 || 16/05/2008
Moisture	%	19282-16	21 || 21 || RPD: 0

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19282-58	16/05/2008 || 16/05/2008	19282-43	16/05/08%
Date analysed	-	19282-58	20/05/2008 || 20/05/2008	19282-43	20/05/08%
Arsenic	mg/kg	19282-58	<4.0 || 5.2	19282-43	95%
Cadmium	mg/kg	19282-58	<1.0 || <1.0	19282-43	98%
Chromium	mg/kg	19282-58	8.9 || 13 || RPD: 37	19282-43	101%
Copper	mg/kg	19282-58	6.3 || 6.8 || RPD: 8	19282-43	104%
Lead	mg/kg	19282-58	47 || 36 || RPD: 27	19282-43	102%
Mercury	mg/kg	19282-58	<0.10 || <0.10	19282-43	108%
Nickel	mg/kg	19282-58	1.7 || 2.2 || RPD: 26	19282-43	100%
Zinc	mg/kg	19282-58	74 || 67 || RPD: 10	19282-43	98%
Phosphorus	mg/kg	[NT]	[NT]	19282-43	#

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19282-26	16/05/2008 || 16/05/2008
Date analysed	-	19282-26	16/05/2008 || 16/05/2008
Moisture	%	19282-26	2.5 || 2.5 || RPD: 0

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19282-41	16/05/2008 || 16/05/2008
Date analysed	-	19282-41	16/05/2008 || 16/05/2008
Moisture	%	19282-41	24 || 24 || RPD: 0

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19282-46	16/05/2008 || 16/05/2008
Date analysed	-	19282-46	16/05/2008 || 16/05/2008
Moisture	%	19282-46	19 || 19 || RPD: 0

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19282-47	16/05/2008 || 16/05/2008
Date analysed	-	19282-47	16/05/2008 || 16/05/2008
Moisture	%	19282-47	18 || 18 || RPD: 0

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19282-58	16/05/2008 || 16/05/2008
Date analysed	-	19282-58	16/05/2008 || 16/05/2008
Moisture	%	19282-58	14 || 14 || RPD: 0

Report Comments:

Texture Classification:
26 = Sand
31 = Sandy Loam
48 = Sandy Loam
51 = Sandy Loam
57 = Sandy Loam

Trace Elements: An accurate spike could not be calculated due to the high level of this analyte in the sample.

TKN alaysed by NMI: Report Number - RN680565.

Asbestos was analysed by Approved Identifier: Joshua Lim

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 19325

Client:
Consulting Earth Scientists
Suite 121,
26-32 Pirrama Rd
Pyrmont
NSW 2009

Attention: Luke Jenkins / Kelly Weir

Sample log in details:

Your Reference:	**CES050706-BCC Area A**
No. of samples:	77 Soils, 1 Material
Date samples received:	14/05/08
Date completed instructions received:	14/05/08

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	26/05/08
Date of Preliminary Report:	Not Issued
Issue Date:	26/05/08

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Tests not covered by NATA are denoted with *.

Results Approved By:

David Springer
Business Development & Quality Manager

Joshua Lim
Chemist

VOC's in soil					
Our Reference:	UNITS	19325-8	19325-11	19325-12	19325-77
Your Reference	-------------	130508-283 -KW	130508-286 -KW	130508-287 -KW	Trip Blank
Depth	------------	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008
Dichlorodifluoromethane	mg/kg	<10	<10	<10	<10
Chloromethane	mg/kg	<10	<10	<10	<10
Vinyl Chloride	mg/kg	<10	<10	<10	<10
Bromomethane	mg/kg	<10	<10	<10	<10
Chloroethane	mg/kg	<10	<10	<10	<10
Trichlorofluoromethane	mg/kg	<10	<10	<10	<10
1,1-Dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
trans-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
cis-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0
chloroform	mg/kg	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0
carbon tetrachloride	mg/kg	<1.0	<1.0	<1.0	<1.0
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5
dibromomethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
trichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromodichloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
dibromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	mg/kg	<1.0	<1.0	<1.0	<1.0
tetrachloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
chlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromoform	mg/kg	<1.0	<1.0	<1.0	<1.0

VOC's in soil Our Reference: Your Reference Depth Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19325-8 130508-283 -KW - 13/05/2008 Soil SO 00:00	19325-11 130508-286 -KW - 13/05/2008 Soil SO 00:00	19325-12 130508-287 -KW - 13/05/2008 Soil SO 00:00	19325-77 Trip Blank - 13/05/2008 Soil SO 00:00
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0
styrene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	mg/kg	<1.0	<1.0	<1.0	<1.0
isopropylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
tert-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
sec-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
hexachlorobutadiene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluorometha	%	88	91	84	75
Surrogate aaa-Trifluorotoluene	%	87	87	87	103
Surrogate Toluene-d_8	%	91	93	94	90
Surrogate 4-Bromofluorobenzene	%	78	77	75	79

vTPH & BTEX in Soil						
Our Reference:	UNITS	19325-2	19325-6	19325-24	19325-38	19325-43
Your Reference	-------------	130508-277 -KW	130508-281 -KW	130508-302 -KW	130508-316 -KW	130508-321 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	94	92	109	107	93

vTPH & BTEX in Soil						
Our Reference:	UNITS	19325-45	19325-46	19325-51	19325-54	19325-77
Your Reference	-------------	130508-323 -KW	130508-324 -KW	130508-329 -KW	130508-300 -KW	Trip Blank
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	123	110	111	97	103

vTPH & BTEX in Soil		
Our Reference:	**UNITS**	**19325-78**
Your Reference	-------------	**Trip Spike**
Depth	------------	**-**
Date Sampled		**13/05/2008**
Type of sample		**Soil**
Sample Matrix Code		**SO**
Time Sampled		**00:00**
Date extracted	-	16/05/2008
Date analysed	-	17/05/2008
Benzene	mg/kg	80%
Toluene	mg/kg	73%
Ethylbenzene	mg/kg	65%
m+p-xylene	mg/kg	65%
o-Xylene	mg/kg	60%
Surrogate aaa-Trifluorotoluene	%	96

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19325-2	19325-6	19325-24	19325-38	19325-43
Your Reference	-------------	130508-277 -KW	130508-281 -KW	130508-302 -KW	130508-316 -KW	130508-321 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	88	90	91	89	89

sTPH in Soil (C10-C36)					
Our Reference:	UNITS	19325-45	19325-46	19325-51	19325-54
Your Reference	-------------	130508-323 -KW	130508-324 -KW	130508-329 -KW	130508-300 -KW
Depth	------------	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
Surrogate o-Terphenyl	%	88	86	88	88

PAHs in Soil						
Our Reference:	UNITS	19325-6	19325-8	19325-24	19325-31	19325-38
Your Reference	-------------	130508-281 -KW	130508-283 -KW	130508-302 -KW	130508-309 -KW	130508-316 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Naphthalene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	1.7	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	3.4	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	4.0	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	1.9	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	2.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	3.9	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	2.5	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	2.0	0.2	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	1.6	0.2	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	106	107	103	106	107

PAHs in Soil						
Our Reference:	**UNITS**	**19325-43**	**19325-45**	**19325-46**	**19325-47**	**19325-48**
Your Reference	**-------------**	**130508-321 -KW**	**130508-323 -KW**	**130508-324 -KW**	**130508-325 -KW**	**130508-326 -KW**
Depth	**------------**	**-**	**-**	**-**	**-**	**-**
Date Sampled		**13/05/2008**	**13/05/2008**	**13/05/2008**	**13/05/2008**	**13/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**	**00:00**
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.5
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	1.0
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	1.0
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.5
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.5
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.7
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.4
Dibenzo(a,h)anthracene	mg/kg	<0.1	<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	0.2
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Surrogate p-Terphenyl-d_{14}	%	108	108	107	108	105

PAHs in Soil						
Our Reference:	**UNITS**	**19325-49**	**19325-50**	**19325-51**	**19325-52**	**19325-54**
Your Reference	-------------	**130508-327 -KW**	**130508-328 -KW**	**130508-329 -KW**	**130508-330 -KW**	**130508-300 -KW**
Depth	------------	-	-	-	-	-
Date Sampled		**13/05/2008**	**13/05/2008**	**13/05/2008**	**13/05/2008**	**13/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**	**00:00**
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.8	<0.1	0.1	0.6	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Fluoranthene	mg/kg	2.7	<0.1	0.2	1.2	<0.1
Pyrene	mg/kg	2.8	<0.1	0.2	1.3	<0.1
Benzo(a)anthracene	mg/kg	1.3	<0.1	<0.1	0.6	<0.1
Chrysene	mg/kg	1.8	<0.1	0.1	0.5	<0.1
Benzo(b+k)fluoranthene	mg/kg	3.0	<0.2	0.2	0.9	<0.2
Benzo(a)pyrene	mg/kg	1.5	0.09	0.1	0.5	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	1.2	<0.1	<0.1	0.3	<0.1
Benzo(g,h,i)perylene	mg/kg	1.1	<0.1	<0.1	0.3	<0.1
Surrogate p-Terphenyl-d_{14}	%	101	110	110	109	108

Organochlorine Pesticides in soil						
Our Reference:	UNITS	19325-7	19325-13	19325-19	19325-26	19325-27
Your Reference	-------------	130508-282 -KW	130508-289 -KW	130508-296 -KW	130508-304 -KW	130508-305 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	77	77	79	77	88

Organochlorine Pesticides in soil					
Our Reference:	**UNITS**	**19325-30**	**19325-36**	**19325-41**	**19325-44**
Your Reference	**-------------**	**130508-308 -KW**	**130508-314 -KW**	**130508-319 -KW**	**130508-322 -KW**
Depth	**------------**	**-**	**-**	**-**	**-**
Date Sampled		**13/05/2008**	**13/05/2008**	**13/05/2008**	**13/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	79	91	81	83

Organophosphorus Pesticides						
Our Reference:	UNITS	19325-7	19325-13	19325-19	19325-26	19325-27
Your Reference	-------------	130508-282 -KW	130508-289 -KW	130508-296 -KW	130508-304 -KW	130508-305 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	77	77	79	77	88

Organophosphorus Pesticides					
Our Reference:	UNITS	19325-30	19325-36	19325-41	19325-44
Your Reference	-------------	130508-308 -KW	130508-314 -KW	130508-319 -KW	130508-322 -KW
Depth	------------	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	79	91	81	83

PCBs in Soil						
Our Reference:	UNITS	19325-7	19325-13	19325-19	19325-26	19325-27
Your Reference	-------------	130508-282 -KW	130508-289 -KW	130508-296 -KW	130508-304 -KW	130508-305 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	77	77	79	77	88

PCBs in Soil					
Our Reference:	UNITS	19325-30	19325-36	19325-41	19325-44
Your Reference	-------------	130508-308 -KW	130508-314 -KW	130508-319 -KW	130508-322 -KW
Depth	------------	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	79	91	81	83

Total Phenolics in Soil					
Our Reference:	UNITS	19325-38	19325-45	19325-46	19325-49
Your Reference	-------------	130508-316 -KW	130508-323 -KW	130508-324 -KW	130508-327 -KW
Depth	------------	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	19/5/08	19/5/08	19/5/08	19/5/08
Date analysed	-	20/5/08	20/5/08	20/5/08	20/5/08
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0	<5.0	<5.0

Acid Extractable metals in soil						
Our Reference:	UNITS	19325-1	19325-5	19325-6	19325-7	19325-8
Your Reference	-------------	130508-276 -KW	130508-280 -KW	130508-281 -KW	130508-282 -KW	130508-283 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	21/05/2008	21/05/2008	21/05/2008	21/05/2008	21/05/2008
Arsenic	mg/kg	<4.0	12	<4.0	4.5	4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	4.5	7.3	8.4	16	19
Copper	mg/kg	78	15	2.0	45	66
Lead	mg/kg	52	45	4.3	110	120
Mercury	mg/kg	0.37	0.15	<0.10	0.16	0.16
Nickel	mg/kg	8.8	3.9	1.1	11	18
Zinc	mg/kg	81	14	3.6	150	110
Phosphorus	mg/kg	[NA]	[NA]	[NA]	380	[NA]

Acid Extractable metals in soil						
Our Reference:	UNITS	19325-11	19325-12	19325-14	19325-16	19325-17
Your Reference	-------------	130508-286 -KW	130508-287 -KW	130508-290 -KW	130508-292 -KW	130508-293 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	21/05/2008	21/05/2008	21/05/2008	21/05/2008	21/05/2008
Arsenic	mg/kg	<4.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	<1.0	<1.0	1.9	5.3	2.8
Copper	mg/kg	<1.0	<1.0	2.3	8.6	3.7
Lead	mg/kg	<1.0	<1.0	5.5	25	13
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	<1.0	<1.0	<1.0	2.5	<1.0
Zinc	mg/kg	3.5	1.3	6.5	38	17

Acid Extractable metals in soil						
Our Reference:	**UNITS**	**19325-19**	**19325-20**	**19325-24**	**19325-26**	**19325-27**
Your Reference	**-------------**	**130508-296 -KW**	**130508-297 -KW**	**130508-302 -KW**	**130508-304 -KW**	**130508-305 -KW**
Depth	**------------**	**-**	**-**	**-**	**-**	**-**
Date Sampled		**13/05/2008**	**13/05/2008**	**13/05/2008**	**13/05/2008**	**13/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**	**00:00**
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	21/05/2008	21/05/2008	21/05/2008	21/05/2008	21/05/2008
Arsenic	mg/kg	[NA]	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	[NA]	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	[NA]	1.0	<1.0	4.1	4.8
Copper	mg/kg	[NA]	<1.0	<1.0	13	17
Lead	mg/kg	[NA]	1.4	1.0	72	81
Mercury	mg/kg	[NA]	<0.10	<0.10	0.12	0.18
Nickel	mg/kg	[NA]	<1.0	<1.0	2.0	2.2
Zinc	mg/kg	[NA]	5.2	1.7	120	110
Phosphorus	mg/kg	200	[NA]	[NA]	340	340

Acid Extractable metals in soil						
Our Reference:	UNITS	19325-29	19325-30	19325-31	19325-33	19325-34
Your Reference	-------------	130508-307 -KW	130508-308 -KW	130508-309 -KW	130508-311 -KW	130508-312 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	21/05/2008	21/05/2008	21/05/2008	21/05/2008	21/05/2008
Arsenic	mg/kg	24	12	<4.0	<4.0	<4.0
Cadmium	mg/kg	1.3	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	59	8.8	<1.0	<1.0	<1.0
Copper	mg/kg	36	20	1.8	1.3	<1.0
Lead	mg/kg	92	36	<1.0	2.7	1.2
Mercury	mg/kg	0.58	0.29	<0.10	<0.10	<0.10
Nickel	mg/kg	15	4.5	<1.0	<1.0	<1.0
Zinc	mg/kg	250	42	<1.0	5.1	<1.0

Acid Extractable metals in soil						
Our Reference:	**UNITS**	**19325-38**	**19325-40**	**19325-41**	**19325-44**	**19325-45**
Your Reference	**-------------**	**130508-316 -KW**	**130508-318 -KW**	**130508-319 -KW**	**130508-322 -KW**	**130508-323 -KW**
Depth	**------------**	**-**	**-**	**-**	**-**	**-**
Date Sampled		**13/05/2008**	**13/05/2008**	**13/05/2008**	**13/05/2008**	**13/05/2008**
Type of sample		**Soil**	**Soil**	**Soil**	**Soil**	**Soil**
Sample Matrix Code		**SO**	**SO**	**SO**	**SO**	**SO**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**	**00:00**
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	21/05/2008	21/05/2008	21/05/2008	21/05/2008	21/05/2008
Arsenic	mg/kg	<4.0	<4.0	12	[NA]	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	[NA]	<1.0
Chromium	mg/kg	4.0	<1.0	12	[NA]	1.6
Copper	mg/kg	6.1	<1.0	20	[NA]	1.1
Lead	mg/kg	12	<1.0	21	[NA]	1.1
Mercury	mg/kg	<0.10	<0.10	<0.10	[NA]	<0.10
Nickel	mg/kg	<1.0	<1.0	2.6	[NA]	<1.0
Zinc	mg/kg	13	<1.0	36	[NA]	1.5
Phosphorus	mg/kg	[NA]	[NA]	[NA]	64	[NA]

Acid Extractable metals in soil						
Our Reference:	UNITS	19325-46	19325-47	19325-49	19325-50	19325-52
Your Reference	-------------	130508-324 -KW	130508-325 -KW	130508-327 -KW	130508-328 -KW	130508-330 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	21/05/2008	21/05/2008	21/05/2008	21/05/2008	21/05/2008
Arsenic	mg/kg	<4.0	<4.0	8.4	<4.0	19
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	2.4
Chromium	mg/kg	<1.0	1.4	28	6.5	50
Copper	mg/kg	<1.0	1.1	14	9.4	40
Lead	mg/kg	<1.0	2.9	45	56	120
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	0.65
Nickel	mg/kg	<1.0	1.3	1.3	3.6	15
Zinc	mg/kg	<1.0	9.7	20	42	260

Acid Extractable metals in soil		
Our Reference:	**UNITS**	**19325-54**
Your Reference	**-------------**	**130508-300 -KW**
Depth	**------------**	**-**
Date Sampled		**13/05/2008**
Type of sample		**Soil**
Sample Matrix Code		**SO**
Time Sampled		**00:00**
Date digested	-	19/05/2008
Date analysed	-	21/05/2008
Arsenic	mg/kg	4.2
Cadmium	mg/kg	<1.0
Chromium	mg/kg	13
Copper	mg/kg	18
Lead	mg/kg	41
Mercury	mg/kg	<0.10
Nickel	mg/kg	2.1
Zinc	mg/kg	31

Miscellaneous Inorg - soil						
Our Reference:	UNITS	19325-7	19325-10	19325-19	19325-22	19325-26
Your Reference	-------------	130508-282 -KW	130508-285 -KW	130508-296 -KW	130508-299 -KW	130508-304 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date analysed	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Ammonia as N in soil	mg/kg	1.6	[NA]	5.1	[NA]	<0.5
Nitrate as N in soil	mg/kg	<0.5	[NA]	2.3	[NA]	<0.5
Nitrite as N in soil	mg/kg	<0.1	[NA]	<0.1	[NA]	<0.1
Total Kjeldahl Nitrogen	mg/kg	610	[NA]	530	[NA]	480
Total Nitrogen in soil	mg/kg	610	[NA]	530	[NA]	480
pH 1:5 soil:water	pH Units	[NA]	7.3	[NA]	8.4	7.7
Electrical Conductivity 1:5 soil:water	µS/cm	[NA]	110	[NA]	90	110
Salinity as NACL *	mg/kg	[NA]	70	[NA]	58	70
Resistivity in soil*	ohm m	[NA]	91	[NA]	110	91
Chloride 1:5 soil:water	mg/kg	[NA]	<100	[NA]	<100	<100
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	<25	[NA]	<25	<25

Miscellaneous Inorg - soil			
Our Reference:	UNITS	19325-27	19325-44
Your Reference	-------------	130508-305 -KW	130508-322 -KW
Depth	------------	-	-
Date Sampled		13/05/2008	13/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	SO
Time Sampled		00:00	00:00
Date analysed	-	19/05/2008	19/05/2008
Ammonia as N in soil	mg/kg	0.6	2.2
Nitrate as N in soil	mg/kg	<0.5	<0.5
Nitrite as N in soil	mg/kg	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/kg	560	300
Total Nitrogen in soil	mg/kg	560	300
pH 1:5 soil:water	pH Units	7.7	[NA]
Electrical Conductivity 1:5 soil:water	µS/cm	110	[NA]
Salinity as NACL *	mg/kg	70	[NA]
Resistivity in soil*	ohm m	91	[NA]
Chloride 1:5 soil:water	mg/kg	<100	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	<25	[NA]

Moisture						
Our Reference:	UNITS	19325-1	19325-2	19325-5	19325-6	19325-7
Your Reference	-------------	130508-276 -KW	130508-277 -KW	130508-280 -KW	130508-281 -KW	130508-282 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	29	16	38	31	7.8

Moisture						
Our Reference:	UNITS	19325-8	19325-11	19325-12	19325-13	19325-14
Your Reference	-------------	130508-283 -KW	130508-286 -KW	130508-287 -KW	130508-289 -KW	130508-290 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	7.9	12	12	6.8	3.7

Moisture						
Our Reference:	UNITS	19325-16	19325-17	19325-19	19325-20	19325-24
Your Reference	-------------	130508-292 -KW	130508-293 -KW	130508-296 -KW	130508-297 -KW	130508-302 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	10	8.9	61	15	1.9

Moisture **Our Reference:** **Your Reference** **Depth** **Date Sampled** **Type of sample** **Sample Matrix Code** **Time Sampled**	**UNITS** **-------------** **------------**	**19325-26** **130508-304 -KW** **-** **13/05/2008** **Soil** **SO** **00:00**	**19325-27** **130508-305 -KW** **-** **13/05/2008** **Soil** **SO** **00:00**	**19325-29** **130508-307 -KW** **-** **13/05/2008** **Soil** **SO** **00:00**	**19325-30** **130508-308 -KW** **-** **13/05/2008** **Soil** **SO** **00:00**	**19325-31** **130508-309 -KW** **-** **13/05/2008** **Soil** **SO** **00:00**
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	5.7	4.8	56	4.0	1.8

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19325-33 130508-311 -KW - 13/05/2008 Soil SO 00:00	19325-34 130508-312 -KW - 13/05/2008 Soil SO 00:00	19325-36 130508-314 -KW - 13/05/2008 Soil SO 00:00	19325-38 130508-316 -KW - 13/05/2008 Soil SO 00:00	19325-40 130508-318 -KW - 13/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	2.6	7.7	8.3	16	4.2

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19325-41 130508-319 -KW - 13/05/2008 Soil SO 00:00	19325-43 130508-321 -KW - 13/05/2008 Soil SO 00:00	19325-44 130508-322 -KW - 13/05/2008 Soil SO 00:00	19325-45 130508-323 -KW - 13/05/2008 Soil SO 00:00	19325-46 130508-324 -KW - 13/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	7.8	15	3.5	9.1	7.4

Moisture **Our Reference:** **Your Reference** **Depth** **Date Sampled** **Type of sample** **Sample Matrix Code** **Time Sampled**	**UNITS** **-------------** **------------**	**19325-47** **130508-325-KW** **-** **13/05/2008** **Soil** **SO** **00:00**	**19325-48** **130508-326-KW** **-** **13/05/2008** **Soil** **SO** **00:00**	**19325-49** **130508-327-KW** **-** **13/05/2008** **Soil** **SO** **00:00**	**19325-50** **130508-328-KW** **-** **13/05/2008** **Soil** **SO** **00:00**	**19325-51** **130508-329-KW** **-** **13/05/2008** **Soil** **SO** **00:00**
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	3.8	24	13	7.5	26

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19325-52 130508-330-KW - 13/05/2008 Soil SO 00:00	19325-54 130508-300-KW - 13/05/2008 Soil SO 00:00	19325-77 Trip Blank - 13/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008
Moisture	%	47	19	0.10

Herbicides in Soil						
Our Reference:	UNITS	19325-10	19325-22	19325-26	19325-27	19325-44
Your Reference	-------------	130508-285 -KW	130508-299 -KW	130508-304 -KW	130508-305 -KW	130508-322 -KW
Depth	------------	-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Date Extracted	-	22/05/2008	22/05/2008	22/05/2008	22/05/2008	22/05/2008
Dicamba	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
MCPA	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorprop	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-D	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-T	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-TP	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-DB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
MCPP	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Triclopyr	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1

Asbestos ID - materials		
Our Reference:	UNITS	19325-53
Your Reference	-------------	130508-A1-KW
Depth	------------	-
Date Sampled		13/05/2008
Type of sample		Material
Sample Matrix Code		SO
Time Sampled		00:00
Date analysed	-	16/05/2008
Sample Description	-	60x80x4mm fibre cement sheet
Asbestos ID in materials	-	Chrysotile asbestos detected

sPOCAS Our Reference: Your Reference Depth Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19325-59 ABH255 2.4-2.6 8/05/2008 Soil SO 00:00	19325-67 ABH278 2.6-2.8 13/05/2008 Soil SO 00:00	19325-68 ABH274 2.5-2.7 13/05/2008 Soil SO 00:00	19325-75 ABH273 2.4-2.6 13/05/2008 Soil SO 00:00	19325-76 ABH276 2.6-2.8 13/05/2008 Soil SO 00:00
pH_{kcl}	pH units	8.4	5.8	7.1	6.8	6.4
TAA pH 6.5	moles H^+/ tonne	<5	<5	<5	<5	<5
s-TAA pH 6.5	%w/w S	<0.01	<0.01	<0.01	<0.01	<0.01
pH_{Ox}	pH units	2.5	2.3	2.4	2.2	2.3
TPA pH 6.5	moles H^+/ tonne	213	240	338	505	418
s-TPA pH 6.5	%w/w S	0.34	0.39	0.54	0.81	0.67
TSA pH 6.5	moles H^+/ tonne	213	240	338	505	418
s-TSA pH 6.5	%w/w S	0.34	0.39	0.54	0.81	0.67
ANC_E	% $CaCO_3$	<0.05	<0.05	<0.05	<0.05	<0.05
a-ANC_E	moles H^+/ tonne	<5	<5	<5	<5	<5
s-ANC_E	%w/w S	<0.05	<0.05	<0.05	<0.05	<0.05
S_{KCl}	%w/w	0.072	0.038	0.031	0.034	0.058
S_P	%w/w	0.58	0.68	0.81	1.1	1.2
S_{POS}	%w/w	0.51	0.65	0.78	1.0	1.1
a-S_{POS}	moles H^+/ tonne	317	402	489	645	692
Ca_{KCl}	%w/w	0.19	0.082	0.14	0.21	0.10
Ca_P	%w/w	0.25	0.090	0.20	0.26	0.10
Ca_A	%w/w	0.060	0.008	0.056	0.049	<0.005
Mg_{KCl}	%w/w	0.034	0.005	0.062	0.060	0.037
Mg_P	%w/w	0.027	0.007	0.073	0.065	0.039
Mg_A	%w/w	<0.005	<0.005	0.010	0.005	<0.005
SRAS	%w/w	<0.005	<0.005	<0.005	<0.005	<0.005
S_{HCl}	%w/w	0.057	0.029	0.057	0.041	0.058
S_{NAS}	%w/w	<0.005	<0.005	0.026	0.007	<0.005
a-S_{NAS}	moles H^+/ tonne	<5	<5	12	<5	<5
s-S_{NAS}	%w/w S	<0.01	<0.01	0.019	<0.01	<0.01
a-Net Acidity	moles H^+/ tonne	247	402	388	552	692
Liming rate	kg $CaCO_3$/tonne	19	30	29	41	52

Method ID	Methodology Summary
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
LAB.55	Nitrate water extractable - determined colourimetrically based on EPA114A.
LAB.56	Nitrite water extractable - determined colourimetrically based on EPA116A.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
LAB.66	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen.
LAB.1	pH - Measured using pH meter and electrode in accordance with APHA 20th ED, 4500-H+.
LAB.2	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA2510 20th ED and Rayment & Higginson.
LAB.11	Chloride determined by argentometric titration.
LAB.9	Sulphate determined turbidimetrically.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
AS4964-2004	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.
LAB.64	sPOCAS determined using titrimetric and ICP-AES techniques. Based on Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004.

Method ID	Methodology Summary

QUALITY CONTROL VOC's in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19325-8	16/05/2008 || 16/05/2008	LCS-2	16/5/08%
Date analysed	-			17/5/08	19325-8	17/05/2008 || 17/05/2008	LCS-2	17/5/08%
Dichlorodifluoromethane	mg/kg	10	GC.14	<10	19325-8	<10 || <10	[NR]	[NR]
Chloromethane	mg/kg	10	GC.14	<10	19325-8	<10 || <10	[NR]	[NR]
Vinyl Chloride	mg/kg	10	GC.14	<10	19325-8	<10 || <10	[NR]	[NR]
Bromomethane	mg/kg	10	GC.14	<10	19325-8	<10 || <10	[NR]	[NR]
Chloroethane	mg/kg	10	GC.14	<10	19325-8	<10 || <10	[NR]	[NR]
Trichlorofluoromethane	mg/kg	10	GC.14	<10	19325-8	<10 || <10	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	LCS-2	93%
cis-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
bromochloromethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
chloroform	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	LCS-2	84%
2,2-dichloropropane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	LCS-2	87%
1,1,1-trichloroethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	LCS-2	81%
1,1-dichloropropene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
carbon tetrachloride	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
Benzene	mg/kg	0.5	GC.14	<0.5	19325-8	<0.5 || <0.5	[NR]	[NR]
dibromomethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
trichloroethene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	LCS-2	116%
bromodichloromethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	LCS-2	114%
trans-1,3-dichloropropene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
Toluene	mg/kg	0.5	GC.14	<0.5	19325-8	<0.5 || <0.5	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
dibromochloromethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	LCS-2	111%
1,2-dibromoethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
tetrachloroethene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	LCS-2	111%
1,1,1,2-tetrachloroethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
chlorobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
Ethylbenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
bromoform	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
m+p-xylene	mg/kg	2	GC.14	<2.0	19325-8	<2.0 || <2.0	[NR]	[NR]
styrene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
o-Xylene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]

QUALITY CONTROL VOC's in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
1,2,3-trichloropropane*	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
isopropylbenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
bromobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
n-propyl benzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
2-chlorotoluene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
4-chlorotoluene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
tert-butyl benzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
sec-butyl benzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
n-butyl benzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,2-dibromo-3-chloropropane	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0 || <1.0	[NR]	[NR]
Surrogate Dibromofluorometha	%		GC.14	87	19325-8	88 || 85 || RPD: 3	LCS-2	85%
Surrogate aaa-Trifluorotoluene	%		GC.14	89	19325-8	87 || 93 || RPD: 7	LCS-2	105%
Surrogate Toluene-d_8	%		GC.14	94	19325-8	91 || 90 || RPD: 1	LCS-2	92%
Surrogate 4-Bromofluorobenzene	%		GC.14	93	19325-8	78 || 75 || RPD: 4	LCS-2	70%

QUALITY CONTROL **vTPH & BTEX in Soil**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-			16/5/08	19325-2	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Date analysed	-			17/5/08	19325-2	17/05/2008 || 17/05/2008	LCS-3	17/5/08%
vTPH C_6 - C_9	mg/kg	25	GC.16	<25	19325-2	<25 || <25	LCS-3	112%
Benzene	mg/kg	0.5	GC.14	<0.5	19325-2	<0.5 || <0.5	LCS-3	115%
Toluene	mg/kg	0.5	GC.14	<0.5	19325-2	<0.5 || <0.5	LCS-3	122%
Ethylbenzene	mg/kg	1	GC.14	<1.0	19325-2	<1.0 || <1.0	LCS-3	113%
m+p-xylene	mg/kg	2	GC.14	<2.0	19325-2	<2.0 || <2.0	LCS-3	125%
o-Xylene	mg/kg	1	GC.14	<1.0	19325-2	<1.0 || <1.0	LCS-3	127%
Surrogate aaa-Trifluorotoluene	%		GC.14	94	19325-2	94 || 93 || RPD: 1	LCS-3	78%
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19325-6	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19325-6	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
TPH C_{10} - C_{14}	mg/kg	50	GC.3	<50	19325-6	<50 || <50	LCS-3	75%
TPH C_{15} - C_{28}	mg/kg	100	GC.3	<100	19325-6	<100 || <100	LCS-3	81%
TPH C_{29} - C_{36}	mg/kg	100	GC.3	<100	19325-6	<100 || <100	LCS-3	92%
Surrogate o-Terphenyl	%		GC.3	94	19325-6	90 || 88 || RPD: 2	LCS-3	87%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19325-6	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19325-6	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Naphthalene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	LCS-3	108%
Acenaphthylene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	LCS-3	104%
Phenanthrene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	LCS-3	105%
Anthracene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	LCS-3	107%
Pyrene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	LCS-3	110%
Benzo(a)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	LCS-3	113%
Benzo(b+k)fluoranthene	mg/kg	0.2	GC.12 subset	<0.2	19325-6	<0.2 || <0.2	[NR]	[NR]

QUALITY CONTROL **PAHs in Soil**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	19325-6	<0.05 || <0.05	LCS-3	108%
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1 || <0.1	[NR]	[NR]
*Surrogate p-*Terphenyl-d_{14}	%		GC.12 subset	113	19325-6	106 || 107 || RPD: 1	LCS-3	109%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19325-7	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19325-7	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
HCB	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	LCS-3	91%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	LCS-3	106%
Heptachlor	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	LCS-3	101%
delta-BHC	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	LCS-3	98%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	LCS-3	100%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	LCS-3	103%
Dieldrin	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	LCS-3	103%
Endrin	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	LCS-3	94%
pp-DDD	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	LCS-3	107%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	LCS-3	100%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	81	19325-7	77 || 78 || RPD: 1	LCS-3	84%

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QUALITY CONTROL **Organophosphorus Pesticides**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-			16/5/08	19325-7	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19325-7	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Diazinon	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1 || <0.1	LCS-3	100%
Fenitrothion	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1 || <0.1	LCS-3	91%
Bromophos-ethyl	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1 || <0.1	LCS-3	122%
Surrogate TCLMX	%		GC.8	81	19325-7	77 || 78 || RPD: 1	LCS-3	88%
QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/5/08	19325-7	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19325-7	16/05/2008 || 16/05/2008	LCS-3	16/5/08%
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	19325-7	<0.1 || <0.1	LCS-3	95%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	19325-7	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	81	19325-7	77 || 78 || RPD: 1	LCS-3	130%
QUALITY CONTROL Total Phenolics in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			19/5/08	[NT]	[NT]	LCS-1	19/5/08%
Date analysed	-			20/5/08	[NT]	[NT]	LCS-1	20/5/08%
Total Phenolics (as Phenol)	mg/kg	5	LAB.30	<5.0	[NT]	[NT]	LCS-1	115%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			19/05/08	19325-1	19/05/2008 || 19/05/2008	LCS-3	19/05/08%
Date analysed	-			21/05/08	19325-1	21/05/2008 || 21/05/2008	LCS-3	21/05/08%
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4.0	19325-1	<4.0 || <4.0	LCS-3	97%
Cadmium	mg/kg	1	Metals.20 ICP-AES	<1.0	19325-1	<1.0 || <1.0	LCS-3	102%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1.0	19325-1	4.5 || 4.6 || RPD: 2	LCS-3	102%

QUALITY CONTROL **Acid Extractable metals in soil**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Copper	mg/kg	1	Metals.20 ICP-AES	<1.0	19325-1	78 || 79 || RPD: 1	LCS-3	103%
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	19325-1	52 || 54 || RPD: 4	LCS-3	98%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.10	19325-1	0.37 || 0.45 || RPD: 20	LCS-3	109%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1.0	19325-1	8.8 || 9.2 || RPD: 4	LCS-3	102%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1.0	19325-1	81 || 87 || RPD: 7	LCS-3	101%
Phosphorus	mg/kg	10	Metals.20 ICP-AES	<10	[NT]	[NT]	LCS-3	96%

QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Ammonia as N in soil	mg/kg	0.5	LAB.57	<0.5	[NT]	[NT]	LCS-1	84%
Nitrate as N in soil	mg/kg	0.5	LAB.55	<0.5	[NT]	[NT]	LCS-1	101%
Nitrite as N in soil	mg/kg	0.1	LAB.56	<0.1	[NT]	[NT]	LCS-1	104%
Total Kjeldahl Nitrogen	mg/kg	30	Ext-020	<30	[NT]	[NT]	LCS-1	116%
Total Nitrogen in soil	mg/kg	10	LAB.66	<10	[NT]	[NT]	[NR]	[NR]
pH 1:5 soil:water	pH Units		LAB.1	[NT]	19325-10	7.3 || 7.3 || RPD: 0	LCS-1	100%
Electrical Conductivity 1:5 soil:water	µS/cm	1	LAB.2	<1.0	19325-10	110 || 110 || RPD: 0	LCS-1	104%
Salinity as NACL *	mg/kg	1	LAB.2	<1.0	19325-10	70 || 70 || RPD: 0	[NR]	[NR]
Resistivity in soil*	ohm m	1	LAB.2	<1.0	19325-10	91 || 91 || RPD: 0	[NR]	[NR]
Chloride 1:5 soil:water	mg/kg	100	LAB.11	<100	19325-10	<100 || [N/T]	LCS-1	109%
Sulphate, SO4 1:5 soil:water	mg/kg	25	LAB.9	<25	19325-10	<25 || [N/T]	LCS-1	109%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD
Date prepared	-			16/5/08	19325-2	16/05/2008 || 16/05/2008
Date analysed	-			16/5/08	19325-2	16/05/2008 || 16/05/2008
Moisture	%	0.1	LAB.8	<0.10	19325-2	16 || 16 || RPD: 0

QUALITY CONTROL Herbicides in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Dicamba	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	98%
MCPA	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	114%
Dichlorprop	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	114%
2,4-D	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	126%
2,4,5-T	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	125%
2,4,5-TP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	112%
2,4-DB	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	104%

QUALITY CONTROL Herbicides in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
MCPP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	100%
Triclopyr	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	136%

QUALITY CONTROL Asbestos ID - materials	UNITS	PQL	METHOD	Blank
Date analysed	-			16/5/08

QUALITY CONTROL sPOCAS	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
pH $_{kcl}$	pH units		LAB.64	[NT]	[NT]	[NT]	LCS	100%
TAA pH 6.5	moles H^+/ tonne	5	LAB.64	<5	[NT]	[NT]	LCS	91%
s-TAA pH 6.5	%w/w S	0.01	LAB.64	<0.01	[NT]	[NT]	[NR]	[NR]
pH $_{Ox}$	pH units		LAB.64	[NT]	[NT]	[NT]	LCS	96%
TPA pH 6.5	moles H^+/ tonne	5	LAB.64	<5.0	[NT]	[NT]	LCS	92%
s-TPA pH 6.5	%w/w S	0.01	LAB.64	<0.01	[NT]	[NT]	[NR]	[NR]
TSA pH 6.5	moles H^+/ tonne	5	LAB.64	<5.0	[NT]	[NT]	LCS	92%
s-TSA pH 6.5	%w/w S	0.01	LAB.64	<0.01	[NT]	[NT]	[NR]	[NR]
ANC_E	% $CaCO_3$	0.05	LAB.64	<0.05	[NT]	[NT]	[NR]	[NR]
a-ANC_E	moles H^+/ tonne	5	LAB.64	<5	[NT]	[NT]	[NR]	[NR]
s-ANC_E	%w/w S	0.05	LAB.64	<0.05	[NT]	[NT]	[NR]	[NR]
S_{KCl}	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	93%
S_P	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	94%
S_{POS}	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
a-S_{POS}	moles H^+/ tonne	5	LAB.64	<5.0	[NT]	[NT]	[NR]	[NR]
Ca_{KCl}	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	97%
Ca_P	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	100%
Ca_A	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
Mg_{KCl}	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	92%
Mg_P	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	93%
Mg_A	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
SRAS	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL sPOCAS	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
S_{HCl}	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	92%
S_{NAS}	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
a-S_{NAS}	moles H^+/ tonne	5	LAB.64	<5	[NT]	[NT]	[NR]	[NR]
s-S_{NAS}	%w/w S	0.01	LAB.64	<0.01	[NT]	[NT]	[NR]	[NR]
a-Net Acidity	moles H^+/ tonne	10	LAB.64	<10	[NT]	[NT]	LCS	94%
Liming rate	kg $CaCO_3$ /tonne	0.75	LAB.64	<0.75	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19325-6	16/5/08%
Date analysed	-	[NT]	[NT]	19325-6	17/5/08%
vTPH C_6 - C_9	mg/kg	[NT]	[NT]	19325-6	103%
Benzene	mg/kg	[NT]	[NT]	19325-6	108%
Toluene	mg/kg	[NT]	[NT]	19325-6	112%
Ethylbenzene	mg/kg	[NT]	[NT]	19325-6	106%
m+p-xylene	mg/kg	[NT]	[NT]	19325-6	113%
o-Xylene	mg/kg	[NT]	[NT]	19325-6	115%
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	19325-6	89%

QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19325-24	16/5/08%
Date analysed	-	[NT]	[NT]	19325-24	16/5/08%
TPH C_{10} - C_{14}	mg/kg	[NT]	[NT]	19325-24	77%
TPH C_{15} - C_{28}	mg/kg	[NT]	[NT]	19325-24	83%
TPH C_{29} - C_{36}	mg/kg	[NT]	[NT]	19325-24	94%
Surrogate o-Terphenyl	%	[NT]	[NT]	19325-24	90%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19325-49	16/05/2008 || 16/05/2008	19325-24	16/5/08%
Date analysed	-	19325-49	16/05/2008 || 16/05/2008	19325-24	16/5/08%
Naphthalene	mg/kg	19325-49	<0.1 || <0.1	19325-24	105%
Acenaphthylene	mg/kg	19325-49	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	19325-49	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	19325-49	<0.1 || 0.1	19325-24	104%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Phenanthrene	mg/kg	19325-49	0.8 || 1.4 || RPD: 55	19325-24	107%
Anthracene	mg/kg	19325-49	0.1 || 0.3 || RPD: 100	[NR]	[NR]
Fluoranthene	mg/kg	19325-49	2.7 || 3.9 || RPD: 36	19325-24	107%
Pyrene	mg/kg	19325-49	2.8 || 4.1 || RPD: 38	19325-24	110%
Benzo(a)anthracene	mg/kg	19325-49	1.3 || 2.1 || RPD: 47	[NR]	[NR]
Chrysene	mg/kg	19325-49	1.8 || 2.6 || RPD: 36	19325-24	117%
Benzo(b+k)fluoranthene	mg/kg	19325-49	3.0 || 4.6 || RPD: 42	[NR]	[NR]
Benzo(a)pyrene	mg/kg	19325-49	1.5 || 2.5 || RPD: 50	19325-24	111%
Dibenzo(a,h)anthracene	mg/kg	19325-49	<0.1 || 0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	19325-49	1.2 || 2.1 || RPD: 55	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	19325-49	1.1 || 1.8 || RPD: 48	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%	19325-49	101 || 60 || RPD: 51	19325-24	107%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19325-13	16/5/08%
Date analysed	-	[NT]	[NT]	19325-13	16/5/08%
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	19325-13	98%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	19325-13	108%
Heptachlor	mg/kg	[NT]	[NT]	19325-13	108%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	19325-13	102%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	19325-13	102%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	19325-13	100%
Dieldrin	mg/kg	[NT]	[NT]	19325-13	102%
Endrin	mg/kg	[NT]	[NT]	19325-13	96%
pp-DDD	mg/kg	[NT]	[NT]	19325-13	101%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	19325-13	95%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19325-13	91%

QUALITY CONTROL Organophosphorus Pesticides	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-	[NT]	[NT]	19325-13	16/5/08%
Date analysed	-	[NT]	[NT]	19325-13	16/5/08%
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	19325-13	86%
Fenitrothion	mg/kg	[NT]	[NT]	19325-13	78%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	19325-13	103%
Surrogate TCLMX	%	[NT]	[NT]	19325-13	81%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19325-13	16/5/08%
Date analysed	-	[NT]	[NT]	19325-13	16/5/08%
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	19325-13	80%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19325-13	121%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19325-19	19/05/2008 || 19/05/2008	LCS-4	19/05/08%
Date analysed	-	19325-19	21/05/2008 || 21/05/2008	LCS-4	21/05/08%
Arsenic	mg/kg	[NT]	[NT]	LCS-4	98%
Cadmium	mg/kg	[NT]	[NT]	LCS-4	103%
Chromium	mg/kg	[NT]	[NT]	LCS-4	103%
Copper	mg/kg	[NT]	[NT]	LCS-4	103%
Lead	mg/kg	[NT]	[NT]	LCS-4	99%
Mercury	mg/kg	[NT]	[NT]	LCS-4	107%
Nickel	mg/kg	[NT]	[NT]	LCS-4	103%
Zinc	mg/kg	[NT]	[NT]	LCS-4	101%
Phosphorus	mg/kg	19325-19	200 || 200 || RPD: 0	LCS-4	96%

QUALITY CONTROL Miscellaneous Inorg - soil	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**	**Spike Sm#**	**Spike % Recovery**
Ammonia as N in soil	mg/kg	19325-7	1.6 || 1.6 || RPD: 0	19325-19	81%
Nitrate as N in soil	mg/kg	19325-7	<0.5 || <0.5	19325-19	91%
Nitrite as N in soil	mg/kg	19325-7	<0.1 || <0.1	19325-19	100%
pH 1:5 soil:water	pH Units	[NT]	[NT]	[NR]	[NR]
Electrical Conductivity 1:5 soil:water	µS/cm	[NT]	[NT]	[NR]	[NR]
Salinity as NACL *	mg/kg	[NT]	[NT]	[NR]	[NR]
Resistivity in soil*	ohm m	[NT]	[NT]	[NR]	[NR]
Chloride 1:5 soil:water	mg/kg	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4 1:5 soil:water	mg/kg	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19325-6	16/05/2008 || 16/05/2008
Date analysed	-	19325-6	16/05/2008 || 16/05/2008
Moisture	%	19325-6	31 || 31 || RPD: 0

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19325-38	19/05/2008 || 19/05/2008	19325-5	19/05/08%
Date analysed	-	19325-38	21/05/2008 || 21/05/2008	19325-5	21/05/08%
Arsenic	mg/kg	19325-38	<4.0 || <4.0	19325-5	106%
Cadmium	mg/kg	19325-38	<1.0 || <1.0	19325-5	102%
Chromium	mg/kg	19325-38	4.0 || 3.2 || RPD: 22	19325-5	107%
Copper	mg/kg	19325-38	6.1 || 6.5 || RPD: 6	19325-5	105%
Lead	mg/kg	19325-38	12 || 12 || RPD: 0	19325-5	98%
Mercury	mg/kg	19325-38	<0.10 || <0.10	19325-5	102%
Nickel	mg/kg	19325-38	<1.0 || <1.0	19325-5	104%
Zinc	mg/kg	19325-38	13 || 17 || RPD: 27	19325-5	105%
Phosphorus	mg/kg	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL Moisture	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**
Date prepared	-	19325-7	16/05/2008 || 16/05/2008
Date analysed	-	19325-7	16/05/2008 || 16/05/2008
Moisture	%	19325-7	7.8 || 7.8 || RPD: 0

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19325-54	19/05/2008 || 19/05/2008	19325-40	19/05/08%
Date analysed	-	19325-54	21/05/2008 || 21/05/2008	19325-40	21/05/08%
Arsenic	mg/kg	19325-54	4.2 || <4.0	19325-40	116%
Cadmium	mg/kg	19325-54	<1.0 || <1.0	19325-40	103%
Chromium	mg/kg	19325-54	13 || 12 || RPD: 8	19325-40	108%
Copper	mg/kg	19325-54	18 || 22 || RPD: 20	19325-40	113%
Lead	mg/kg	19325-54	41 || 50 || RPD: 20	19325-40	101%
Mercury	mg/kg	19325-54	<0.10 || <0.10	19325-40	112%
Nickel	mg/kg	19325-54	2.1 || 3.2 || RPD: 42	19325-40	104%
Zinc	mg/kg	19325-54	31 || 44 || RPD: 35	19325-40	101%
Phosphorus	mg/kg	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19325-8	16/05/2008 || 16/05/2008
Date analysed	-	19325-8	16/05/2008 || 16/05/2008
Moisture	%	19325-8	7.9 || 7.9 || RPD: 0

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19325-49	16/05/2008 || 16/05/2008
Date analysed	-	19325-49	16/05/2008 || 16/05/2008
Moisture	%	19325-49	13 || 13 || RPD: 0

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19325-1	16/05/2008 || 16/05/2008
Date analysed	-	19325-1	16/05/2008 || 16/05/2008
Moisture	%	19325-1	29 || 29 || RPD: 0

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19325-19	16/05/2008 || 16/05/2008
Date analysed	-	19325-19	16/05/2008 || 16/05/2008
Moisture	%	19325-19	61 || 61 || RPD: 0

QUALITY CONTROL Moisture	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**
Date prepared	-	19325-38	16/05/2008 || 16/05/2008
Date analysed	-	19325-38	16/05/2008 || 16/05/2008
Moisture	%	19325-38	16 || 16 || RPD: 0
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19325-54	16/05/2008 || 16/05/2008
Date analysed	-	19325-54	16/05/2008 || 16/05/2008
Moisture	%	19325-54	19 || 19 || RPD: 0

Report Comments:

Texture Classification:
10 = Sandy Loam
22 = Sandy Loam
26 = Sandy Loam
27 = Sandy Loam

TKN and Herbicides analysed by NMI: Report Number - RN680686

Asbestos was analysed by Approved Identifier: Joshua Lim

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 19429

Client:
Consulting Earth Scientists
Suite 121,
26-32 Pirrama Rd
Pyrmont
NSW 2009

Attention: Kelly Weir / Luke Jenkins

Sample log in details:

Your Reference:	**CES050706-BCC Area A**
No. of samples:	34 Soils
Date samples received:	16/05/08
Date completed instructions received:	16/05/08

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	23/05/08
Date of Preliminary Report:	not issued
Issue Date:	20/05/08

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Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:

Steve Dale
Approved identifier & Signatory

Asbestos ID - soils Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	19429-1 060508-52-KW 6/05/2008 Soil	19429-2 090508-208-KW 9/05/2008 Soil	19429-3 060508-46-KW 6/05/2008 Soil	19429-4 080508-161-KW 8/05/2008 Soil	19429-5 090508-207-KW 9/05/2008 Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil	30g soil	30g soil	30g soil	30g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Asbestos ID - soils Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	19429-6 070508-70-KW 7/05/2008 Soil	19429-7 060508-43-KW 6/05/2008 Soil	19429-8 060508-04-KW 6/05/2008 Soil	19429-9 080508-158-KW 8/05/2008 Soil	19429-10 070508-76-KW 7/05/2008 Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil	30g soil	30g soil	30g soil	30g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Asbestos ID - soils Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	19429-11 060508-33-KW 6/05/2008 Soil	19429-12 060508-10-KW 6/05/2008 Soil	19429-13 080508-151-KW 8/05/2008 Soil	19429-14 080508-141-KW 8/05/2008 Soil	19429-15 080508-102-KW 8/05/2008 Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil	30g soil	30g soil	30g soil	30g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Asbestos ID - soils **Our Reference:** **Your Reference** **Date Sampled** **Type of sample**	**UNITS** ------------- ------------	**19429-16** **080508-116-KW** **8/05/2008** **Soil**	**19429-17** **070508-84-KW** **7/05/2008** **Soil**	**19429-18** **080508-136-KW** **8/05/2008** **Soil**	**19429-19** **080508-105-KW** **8/05/2008** **Soil**	**19429-20** **120508-261-KW** **12/05/2008** **Soil**
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil	30g soil	30g soil	30g soil	30g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Asbestos ID - soils Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	19429-21 1250508-254-KW 12/05/2008 Soil	19429-22 120508-263-KW 12/05/2008 Soil	19429-23 120508-228-KW 12/05/2008 Soil	19429-24 130508-282-KW 13/05/2008 Soil	19429-25 130508-308-KW 13/05/2008 Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil	30g soil	30g soil	30g soil	30g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Asbestos ID - soils Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	19429-26 150508-391-KW 15/05/2008 Soil	19429-27 130508-328-KW 13/05/2008 Soil	19429-28 130508-289-KW 13/05/2008 Soil	19429-29 130508-317-KW 13/05/2008 Soil	19429-30 130508-302-KW 13/05/2008 Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil	30g soil	30g soil	30g soil	30g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Asbestos ID - soils Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	19429-31 150508-381-KW 15/05/2008 Soil	19429-32 150508-378/379-KW 15/05/2008 Soil	19429-33 150508-352/353/354-KW 15/05/2008 Soil	19429-34 150508-367-KW 15/05/2008 Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil	30g soil	30g soil	30g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Method ID	Methodology Summary
ASB.1	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.

Report Comments:

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample.
Envirolab recommends supplying 30-40g of sample in it's own container.
Asbestos was analysed by Approved Identifier: Steven Dale

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 19432-A

Client:
Consulting Earth Scientists
Suite 121,
26-32 Pirrama Rd
Pyrmont
NSW 2009

Attention: Luke Jenkins / Kelly Weir

Sample log in details:

Your Reference:	**CES050706-BCC Area A**
No. of samples:	Additional Testing on 2 Soils
Date samples received:	16/05/08
Date completed instructions received:	29/05/08

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	5/06/08
Date of Preliminary Report:	Not Issued
Issue Date:	3/06/08

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Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:

Jacinta Hurst
Operations Manager

ACCREDITED FOR TECHNICAL COMPETENCE

vTPH & BTEX in Soil			
Our Reference:	UNITS	19432-A-8	19432-A-16
Your Reference	-------------	150508-347-KW	150508-346-KW
Date Sampled	------------	15/05/2008	15/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	SO
Time Sampled		00:00	00:00
Date extracted	-	30/05/2008	30/05/2008
Date analysed	-	31/05/2008	31/05/2008
vTPH C_6 - C_9	mg/kg	<25	<25
Benzene	mg/kg	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	92	61

sTPH in Soil (C10-C36)			
Our Reference:	UNITS	19432-A-8	19432-A-16
Your Reference	-------------	150508-347-KW	150508-346-KW
Date Sampled	------------	15/05/2008	15/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	SO
Time Sampled		00:00	00:00
Date extracted	-	30/05/2008	30/05/2008
Date analysed	-	30/05/2008	30/05/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100
Surrogate o-Terphenyl	%	83	79

Moisture			
Our Reference:	UNITS	19432-A-8	19432-A-16
Your Reference	-------------	150508-347-KW	150508-346-KW
Date Sampled	------------	15/05/2008	15/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	SO
Time Sampled		00:00	00:00
Date prepared	-	30/05/2008	30/05/2008
Date analysed	-	30/05/2008	30/05/2008
Moisture	%	18	22

Method ID	Methodology Summary
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/5/08	[NT]	[NT]	LCS-2	30/5/08%
Date analysed	-			31/5/08	[NT]	[NT]	LCS-2	31/5/08%
vTPH C_6 - C_9	mg/kg	25	GC.16	<25	[NT]	[NT]	LCS-2	117%
Benzene	mg/kg	0.5	GC.14	<0.5	[NT]	[NT]	LCS-2	103%
Toluene	mg/kg	0.5	GC.14	<0.5	[NT]	[NT]	LCS-2	135%
Ethylbenzene	mg/kg	1	GC.14	<1.0	[NT]	[NT]	LCS-2	117%
m+p-xylene	mg/kg	2	GC.14	<2.0	[NT]	[NT]	LCS-2	114%
o-Xylene	mg/kg	1	GC.14	<1.0	[NT]	[NT]	LCS-2	118%
Surrogate aaa-Trifluorotoluene	%		GC.14	110	[NT]	[NT]	LCS-2	113%

QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			30/5/08	[NT]	[NT]	LCS-2	30/5/08%
Date analysed	-			30/5/08	[NT]	[NT]	LCS-2	30/5/08%
TPH C_{10} - C_{14}	mg/kg	50	GC.3	<50	[NT]	[NT]	LCS-2	88%
TPH C_{15} - C_{28}	mg/kg	100	GC.3	<100	[NT]	[NT]	LCS-2	88%
TPH C_{29} - C_{36}	mg/kg	100	GC.3	<100	[NT]	[NT]	LCS-2	104%
Surrogate o-Terphenyl	%		GC.3	82	[NT]	[NT]	LCS-2	81%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			30/5/08
Date analysed	-			30/5/08
Moisture	%	0.1	LAB.8	<0.10

Report Comments:

Asbestos was analysed by Approved Identifier: Not applicable for this job

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

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Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 19834

Client:
Consulting Earth Scientists
Suite 121,
26-32 Pirrama Rd
Pyrmont
NSW 2009

Attention: Luke Jenkins

Sample log in details:

Your Reference:	**CES050706-BCC, Area A Water**
No. of samples:	15 Waters
Date samples received:	30/05/08
Date completed instructions received:	30/05/08

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	10/06/08
Date of Preliminary Report:	Not Issued
Issue Date:	10/06/08

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Results Approved By:

David Springer
Business Development & Quality Manager

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VOCs in water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference	-------------	290508-01-	290508-04-	290508-05-	290508-06-	290508-08-
Date Sampled	------------	29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,2-dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Cis-1,2-dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromomethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0

VOCs in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-1 290508-01- 29/05/2008 Water WG 00:00	19834-4 290508-04- 29/05/2008 Water WG 00:00	19834-5 290508-05- 29/05/2008 Water WG 00:00	19834-6 290508-06- 29/05/2008 Water WG 00:00	19834-7 290508-08- 29/05/2008 Water WG 00:00
Styrene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
o-xylene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Tert-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Sec-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%	92	92	89	86	85
Surrogate toluene-d8	%	92	93	94	92	87
Surrogate 4-BFB	%	86	89	84	89	73

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VOCs in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-8 290508-09- 30/05/2008 Water WG 00:00	19834-9 290508-10- 30/05/2008 Water WG 00:00	19834-10 290508-11- 30/05/2008 Water WG 00:00	19834-11 290508-12- 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0
Trans-1,2-dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0
Cis-1,2-dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	µg/L	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	µg/L	<1.0	<1.0	<1.0	<1.0
Benzene	µg/L	<1.0	<1.0	<1.0	<1.0
Dibromomethane	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0
Trichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	µg/L	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0	<1.0	<1.0
1,3-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	µg/L	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	µg/L	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	µg/L	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0
m+p-xylene	µg/L	<2.0	<2.0	<2.0	<2.0
Styrene	µg/L	<1.0	<1.0	<1.0	<1.0

VOCs in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-8 290508-09- 30/05/2008 Water WG 00:00	19834-9 290508-10- 30/05/2008 Water WG 00:00	19834-10 290508-11- 30/05/2008 Water WG 00:00	19834-11 290508-12- 30/05/2008 Water WG 00:00
1,1,2,2-tetrachloroethane	µg/L	<1.0	<1.0	<1.0	<1.0
o-xylene	µg/L	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	µg/L	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Bromobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	µg/L	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	µg/L	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0
Tert-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Sec-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	µg/L	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	µg/L	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%	85	86	95	86
Surrogate toluene-d8	%	89	92	88	90
Surrogate 4-BFB	%	79	83	84	80

vTPH & BTEX in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-1 290508-01- 29/05/2008 Water WG 00:00	19834-2 290508-02- 29/05/2008 Water WG 00:00	19834-3 290508-03- 29/05/2008 Water WG 00:00	19834-4 290508-04- 29/05/2008 Water WG 00:00	19834-5 290508-05- 29/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C_6 - C_9	µg/L	<10	650	72	<10	<10
Benzene	µg/L	[NA]	190	3.8	[NA]	[NA]
Toluene	µg/L	[NA]	70	<1.0	[NA]	[NA]
Ethylbenzene	µg/L	[NA]	60	1.0	[NA]	[NA]
m+p-xylene	µg/L	[NA]	150	18	[NA]	[NA]
o-xylene	µg/L	[NA]	30	8.0	[NA]	[NA]
Surrogate Dibromofluoromethane	%	92	81	75	92	89
Surrogate toluene-d8	%	92	108	108	93	94
Surrogate 4-BFB	%	86	100	98	89	84

vTPH & BTEX in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-6 290508-06- 29/05/2008 Water WG 00:00	19834-7 290508-08- 29/05/2008 Water WG 00:00	19834-8 290508-09- 30/05/2008 Water WG 00:00	19834-9 290508-10- 30/05/2008 Water WG 00:00	19834-10 290508-11- 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
Surrogate Dibromofluoromethane	%	86	85	85	86	95
Surrogate toluene-d8	%	92	87	89	92	88
Surrogate 4-BFB	%	89	73	79	83	84

vTPH & BTEX in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-11 290508-12- 30/05/2008 Water WG 00:00	19834-12 290508-13- 30/05/2008 Water WG 00:00	19834-13 290508-14- 30/05/2008 Water WG 00:00	19834-14 Trip Spike 30/05/2008 Water WG 00:00	19834-15 Trip Blank 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C_6 - C_9	µg/L	<10	<10	<10	[NA]	[NA]
Benzene	µg/L	[NA]	<1.0	<1.0	89%	<1.0
Toluene	µg/L	[NA]	<1.0	<1.0	121%	<1.0
Ethylbenzene	µg/L	[NA]	<1.0	<1.0	123%	<1.0
m+p-xylene	µg/L	[NA]	<2.0	<2.0	122%	<2.0

vTPH & BTEX in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-11 290508-12- 30/05/2008 Water WG 00:00	19834-12 290508-13- 30/05/2008 Water WG 00:00	19834-13 290508-14- 30/05/2008 Water WG 00:00	19834-14 Trip Spike 30/05/2008 Water WG 00:00	19834-15 Trip Blank 30/05/2008 Water WG 00:00
o-xylene	µg/L	[NA]	<1.0	<1.0	123%	<1.0
Surrogate Dibromofluoromethane	%	86	78	76	81	85
Surrogate toluene-d8	%	90	102	98	103	100
Surrogate 4-BFB	%	80	99	95	96	100

sTPH in Water (C10-C36)						
Our Reference:	UNITS	19834-1	19834-2	19834-3	19834-4	19834-5
Your Reference	-------------	290508-01-	290508-02-	290508-03-	290508-04-	290508-05-
Date Sampled	------------	29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	4/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	4/06/2008	3/06/2008	3/06/2008
TPH C_{10} - C_{14}	µg/L	<50	550	<50	<50	<50
TPH C_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	118	137	102	102	111

sTPH in Water (C10-C36)						
Our Reference:	UNITS	19834-6	19834-7	19834-8	19834-9	19834-10
Your Reference	-------------	290508-06-	290508-08-	290508-09-	290508-10-	290508-11-
Date Sampled	------------	29/05/2008	29/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	119	63	99	88	83

sTPH in Water (C10-C36)		
Our Reference:	UNITS	19834-11
Your Reference	-------------	290508-12-
Date Sampled	------------	30/05/2008
Type of sample		Water
Sample Matrix Code		WG
Time Sampled		00:00
Date extracted	-	3/06/2008
Date analysed	-	3/06/2008
TPH C_{10} - C_{14}	µg/L	<50
TPH C_{15} - C_{28}	µg/L	<100
TPH C_{29} - C_{36}	µg/L	<100
Surrogate o-Terphenyl	%	91

PAHs in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-1 290508-01- 29/05/2008 Water WG 00:00	19834-4 290508-04- 29/05/2008 Water WG 00:00	19834-5 290508-05- 29/05/2008 Water WG 00:00	19834-6 290508-06- 29/05/2008 Water WG 00:00	19834-7 290508-08- 29/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Naphthalene	µg/L	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1	<1
Surrogate p-Terphenyl-d_{14}	%	91	104	100	109	87

PAHs in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-8 290508-09- 30/05/2008 Water WG 00:00	19834-9 290508-10- 30/05/2008 Water WG 00:00	19834-10 290508-11- 30/05/2008 Water WG 00:00	19834-11 290508-12- 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Naphthalene	µg/L	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1
Surrogate p-Terphenyl-d_{14}	%	115	116	99	95

OCP in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-1 290508-01- 29/05/2008 Water WG 00:00	19834-4 290508-04- 29/05/2008 Water WG 00:00	19834-5 290508-05- 29/05/2008 Water WG 00:00	19834-6 290508-06- 29/05/2008 Water WG 00:00	19834-7 290508-08- 29/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
HCB	µg/L	<0.2	<2	<0.2	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<2	<0.2	<0.2	<0.2
DDT	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	95	82	92	94	65

OCP in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-8 290508-09- 30/05/2008 Water WG 00:00	19834-9 290508-10- 30/05/2008 Water WG 00:00	19834-10 290508-11- 30/05/2008 Water WG 00:00	19834-11 290508-12- 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
HCB	µg/L	<0.2	<0.2	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2	<0.2	<0.2
DDT	µg/L	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	101	93	91	107

OP Pesticides in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-1 290508-01- 29/05/2008 Water WG 00:00	19834-4 290508-04- 29/05/2008 Water WG 00:00	19834-5 290508-05- 29/05/2008 Water WG 00:00	19834-6 290508-06- 29/05/2008 Water WG 00:00	19834-7 290508-08- 29/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Diazinon	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Dimethoate	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Ronnel	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Ethion	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	95	82	92	94	65

OP Pesticides in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-8 290508-09- 30/05/2008 Water WG 00:00	19834-9 290508-10- 30/05/2008 Water WG 00:00	19834-10 290508-11- 30/05/2008 Water WG 00:00	19834-11 290508-12- 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Diazinon	µg/L	<0.2	<0.2	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	101	93	91	107

PCBs in Water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference	-------------	290508-01-	290508-04-	290508-05-	290508-06-	290508-08-
Date Sampled	------------	29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Arochlor 1016	µg/L	<2	<20	<2	<2	<2
Arochlor 1232	µg/L	<2	<20	<2	<2	<2
Arochlor 1242	µg/L	<2	<20	<2	<2	<2
Arochlor 1248	µg/L	<2	<20	<2	<2	<2
Arochlor 1254	µg/L	<2	<20	<2	<2	<2
Arochlor 1260	µg/L	<2	<20	<2	<2	<2
Surrogate TCLMX	%	95	82	92	94	65

PCBs in Water					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference	-------------	290508-09-	290508-10-	290508-11-	290508-12-
Date Sampled	------------	30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Arochlor 1016	µg/L	<2	<2	<2	<2
Arochlor 1232	µg/L	<2	<2	<2	<2
Arochlor 1242	µg/L	<2	<2	<2	<2
Arochlor 1248	µg/L	<2	<2	<2	<2
Arochlor 1254	µg/L	<2	<2	<2	<2
Arochlor 1260	µg/L	<2	<2	<2	<2
Surrogate TCLMX	%	101	93	91	107

Total Phenolics in Water		
Our Reference:	UNITS	19834-1
Your Reference	-------------	290508-01-
Date Sampled	------------	29/05/2008
Type of sample		Water
Sample Matrix Code		WG
Time Sampled		00:00
Date extracted	-	2/06/2008
Date analysed	-	3/06/2008
Total Phenolics (as Phenol)	mg/L	<0.050

Ion Balance Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-1 290508-01- 29/05/2008 Water WG 00:00	19834-4 290508-04- 29/05/2008 Water WG 00:00	19834-5 290508-05- 29/05/2008 Water WG 00:00	19834-6 290508-06- 29/05/2008 Water WG 00:00	19834-7 290508-08- 29/05/2008 Water WG 00:00
Date prepared	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Date analysed	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Calcium - Dissolved	mg/L	320	260	81	78	230
Potassium - Dissolved	mg/L	63	43	19	19	47
Sodium - Dissolved	mg/L	2,000	760	120	120	620
Magnesium - Dissolved	mg/L	220	89	24	24	110
Carbonate Alkalinity as $CaCO_3$	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Bicarbonate Alkalinity as $CaCO_3$	mg/L	630	540	150	150	490
Sulphate, SO4	mg/L	360	410	140	130	650
Chloride (titration) - water	mg/L	3,300	1,300	210	230	1,100

Ion Balance Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-8 290508-09- 30/05/2008 Water WG 00:00	19834-9 290508-10- 30/05/2008 Water WG 00:00	19834-10 290508-11- 30/05/2008 Water WG 00:00	19834-11 290508-12- 30/05/2008 Water WG 00:00
Date prepared	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Date analysed	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Calcium - Dissolved	mg/L	600	610	610	110
Potassium - Dissolved	mg/L	130	93	92	68
Sodium - Dissolved	mg/L	4,600	1,600	1,500	2,100
Magnesium - Dissolved	mg/L	450	330	320	230
Carbonate Alkalinity as $CaCO_3$	mg/L	<0.1	<0.1	<0.1	<0.1
Bicarbonate Alkalinity as $CaCO_3$	mg/L	470	810	810	110
Sulphate, SO4	mg/L	1,300	2,300	2,400	390
Chloride (titration) - water	mg/L	8,900	2,000	2,100	3,300

HM in water - dissolved						
Our Reference:	UNITS	19834-1	19834-2	19834-3	19834-4	19834-5
Your Reference	-------------	290508-01-	290508-02-	290508-03-	290508-04-	290508-05-
Date Sampled	------------	29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Date analysed	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Arsenic-Dissolved	µg/L	9.5	[NA]	[NA]	5.6	11
Cadmium-Dissolved	µg/L	0.20	[NA]	[NA]	<0.10	<0.10
Chromium-Dissolved	µg/L	<1.0	[NA]	[NA]	2.7	<1.0
Copper-Dissolved	µg/L	3.9	[NA]	[NA]	2.1	<1.0
Lead-Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury-Dissolved	µg/L	<0.50	[NA]	[NA]	<0.50	<0.50
Nickel-Dissolved	µg/L	5.9	[NA]	[NA]	2.6	1.1
Zinc-Dissolved	µg/L	<1.0	[NA]	[NA]	1.2	<1.0

HM in water - dissolved						
Our Reference:	UNITS	19834-6	19834-7	19834-8	19834-9	19834-10
Your Reference	-------------	290508-06-	290508-08-	290508-09-	290508-10-	290508-11-
Date Sampled	------------	29/05/2008	29/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Date analysed	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Arsenic-Dissolved	µg/L	11	6.1	14	5.7	5.5
Cadmium-Dissolved	µg/L	<0.10	0.30	0.20	0.20	0.10
Chromium-Dissolved	µg/L	1.1	5.3	11	1.5	1.5
Copper-Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Lead-Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury-Dissolved	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Nickel-Dissolved	µg/L	1.0	4.4	64	11	11
Zinc-Dissolved	µg/L	<1.0	5.9	82	5.9	5.7

HM in water - dissolved Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-11 290508-12- 30/05/2008 Water WG 00:00	19834-13 290508-14- 30/05/2008 Water WG 00:00
Date prepared	-	6/06/2008	6/06/2008
Date analysed	-	6/06/2008	6/06/2008
Arsenic-Dissolved	µg/L	4.9	[NA]
Cadmium-Dissolved	µg/L	0.10	[NA]
Chromium-Dissolved	µg/L	1.6	[NA]
Copper-Dissolved	µg/L	<1.0	[NA]
Lead-Dissolved	µg/L	<1.0	<1.0
Mercury-Dissolved	µg/L	<0.50	[NA]
Nickel-Dissolved	µg/L	<1.0	[NA]
Zinc-Dissolved	µg/L	<1.0	[NA]

Miscellaneous Inorganics						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference	-------------	290508-01-	290508-04-	290508-05-	290508-06-	290508-08-
Date Sampled	------------	29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Date analysed	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Ammonia as N in water	mg/L	4.1	2.4	2.0	2.1	7.2
Total Nitrogen	mg/L	5.0	5.1	3.4	3.4	6.0
Phosphorus - Total	mg/L	0.87	0.81	1.3	1.1	0.28
Salinity as NaCl	g/L	7.0	3.3	<1.0	<1.0	2.9
Total Dissolved Solids (grav)	mg/L	7,500	3,600	800	900	3,600

Miscellaneous Inorganics					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference	-------------	290508-09-	290508-10-	290508-11-	290508-12-
Date Sampled	------------	30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00
Date prepared	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Date analysed	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Ammonia as N in water	mg/L	5.1	3.1	3.1	1.9
Total Nitrogen	mg/L	7.8	7.0	6.9	2.7
Phosphorus - Total	mg/L	0.24	1.1	1.3	<0.05
Salinity as NaCl	g/L	15	6.2	6.1	6.4
Total Dissolved Solids (grav)	mg/L	16,000	8,900	7,600	8,600

Method ID	Methodology Summary
GC.13	Water samples are analysed directly by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
LAB.6	Alkalinity - determined titrimetrically in accordance with APHA 20th ED, 2320-B.
LAB.9	Sulphate determined turbidimetrically.
LAB.11	Chloride determined by argentometric titration.
Metals.22 ICP-MS	Determination of various metals by ICP-MS.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
LAB.2	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA2510 20th ED and Rayment & Higginson.
LAB.18	Total Dissolved Solids - determined gravimetrically by drying the sample, in accordance with APHA 20th ED, 2540-C.

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			4/6/08	[NT]	[NT]	LCS-W1	4/6/08%
Dichlorodifluoromethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethen e	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	72%
Cis-1,2-dichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	84%
2,2-dichloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	92%
1,1,1-trichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	90%
1,1-dichloropropene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	93%
Bromodichloromethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	108%
trans-1,3-dichloropropen e	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	115%
1,2-dibromoethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	120%
1,1,1,2-tetrachloroethan e	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
m+p-xylene	µg/L	2	GC.13	<2.0	[NT]	[NT]	[NR]	[NR]
Styrene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethan e	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
o-xylene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		GC.13	128	[NT]	[NT]	LCS-W1	87%
Surrogate toluene-d8	%		GC.13	89	[NT]	[NT]	LCS-W1	110%
Surrogate 4-BFB	%		GC.13	87	[NT]	[NT]	LCS-W1	97%

QUALITY CONTROL vTPH & BTEX in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
TPH C_6 - C_9	µg/L	10	GC.16	<10	[NT]	[NT]	LCS-W1	117%
Benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	96%
Toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	121%
Ethylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	123%
m+p-xylene	µg/L	2	GC.13	<2.0	[NT]	[NT]	LCS-W1	123%
o-xylene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	124%
Surrogate Dibromofluoromethane	%		GC.13	128	[NT]	[NT]	LCS-W1	87%
Surrogate toluene-d8	%		GC.13	89	[NT]	[NT]	LCS-W1	105%
Surrogate 4-BFB	%		GC.13	87	[NT]	[NT]	LCS-W1	105%
QUALITY CONTROL sTPH in Water (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
TPH C_{10} - C_{14}	µg/L	50	GC.3	<50	[NT]	[NT]	LCS-W1	85%
TPH C_{15} - C_{28}	µg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	99%
TPH C_{29} - C_{36}	µg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	106%
Surrogate o-Terphenyl	%		GC.3	111	[NT]	[NT]	LCS-W1	119%
QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Naphthalene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	99%
Acenaphthylene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	76%
Phenanthrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	96%
Anthracene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	92%
Pyrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	97%
Benzo(a)anthracene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Chrysene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	115%
Benzo(b+k)fluoranthene	µg/L	2	GC.12 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	82%
Indeno(1,2,3-c,d)pyrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		GC.12 subset	140	[NT]	[NT]	LCS-W1	107%

QUALITY CONTROL OCP in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
HCB	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	128%
gamma-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	114%
Heptachlor	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	96%
delta-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	95%
Heptachlor Epoxide	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	97%
gamma-Chlordane	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan I	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDE	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	110%
Dieldrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	99%
Endrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	112%
pp-DDD	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	121%
Endosulfan II	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
DDT	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	101%
Methoxychlor	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-5	89	[NT]	[NT]	LCS-W1	101%

QUALITY CONTROL OP Pesticides in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Diazinon	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Dimethoate	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ronnel	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	103%
Fenitrothion	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	79%
Bromophos ethyl	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ethion	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	129%
Surrogate TCLMX	%		GC.8	89	[NT]	[NT]	LCS-W1	110%

QUALITY CONTROL PCBs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Arochlor 1016	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	µg/L	2	GC-6	<2	[NT]	[NT]	LCS-W1	88%
Arochlor 1260	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-6	89	[NT]	[NT]	LCS-W1	71%

QUALITY CONTROL Total Phenolics in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			2/6/08	[NT]	[NT]	LCS-W1	2/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Total Phenolics (as Phenol)	mg/L	0.05	LAB.30	<0.050	[NT]	[NT]	LCS-W1	107%

QUALITY CONTROL Ion Balance	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			2/6/08	19834-1	2/06/2008 || 2/06/2008	LCS-W1	2/6/08%
Date analysed	-			2/6/08	19834-1	2/06/2008 || 2/06/2008	LCS-W1	2/6/08%
Calcium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	320 || [N/T]	LCS-W1	105%
Potassium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	63 || [N/T]	LCS-W1	103%
Sodium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	2000 || [N/T]	LCS-W1	107%
Magnesium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	220 || [N/T]	LCS-W1	104%

QUALITY CONTROL **Ion Balance**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Carbonate Alkalinity as $CaCO_3$	mg/L	0.1	LAB.6	<0.1	19834-1	<0.1 || <0.1	LCS-W1	100%
Bicarbonate Alkalinity as $CaCO_3$	mg/L	0.1	LAB.6	<0.1	19834-1	630 || 610 || RPD: 3	LCS-W1	100%
Sulphate, SO4	mg/L	5	LAB.9	<5	19834-1	360 || 360 || RPD: 0	LCS-W1	110%
Chloride (titration) - water	mg/L	20	LAB.11	<20	19834-1	3300 || 3300 || RPD: 0	LCS-W1	105%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			6/6/08	[NT]	[NT]	LCS-W1	6/6/08%
Date analysed	-			6/6/08	[NT]	[NT]	LCS-W1	6/6/08%
Arsenic-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	104%
Cadmium-Dissolved	µg/L	0.1	Metals.22 ICP-MS	<0.10	[NT]	[NT]	LCS-W1	107%
Chromium-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	102%
Copper-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	103%
Lead-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	102%
Mercury-Dissolved	µg/L	0.5	Metals.21 CV-AAS	<0.50	[NT]	[NT]	LCS-W1	82%
Nickel-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	100%
Zinc-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	114%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			31/5/08	19834-1	31/05/2008 || 31/05/2008	LCS-W1	31/5/08%
Date analysed	-			31/5/08	19834-1	31/05/2008 || 31/05/2008	LCS-W1	31/5/08%
Ammonia as N in water	mg/L	0.1	LAB.57	<0.1	19834-1	4.1 || 3.9 || RPD: 5	LCS-W1	113%
Total Nitrogen	mg/L	0.05	Ext-020	<0.05	19834-1	5.0 || 4.6 || RPD: 8	LCS-W1	102%
Phosphorus - Total	mg/L	0.05	Metals.20 ICP-AES	<0.05	19834-1	0.87 || 0.80 || RPD: 8	LCS-W1	94%
Salinity as NaCl	g/L	1	LAB.2	<1.0	19834-1	7.0 || 7.0 || RPD: 0	LCS-W1	103%
Total Dissolved Solids (grav)	mg/L	5	LAB.18	<5	19834-1	7500 || [N/T]	LCS-W1	95%

QUALITY CONTROL Ion Balance	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19834-8	2/06/2008 || 2/06/2008
Date analysed	-	19834-8	2/06/2008 || 2/06/2008
Calcium - Dissolved	mg/L	19834-8	600 || 610 || RPD: 2
Potassium - Dissolved	mg/L	19834-8	130 || 130 || RPD: 0
Sodium - Dissolved	mg/L	19834-8	4600 || 4600 || RPD: 0
Magnesium - Dissolved	mg/L	19834-8	450 || 450 || RPD: 0

QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	19834-1	31/5/08%
Date analysed	-	[NT]	[NT]	19834-1	31/5/08%
Ammonia as N in water	mg/L	[NT]	[NT]	[NR]	[NR]
Total Nitrogen	mg/L	[NT]	[NT]	19834-1	104%
Phosphorus - Total	mg/L	[NT]	[NT]	[NR]	[NR]
Salinity as NaCl	g/L	[NT]	[NT]	[NR]	[NR]
Total Dissolved Solids (grav)	mg/L	[NT]	[NT]	[NR]	[NR]

Report Comments:
Nitrate and Nitrite: PQL raised due to matrix interferences.

OCP/OP/PCB's in soil: Sample 4 - PQL raised due to sample matrix.

Total Nitrogen as N analysed by NMI: Report Nummber - RN682954.

Ammonia in water: Spike recovery failed due to high amount of analyte present in the sample.
Asbestos was analysed by Approved Identifier: Not applicable for this job

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:
Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 19834

Client:
Consulting Earth Scientists
Suite 121,
26-32 Pirrama Rd
Pyrmont
NSW 2009

Attention: Luke Jenkins

Sample log in details:

Your Reference:	**CES050706-BCC, Area A Water**
No. of samples:	15 Waters
Date samples received:	30/05/08
Date completed instructions received:	30/05/08

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	10/06/08
Date of Preliminary Report:	Not Issued
Issue Date:	16/06/08

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Tests not covered by NATA are denoted with *.

Results Approved By:

Jacinta Hurst
Operations Manager

David Springer
Business Development & Quality Manager

ACCREDITED FOR TECHNICAL COMPETENCE

VOCs in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-1 290508-01-LJ 29/05/2008 Water WG 00:00	19834-4 290508-04-LJ 29/05/2008 Water WG 00:00	19834-5 290508-05-LJ 29/05/2008 Water WG 00:00	19834-6 290508-06-LJ 29/05/2008 Water WG 00:00	19834-7 290508-08-LJ 29/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,2-dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Cis-1,2-dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromomethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0

VOCs in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-1 290508-01-LJ 29/05/2008 Water WG 00:00	19834-4 290508-04-LJ 29/05/2008 Water WG 00:00	19834-5 290508-05-LJ 29/05/2008 Water WG 00:00	19834-6 290508-06-LJ 29/05/2008 Water WG 00:00	19834-7 290508-08-LJ 29/05/2008 Water WG 00:00
Styrene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
o-xylene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Tert-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Sec-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%	92	92	89	86	85
Surrogate toluene-d8	%	92	93	94	92	87
Surrogate 4-BFB	%	86	89	84	89	73

VOCs in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-8 290508-09-LJ 30/05/2008 Water WG 00:00	19834-9 290508-10-LJ 30/05/2008 Water WG 00:00	19834-10 290508-11-LJ 30/05/2008 Water WG 00:00	19834-11 290508-12-LJ 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0
Trans-1,2-dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0
Cis-1,2-dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	µg/L	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	µg/L	<1.0	<1.0	<1.0	<1.0
Benzene	µg/L	<1.0	<1.0	<1.0	<1.0
Dibromomethane	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0
Trichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	µg/L	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0	<1.0	<1.0
1,3-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	µg/L	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	µg/L	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	µg/L	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0
m+p-xylene	µg/L	<2.0	<2.0	<2.0	<2.0

VOCs in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-8 290508-09-L J 30/05/2008 Water WG 00:00	19834-9 290508-10-L J 30/05/2008 Water WG 00:00	19834-10 290508-11-L J 30/05/2008 Water WG 00:00	19834-11 290508-12-L J 30/05/2008 Water WG 00:00
Styrene	µg/L	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	µg/L	<1.0	<1.0	<1.0	<1.0
o-xylene	µg/L	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	µg/L	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Bromobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	µg/L	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	µg/L	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0
Tert-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Sec-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	µg/L	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	µg/L	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%	85	86	95	86
Surrogate toluene-d8	%	89	92	88	90
Surrogate 4-BFB	%	79	83	84	80

vTPH & BTEX in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-1 290508-01-LJ 29/05/2008 Water WG 00:00	19834-2 290508-02-LJ 29/05/2008 Water WG 00:00	19834-3 290508-03-LJ 29/05/2008 Water WG 00:00	19834-4 290508-04-LJ 29/05/2008 Water WG 00:00	19834-5 290508-05-LJ 29/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C_6 - C_9	µg/L	<10	650	72	<10	<10
Benzene	µg/L	[NA]	190	3.8	[NA]	[NA]
Toluene	µg/L	[NA]	70	<1.0	[NA]	[NA]
Ethylbenzene	µg/L	[NA]	60	1.0	[NA]	[NA]
m+p-xylene	µg/L	[NA]	150	18	[NA]	[NA]
o-xylene	µg/L	[NA]	30	8.0	[NA]	[NA]
Surrogate Dibromofluoromethane	%	92	81	75	92	89
Surrogate toluene-d8	%	92	108	108	93	94
Surrogate 4-BFB	%	86	100	98	89	84

vTPH & BTEX in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-6 290508-06-LJ 29/05/2008 Water WG 00:00	19834-7 290508-08-LJ 29/05/2008 Water WG 00:00	19834-8 290508-09-LJ 30/05/2008 Water WG 00:00	19834-9 290508-10-LJ 30/05/2008 Water WG 00:00	19834-10 290508-11-LJ 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
Surrogate Dibromofluoromethane	%	86	85	85	86	95
Surrogate toluene-d8	%	92	87	89	92	88
Surrogate 4-BFB	%	89	73	79	83	84

vTPH & BTEX in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-11 290508-12-LJ 30/05/2008 Water WG 00:00	19834-12 290508-13-LJ 30/05/2008 Water WG 00:00	19834-13 290508-14-LJ 30/05/2008 Water WG 00:00	19834-14 Trip Spike 30/05/2008 Water WG 00:00	19834-15 Trip Blank 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C_6 - C_9	µg/L	<10	<10	<10	[NA]	[NA]
Benzene	µg/L	[NA]	<1.0	<1.0	89%	<1.0
Toluene	µg/L	[NA]	<1.0	<1.0	121%	<1.0
Ethylbenzene	µg/L	[NA]	<1.0	<1.0	123%	<1.0
m+p-xylene	µg/L	[NA]	<2.0	<2.0	122%	<2.0

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vTPH & BTEX in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-11 290508-12-LJ 30/05/2008 Water WG 00:00	19834-12 290508-13-LJ 30/05/2008 Water WG 00:00	19834-13 290508-14-LJ 30/05/2008 Water WG 00:00	19834-14 Trip Spike 30/05/2008 Water WG 00:00	19834-15 Trip Blank 30/05/2008 Water WG 00:00
o-xylene	µg/L	[NA]	<1.0	<1.0	123%	<1.0
Surrogate Dibromofluoromethane	%	86	78	76	81	85
Surrogate toluene-d8	%	90	102	98	103	100
Surrogate 4-BFB	%	80	99	95	96	100

sTPH in Water (C10-C36)						
Our Reference:	UNITS	19834-1	19834-2	19834-3	19834-4	19834-5
Your Reference	-------------	290508-01-LJ	290508-02-LJ	290508-03-LJ	290508-04-LJ	290508-05-LJ
Date Sampled	------------	29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	4/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	4/06/2008	3/06/2008	3/06/2008
TPH C_{10} - C_{14}	µg/L	<50	550	<50	<50	<50
TPH C_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	118	137	102	102	111

sTPH in Water (C10-C36)						
Our Reference:	UNITS	19834-6	19834-7	19834-8	19834-9	19834-10
Your Reference	-------------	290508-06-LJ	290508-08-LJ	290508-09-LJ	290508-10-LJ	290508-11-LJ
Date Sampled	------------	29/05/2008	29/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	119	63	99	88	83

sTPH in Water (C10-C36)			
Our Reference:	UNITS	19834-11	19834-13
Your Reference	-------------	290508-12-LJ	290508-14-LJ
Date Sampled	------------	30/05/2008	30/05/2008
Type of sample		Water	Water
Sample Matrix Code		WG	WG
Time Sampled		00:00	00:00
Date extracted	-	3/06/2008	13/06/2008
Date analysed	-	3/06/2008	13/06/2008
TPH C_{10} - C_{14}	µg/L	<50	<50
TPH C_{15} - C_{28}	µg/L	<100	<100
TPH C_{29} - C_{36}	µg/L	<100	<100
Surrogate o-Terphenyl	%	91	103

PAHs in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-1 290508-01-LJ 29/05/2008 Water WG 00:00	19834-4 290508-04-LJ 29/05/2008 Water WG 00:00	19834-5 290508-05-LJ 29/05/2008 Water WG 00:00	19834-6 290508-06-LJ 29/05/2008 Water WG 00:00	19834-7 290508-08-LJ 29/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Naphthalene	µg/L	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1	<1
Surrogate p-Terphenyl-d_{14}	%	91	104	100	109	87

PAHs in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-8 290508-09-L J 30/05/2008 Water WG 00:00	19834-9 290508-10-L J 30/05/2008 Water WG 00:00	19834-10 290508-11-L J 30/05/2008 Water WG 00:00	19834-11 290508-12-L J 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Naphthalene	µg/L	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1
Surrogate p-Terphenyl-d_{14}	%	115	116	99	95

OCP in water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference	-------------	290508-01-LJ	290508-04-LJ	290508-05-LJ	290508-06-LJ	290508-08-LJ
Date Sampled	------------	29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
HCB	µg/L	<0.2	<2	<0.2	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<2	<0.2	<0.2	<0.2
DDT	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	95	82	92	94	65

ACCREDITED FOR TECHNICAL COMPETENCE

OCP in water					
Our Reference:	**UNITS**	**19834-8**	**19834-9**	**19834-10**	**19834-11**
Your Reference	**-------------**	**290508-09-LJ**	**290508-10-LJ**	**290508-11-LJ**	**290508-12-LJ**
Date Sampled	**------------**	**30/05/2008**	**30/05/2008**	**30/05/2008**	**30/05/2008**
Type of sample		**Water**	**Water**	**Water**	**Water**
Sample Matrix Code		**WG**	**WG**	**WG**	**WG**
Time Sampled		**00:00**	**00:00**	**00:00**	**00:00**
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
HCB	µg/L	<0.2	<0.2	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2	<0.2	<0.2
DDT	µg/L	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	101	93	91	107

OP Pesticides in water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference	-------------	290508-01-LJ	290508-04-LJ	290508-05-LJ	290508-06-LJ	290508-08-LJ
Date Sampled	------------	29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Diazinon	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Dimethoate	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Ronnel	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Ethion	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	95	82	92	94	65

OP Pesticides in water					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference	-------------	290508-09-LJ	290508-10-LJ	290508-11-LJ	290508-12-LJ
Date Sampled	------------	30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Diazinon	µg/L	<0.2	<0.2	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	101	93	91	107

PCBs in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-1 290508-01-LJ 29/05/2008 Water WG 00:00	19834-4 290508-04-LJ 29/05/2008 Water WG 00:00	19834-5 290508-05-LJ 29/05/2008 Water WG 00:00	19834-6 290508-06-LJ 29/05/2008 Water WG 00:00	19834-7 290508-08-LJ 29/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Arochlor 1016	µg/L	<2	<20	<2	<2	<2
Arochlor 1232	µg/L	<2	<20	<2	<2	<2
Arochlor 1242	µg/L	<2	<20	<2	<2	<2
Arochlor 1248	µg/L	<2	<20	<2	<2	<2
Arochlor 1254	µg/L	<2	<20	<2	<2	<2
Arochlor 1260	µg/L	<2	<20	<2	<2	<2
Surrogate TCLMX	%	95	82	92	94	65

PCBs in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-8 290508-09-LJ 30/05/2008 Water WG 00:00	19834-9 290508-10-LJ 30/05/2008 Water WG 00:00	19834-10 290508-11-LJ 30/05/2008 Water WG 00:00	19834-11 290508-12-LJ 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Arochlor 1016	µg/L	<2	<2	<2	<2
Arochlor 1232	µg/L	<2	<2	<2	<2
Arochlor 1242	µg/L	<2	<2	<2	<2
Arochlor 1248	µg/L	<2	<2	<2	<2
Arochlor 1254	µg/L	<2	<2	<2	<2
Arochlor 1260	µg/L	<2	<2	<2	<2
Surrogate TCLMX	%	101	93	91	107

Total Phenolics in Water		
Our Reference:	UNITS	19834-1
Your Reference	-------------	290508-01-LJ
Date Sampled	------------	29/05/2008
Type of sample		Water
Sample Matrix Code		WG
Time Sampled		00:00
Date extracted	-	2/06/2008
Date analysed	-	3/06/2008
Total Phenolics (as Phenol)	mg/L	<0.050

Ion Balance Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-1 290508-01-LJ 29/05/2008 Water WG 00:00	19834-4 290508-04-LJ 29/05/2008 Water WG 00:00	19834-5 290508-05-LJ 29/05/2008 Water WG 00:00	19834-6 290508-06-LJ 29/05/2008 Water WG 00:00	19834-7 290508-08-LJ 29/05/2008 Water WG 00:00
Date prepared	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Date analysed	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Calcium - Dissolved	mg/L	320	260	81	78	230
Potassium - Dissolved	mg/L	63	43	19	19	47
Sodium - Dissolved	mg/L	2,000	760	120	120	620
Magnesium - Dissolved	mg/L	220	89	24	24	110
Carbonate Alkalinity as $CaCO_3$	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Bicarbonate Alkalinity as $CaCO_3$	mg/L	630	540	150	150	490
Sulphate, SO4	mg/L	360	410	140	130	650
Chloride (titration) - water	mg/L	3,300	1,300	210	230	1,100

Ion Balance Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	19834-8 290508-09-LJ 30/05/2008 Water WG 00:00	19834-9 290508-10-LJ 30/05/2008 Water WG 00:00	19834-10 290508-11-LJ 30/05/2008 Water WG 00:00	19834-11 290508-12-LJ 30/05/2008 Water WG 00:00
Date prepared	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Date analysed	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Calcium - Dissolved	mg/L	600	610	610	110
Potassium - Dissolved	mg/L	130	93	92	68
Sodium - Dissolved	mg/L	4,600	1,600	1,500	2,100
Magnesium - Dissolved	mg/L	450	330	320	230
Carbonate Alkalinity as $CaCO_3$	mg/L	<0.1	<0.1	<0.1	<0.1
Bicarbonate Alkalinity as $CaCO_3$	mg/L	470	810	810	110
Sulphate, SO4	mg/L	1,300	2,300	2,400	390
Chloride (titration) - water	mg/L	8,900	2,000	2,100	3,300

HM in water - dissolved						
Our Reference:	UNITS	19834-1	19834-2	19834-3	19834-4	19834-5
Your Reference	-------------	290508-01-LJ	290508-02-LJ	290508-03-LJ	290508-04-LJ	290508-05-LJ
Date Sampled	------------	29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Date analysed	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Arsenic-Dissolved	µg/L	9.5	[NA]	[NA]	5.6	11
Cadmium-Dissolved	µg/L	0.20	[NA]	[NA]	<0.10	<0.10
Chromium-Dissolved	µg/L	<1.0	[NA]	[NA]	2.7	<1.0
Copper-Dissolved	µg/L	3.9	[NA]	[NA]	2.1	<1.0
Lead-Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury-Dissolved	µg/L	<0.50	[NA]	[NA]	<0.50	<0.50
Nickel-Dissolved	µg/L	5.9	[NA]	[NA]	2.6	1.1
Zinc-Dissolved	µg/L	<1.0	[NA]	[NA]	1.2	<1.0

HM in water - dissolved						
Our Reference:	UNITS	19834-6	19834-7	19834-8	19834-9	19834-10
Your Reference	-------------	290508-06-LJ	290508-08-LJ	290508-09-LJ	290508-10-LJ	290508-11-LJ
Date Sampled	------------	29/05/2008	29/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Date analysed	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Arsenic-Dissolved	µg/L	11	6.1	14	5.7	5.5
Cadmium-Dissolved	µg/L	<0.10	0.30	0.20	0.20	0.10
Chromium-Dissolved	µg/L	1.1	5.3	11	1.5	1.5
Copper-Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Lead-Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury-Dissolved	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Nickel-Dissolved	µg/L	1.0	4.4	64	11	11
Zinc-Dissolved	µg/L	<1.0	5.9	82	5.9	5.7

HM in water - dissolved			
Our Reference:	UNITS	19834-11	19834-13
Your Reference	-------------	290508-12-L J	290508-14-L J
Date Sampled	------------	30/05/2008	30/05/2008
Type of sample		Water	Water
Sample Matrix Code		WG	WG
Time Sampled		00:00	00:00
Date prepared	-	6/06/2008	6/06/2008
Date analysed	-	6/06/2008	6/06/2008
Arsenic-Dissolved	µg/L	4.9	[NA]
Cadmium-Dissolved	µg/L	0.10	[NA]
Chromium-Dissolved	µg/L	1.6	[NA]
Copper-Dissolved	µg/L	<1.0	[NA]
Lead-Dissolved	µg/L	<1.0	<1.0
Mercury-Dissolved	µg/L	<0.50	[NA]
Nickel-Dissolved	µg/L	<1.0	[NA]
Zinc-Dissolved	µg/L	<1.0	[NA]

Miscellaneous Inorganics						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference	-------------	290508-01-LJ	290508-04-LJ	290508-05-LJ	290508-06-LJ	290508-08-LJ
Date Sampled	------------	29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Date analysed	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Ammonia as N in water	mg/L	4.1	2.4	2.0	2.1	7.2
Total Nitrogen	mg/L	5.0	5.1	3.4	3.4	6.0
Phosphorus - Total	mg/L	0.87	0.81	1.3	1.1	0.28
Salinity as NaCl	g/L	7.0	3.3	<1.0	<1.0	2.9
Total Dissolved Solids (grav)	mg/L	7,500	3,600	800	900	3,600

Miscellaneous Inorganics					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference	-------------	290508-09-LJ	290508-10-LJ	290508-11-LJ	290508-12-LJ
Date Sampled	------------	30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00
Date prepared	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Date analysed	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Ammonia as N in water	mg/L	5.1	3.1	3.1	1.9
Total Nitrogen	mg/L	7.8	7.0	6.9	2.7
Phosphorus - Total	mg/L	0.24	1.1	1.3	<0.05
Salinity as NaCl	g/L	15	6.2	6.1	6.4
Total Dissolved Solids (grav)	mg/L	16,000	8,900	7,600	8,600

Method ID	Methodology Summary
GC.13	Water samples are analysed directly by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
LAB.6	Alkalinity - determined titrimetrically in accordance with APHA 20th ED, 2320-B.
LAB.9	Sulphate determined turbidimetrically.
LAB.11	Chloride determined by argentometric titration.
Metals.22 ICP-MS	Determination of various metals by ICP-MS.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
LAB.2	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA2510 20th ED and Rayment & Higginson.
LAB.18	Total Dissolved Solids - determined gravimetrically by drying the sample, in accordance with APHA 20th ED, 2540-C.

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			4/6/08	[NT]	[NT]	LCS-W1	4/6/08%
Dichlorodifluoromethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethen e	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	72%
Cis-1,2-dichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	84%
2,2-dichloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	92%
1,1,1-trichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	90%
1,1-dichloropropene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	93%
Bromodichloromethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	108%
trans-1,3-dichloropropen e	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	115%
1,2-dibromoethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	120%
1,1,1,2-tetrachloroethan e	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
m+p-xylene	µg/L	2	GC.13	<2.0	[NT]	[NT]	[NR]	[NR]
Styrene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethan e	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
o-xylene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		GC.13	128	[NT]	[NT]	LCS-W1	87%
Surrogate toluene-d8	%		GC.13	89	[NT]	[NT]	LCS-W1	110%
Surrogate 4-BFB	%		GC.13	87	[NT]	[NT]	LCS-W1	97%

QUALITY CONTROL vTPH & BTEX in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
TPH C_6 - C_9	µg/L	10	GC.16	<10	[NT]	[NT]	LCS-W1	117%
Benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	96%
Toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	121%
Ethylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	123%
m+p-xylene	µg/L	2	GC.13	<2.0	[NT]	[NT]	LCS-W1	123%
o-xylene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	124%
Surrogate Dibromofluoromethane	%		GC.13	128	[NT]	[NT]	LCS-W1	87%
Surrogate toluene-d8	%		GC.13	89	[NT]	[NT]	LCS-W1	105%
Surrogate 4-BFB	%		GC.13	87	[NT]	[NT]	LCS-W1	105%

QUALITY CONTROL sTPH in Water (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
TPH C_{10} - C_{14}	µg/L	50	GC.3	<50	[NT]	[NT]	LCS-W1	85%
TPH C_{15} - C_{28}	µg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	99%
TPH C_{29} - C_{36}	µg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	106%
Surrogate o-Terphenyl	%		GC.3	111	[NT]	[NT]	LCS-W1	119%

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Naphthalene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	99%
Acenaphthylene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	76%
Phenanthrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	96%
Anthracene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	92%
Pyrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	97%
Benzo(a)anthracene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL **PAHs in Water**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Chrysene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	115%
Benzo(b+k)fluoranthene	µg/L	2	GC.12 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	82%
Indeno(1,2,3-c,d)pyrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		GC.12 subset	140	[NT]	[NT]	LCS-W1	107%

QUALITY CONTROL OCP in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
HCB	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	128%
gamma-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	114%
Heptachlor	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	96%
delta-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	95%
Heptachlor Epoxide	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	97%
gamma-Chlordane	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan I	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDE	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	110%
Dieldrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	99%
Endrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	112%
pp-DDD	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	121%
Endosulfan II	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
DDT	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	101%
Methoxychlor	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-5	89	[NT]	[NT]	LCS-W1	101%

QUALITY CONTROL OP Pesticides in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Diazinon	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Dimethoate	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ronnel	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	103%
Fenitrothion	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	79%
Bromophos ethyl	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ethion	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	129%
Surrogate TCLMX	%		GC.8	89	[NT]	[NT]	LCS-W1	110%
QUALITY CONTROL PCBs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Arochlor 1016	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	µg/L	2	GC-6	<2	[NT]	[NT]	LCS-W1	88%
Arochlor 1260	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-6	89	[NT]	[NT]	LCS-W1	71%
QUALITY CONTROL Total Phenolics in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			2/6/08	[NT]	[NT]	LCS-W1	2/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Total Phenolics (as Phenol)	mg/L	0.05	LAB.30	<0.050	[NT]	[NT]	LCS-W1	107%
QUALITY CONTROL Ion Balance	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			2/6/08	19834-1	2/06/2008 || 2/06/2008	LCS-W1	2/6/08%
Date analysed	-			2/6/08	19834-1	2/06/2008 || 2/06/2008	LCS-W1	2/6/08%
Calcium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	320 || [N/T]	LCS-W1	105%
Potassium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	63 || [N/T]	LCS-W1	103%
Sodium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	2000 || [N/T]	LCS-W1	107%
Magnesium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	220 || [N/T]	LCS-W1	104%

QUALITY CONTROL **Ion Balance**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Carbonate Alkalinity as $CaCO_3$	mg/L	0.1	LAB.6	<0.1	19834-1	<0.1 || <0.1	LCS-W1	100%
Bicarbonate Alkalinity as $CaCO_3$	mg/L	0.1	LAB.6	<0.1	19834-1	630 || 610 || RPD: 3	LCS-W1	100%
Sulphate, SO4	mg/L	5	LAB.9	<5	19834-1	360 || 360 || RPD: 0	LCS-W1	110%
Chloride (titration) - water	mg/L	20	LAB.11	<20	19834-1	3300 || 3300 || RPD: 0	LCS-W1	105%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			6/6/08	[NT]	[NT]	LCS-W1	6/6/08%
Date analysed	-			6/6/08	[NT]	[NT]	LCS-W1	6/6/08%
Arsenic-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	104%
Cadmium-Dissolved	µg/L	0.1	Metals.22 ICP-MS	<0.10	[NT]	[NT]	LCS-W1	107%
Chromium-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	102%
Copper-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	103%
Lead-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	102%
Mercury-Dissolved	µg/L	0.5	Metals.21 CV-AAS	<0.50	[NT]	[NT]	LCS-W1	82%
Nickel-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	100%
Zinc-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	114%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			31/5/08	19834-1	31/05/2008 || 31/05/2008	LCS-W1	31/5/08%
Date analysed	-			31/5/08	19834-1	31/05/2008 || 31/05/2008	LCS-W1	31/5/08%
Ammonia as N in water	mg/L	0.1	LAB.57	<0.1	19834-1	4.1 || 3.9 || RPD: 5	LCS-W1	113%
Total Nitrogen	mg/L	0.05	Ext-020	<0.05	19834-1	5.0 || 4.6 || RPD: 8	LCS-W1	102%
Phosphorus - Total	mg/L	0.05	Metals.20 ICP-AES	<0.05	19834-1	0.87 || 0.80 || RPD: 8	LCS-W1	94%
Salinity as NaCl	g/L	1	LAB.2	<1.0	19834-1	7.0 || 7.0 || RPD: 0	LCS-W1	103%
Total Dissolved Solids (grav)	mg/L	5	LAB.18	<5	19834-1	7500 || [N/T]	LCS-W1	95%

QUALITY CONTROL Ion Balance	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	19834-8	2/06/2008 || 2/06/2008
Date analysed	-	19834-8	2/06/2008 || 2/06/2008
Calcium - Dissolved	mg/L	19834-8	600 || 610 || RPD: 2
Potassium - Dissolved	mg/L	19834-8	130 || 130 || RPD: 0
Sodium - Dissolved	mg/L	19834-8	4600 || 4600 || RPD: 0
Magnesium - Dissolved	mg/L	19834-8	450 || 450 || RPD: 0

QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	19834-1	31/5/08%
Date analysed	-	[NT]	[NT]	19834-1	31/5/08%
Ammonia as N in water	mg/L	[NT]	[NT]	[NR]	[NR]
Total Nitrogen	mg/L	[NT]	[NT]	19834-1	104%
Phosphorus - Total	mg/L	[NT]	[NT]	[NR]	[NR]
Salinity as NaCl	g/L	[NT]	[NT]	[NR]	[NR]
Total Dissolved Solids (grav)	mg/L	[NT]	[NT]	[NR]	[NR]

Report Comments:

Nitrate and Nitrite: PQL raised due to matrix interferences.

OCP/OP/PCB's in soil: Sample 4 - PQL raised due to sample matrix.

Total Nitrogen as N analysed by NMI: Report Nummber - RN682954.

Ammonia in water: Spike recovery failed due to high amount of analyte present in the sample.
Asbestos was analysed by Approved Identifier: Not applicable for this job

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 20315

Client:
Consulting Earth Scientists
Suite 121,
26-32 Pirrama Rd
Pyrmont
NSW 2009

Attention: Luke Jenkins / Kelly Weir

Sample log in details:

Your Reference:	**CES050706-BCC, Area B**
No. of samples:	7 Waters
Date samples received:	19/06/08
Date completed instructions received:	19/06/08

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	25/06/08
Date of Preliminary Report:	Not Issued
Issue Date:	26/06/08

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Results Approved By:

Jacinta Hurst
Operations Manager

ACCREDITED FOR TECHNICAL COMPETENCE

VOCs in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	20315-1 170608-01-LJ 18/06/2008 Water WG 00:00	20315-2 170608-02-LJ 18/06/2008 Water WG 00:00	20315-3 170608-03-LJ 18/06/2008 Water WG 00:00	20315-4 170608-05-LJ 18/06/2008 Water WG 00:00	20315-5 180608-06-LJ 18/06/2008 Water WG 00:00
Date extracted	-	22/06/2008	22/06/2008	22/06/2008	22/06/2008	22/06/2008
Date analysed	-	22/06/2008	22/06/2008	22/06/2008	22/06/2008	22/06/2008
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,2-dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Cis-1,2-dichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromomethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0	1.5	<1.0	<1.0
1,3-dichloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0

VOCs in water						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference	-------------	170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled	------------	18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Styrene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
o-xylene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Tert-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Sec-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%	71	81	101	86	73
Surrogate toluene-d8	%	103	101	97	103	101
Surrogate 4-BFB	%	85	89	97	79	85

vTPH & BTEX in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	20315-1 170608-01-LJ 18/06/2008 Water WG 00:00	20315-2 170608-02-LJ 18/06/2008 Water WG 00:00	20315-3 170608-03-LJ 18/06/2008 Water WG 00:00	20315-4 170608-05-LJ 18/06/2008 Water WG 00:00	20315-5 180608-06-LJ 18/06/2008 Water WG 00:00
Date extracted	-	22/06/2008	22/06/2008	22/06/2008	22/06/2008	22/06/2008
Date analysed	-	22/06/2008	22/06/2008	22/06/2008	22/06/2008	22/06/2008
TPH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0	1.5	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
o-xylene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%	71	81	101	86	73
Surrogate toluene-d8	%	103	101	97	103	101
Surrogate 4-BFB	%	85	90	97	79	85

vTPH & BTEX in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	20315-6 Trip Spike 17/06/2008 Water WG 00:00	20315-7 Trip Blank 17/06/2008 Water WG 00:00
Date extracted	-	22/06/2008	22/06/2008
Date analysed	-	22/06/2008	22/06/2008
TPH C_6 - C_9	µg/L	[NA]	<10
Benzene	µg/L	104%	<1.0
Toluene	µg/L	90%	<1.0
Ethylbenzene	µg/L	91%	<1.0
m+p-xylene	µg/L	89%	<2.0
o-xylene	µg/L	89%	<1.0
Surrogate Dibromofluoromethane	%	113	102
Surrogate toluene-d8	%	104	94
Surrogate 4-BFB	%	108	96

sTPH in Water (C10-C36)						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference	-------------	170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled	------------	18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Date analysed	-	24/06/2008	24/06/2008	24/06/2008	24/06/2008	24/06/2008
TPH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	86	89	96	106	102

PAHs in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	20315-1 170608-01-LJ 18/06/2008 Water WG 00:00	20315-2 170608-02-LJ 18/06/2008 Water WG 00:00	20315-3 170608-03-LJ 18/06/2008 Water WG 00:00	20315-4 170608-05-LJ 18/06/2008 Water WG 00:00	20315-5 180608-06-LJ 18/06/2008 Water WG 00:00
Date extracted	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Date analysed	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Naphthalene	µg/L	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1	<1
Surrogate p-Terphenyl-d_{14}	%	75	86	83	76	81

OCP in water						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference	-------------	170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled	------------	18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Date analysed	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
HCB	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
DDT	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	91	82	83	94	94

OP Pesticides in water						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference	-------------	170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled	------------	18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Date analysed	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Diazinon	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	91	82	83	94	94

PCBs in Water						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference	-------------	170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled	------------	18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Date analysed	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Arochlor 1016	µg/L	<2	<2	<2	<2	<2
Arochlor 1232	µg/L	<2	<2	<2	<2	<2
Arochlor 1242	µg/L	<2	<2	<2	<2	<2
Arochlor 1248	µg/L	<2	<2	<2	<2	<2
Arochlor 1254	µg/L	<2	<2	<2	<2	<2
Arochlor 1260	µg/L	<2	<2	<2	<2	<2
Surrogate TCLMX	%	91	82	83	94	94

HM in water - dissolved						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference	-------------	170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled	------------	18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	20/06/2008	20/06/2008	20/06/2008	20/06/2008	20/06/2008
Date analysed	-	20/06/2008	20/06/2008	20/06/2008	20/06/2008	20/06/2008
Arsenic-Dissolved	µg/L	2.2	4.9	1.6	5.6	4.9
Cadmium-Dissolved	µg/L	<0.10	<0.10	0.20	<0.10	<0.10
Chromium-Dissolved	µg/L	<1.0	2.0	23	<1.0	2.5
Copper-Dissolved	µg/L	1.8	<1.0	6.6	<1.0	2.1
Lead-Dissolved	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury-Dissolved	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Nickel-Dissolved	µg/L	<1.0	3.1	2.5	1.7	1.7
Zinc-Dissolved	µg/L	6.3	<1.0	4.1	3.1	1.5

Ion Balance Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS ------------- ------------	20315-1 170608-01-LJ 18/06/2008 Water WG 00:00	20315-2 170608-02-LJ 18/06/2008 Water WG 00:00	20315-3 170608-03-LJ 18/06/2008 Water WG 00:00	20315-4 170608-05-LJ 18/06/2008 Water WG 00:00	20315-5 180608-06-LJ 18/06/2008 Water WG 00:00
Date prepared	-	24/06/2008	24/06/2008	24/06/2008	24/06/2008	24/06/2008
Date analysed	-	24/06/2008	24/06/2008	24/06/2008	24/06/2008	24/06/2008
Calcium - Dissolved	mg/L	160	130	170	370	680
Potassium - Dissolved	mg/L	10	25	130	23	60
Sodium - Dissolved	mg/L	38	320	3,500	220	1,000
Magnesium - Dissolved	mg/L	22	3.0	30	71	110
Carbonate Alkalinity as $CaCO_3$	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Bicarbonate Alkalinity as $CaCO_3$	mg/L	420	620	280	560	590
Sulphate, SO4	mg/L	110	<5	830	880	1,400
Chloride (titration) - water	mg/L	27	500	5,900	330	1,400

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Miscellaneous Inorganics						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference	-------------	170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled	------------	18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	20/06/2008	20/06/2008	20/06/2008	20/06/2008	20/06/2008
Date analysed	-	20/06/2008	20/06/2008	20/06/2008	20/06/2008	20/06/2008
Ammonia as N in water	mg/L	<0.1	14	4.4	3.0	2.9
Total Nitrogen	mg/L	9.5	21	5.6	4.3	5.3
Phosphorus - Total	mg/L	0.060	0.19	1.0	0.18	0.63
Salinity as NACL *	mg/L	610	1,600	10,000	1,800	4,100
Total Dissolved Solids (grav)	mg/L	660	1,400	11,000	2,100	5,100
Resistivity	ohm m	10	4.0	<1.0	3.6	1.6

Method ID	Methodology Summary
GC.13	Water samples are analysed directly by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals.22 ICP-MS	Determination of various metals by ICP-MS.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
LAB.6	Alkalinity - determined titrimetrically in accordance with APHA 20th ED, 2320-B.
LAB.9	Sulphate determined turbidimetrically.
LAB.11	Chloride determined by argentometric titration.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
LAB.2	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA2510 20th ED and Rayment & Higginson.
LAB.18	Total Dissolved Solids - determined gravimetrically by drying the sample, in accordance with APHA 20th ED, 2540-C.

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			22/6/08	[NT]	[NT]	LCS-W1	22/6/08%
Date analysed	-			22/6/08	[NT]	[NT]	LCS-W1	22/6/08%
Dichlorodifluoromethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	88%
Cis-1,2-dichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	93%
2,2-dichloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	92%
1,1,1-trichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	93%
1,1-dichloropropene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	108%
Bromodichloromethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	95%
trans-1,3-dichloropropene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	103%
1,2-dibromoethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	102%
1,1,1,2-tetrachloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
m+p-xylene	µg/L	2	GC.13	<2.0	[NT]	[NT]	[NR]	[NR]
Styrene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
o-xylene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropro pane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		GC.13	89	[NT]	[NT]	LCS-W1	103%
Surrogate toluene-d8	%		GC.13	73	[NT]	[NT]	LCS-W1	100%
Surrogate 4-BFB	%		GC.13	108	[NT]	[NT]	LCS-W1	97%

QUALITY CONTROL **vTPH & BTEX in Water**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Date extracted	-			22/6/08	[NT]	[NT]	LCS-W1	22/6/08%
Date analysed	-			22/6/08	[NT]	[NT]	LCS-W1	22/6/08%
TPH C_6 - C_9	µg/L	10	GC.16	<10	[NT]	[NT]	LCS-W1	77%
Benzene	µg/L	1	GC.16	<1.0	[NT]	[NT]	LCS-W1	71%
Toluene	µg/L	1	GC.16	<1.0	[NT]	[NT]	LCS-W1	82%
Ethylbenzene	µg/L	1	GC.16	<1.0	[NT]	[NT]	LCS-W1	76%
m+p-xylene	µg/L	2	GC.16	<2.0	[NT]	[NT]	LCS-W1	79%
o-xylene	µg/L	1	GC.16	<1.0	[NT]	[NT]	LCS-W1	78%
Surrogate Dibromofluoromethane	%		GC.16	108	[NT]	[NT]	LCS-W1	102%
Surrogate toluene-d8	%		GC.16	79	[NT]	[NT]	LCS-W1	100%
Surrogate 4-BFB	%		GC.16	86	[NT]	[NT]	LCS-W1	107%

QUALITY CONTROL sTPH in Water (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/6/08	[NT]	[NT]	LCS-W1	23/6/08%
Date analysed	-			24/6/08	[NT]	[NT]	LCS-W1	24/6/08%
TPH C_{10} - C_{14}	µg/L	50	GC.3	<50	[NT]	[NT]	LCS-W1	72%
TPH C_{15} - C_{28}	µg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	89%
TPH C_{29} - C_{36}	µg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	94%
Surrogate o-Terphenyl	%		GC.3	94	[NT]	[NT]	LCS-W1	104%

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/06/2008	[NT]	[NT]	LCS-W1	23/06/2008 %
Date analysed	-			23/06/2008	[NT]	[NT]	LCS-W1	23/06/2008 %
Naphthalene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	96%
Acenaphthylene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	94%
Phenanthrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	93%
Anthracene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	89%
Pyrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	94%

QUALITY CONTROL **PAHs in Water**	**UNITS**	**PQL**	**METHOD**	**Blank**	**Duplicate Sm#**	**Duplicate results** **Base II Duplicate II %RPD**	**Spike Sm#**	**Spike % Recovery**
Benzo(a)anthracene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	116%
Benzo(b+k)fluoranthene	µg/L	2	GC.12 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	87%
Indeno(1,2,3-c,d)pyrene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		GC.12 subset	98	[NT]	[NT]	LCS-W1	105%

QUALITY CONTROL OCP in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/06/2008	[NT]	[NT]	LCS-W1	23/06/2008 %
Date analysed	-			23/06/2008	[NT]	[NT]	LCS-W1	23/06/2008 %
HCB	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	60%
gamma-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	76%
Heptachlor	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	60%
delta-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	68%
Heptachlor Epoxide	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	68%
gamma-Chlordane	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan I	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDE	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	87%
Dieldrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	76%
Endrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	66%
pp-DDD	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	80%
Endosulfan II	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
DDT	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	73%
Methoxychlor	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-5	80	[NT]	[NT]	LCS-W1	86%

QUALITY CONTROL OP Pesticides in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/06/2008	[NT]	[NT]	LCS-W1	23/6/08%
Date analysed	-			23/06/2008	[NT]	[NT]	LCS-W1	23/6/08%
Diazinon	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Dimethoate	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ronnel	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	90%
Fenitrothion	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	69%
Bromophos ethyl	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ethion	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	102%
Surrogate TCLMX	%		GC.8	80	[NT]	[NT]	LCS-W1	85%

QUALITY CONTROL PCBs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			23/06/2008	[NT]	[NT]	LCS-W1	23/6/08%
Date analysed	-			23/06/2008	[NT]	[NT]	LCS-W1	23/6/08%
Arochlor 1016	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	µg/L	2	GC-6	<2	[NT]	[NT]	LCS-W1	96%
Arochlor 1260	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-6	80	[NT]	[NT]	LCS-W1	121%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			20/6/08	[NT]	[NT]	LCS-W1	20/6/08%
Date analysed	-			20/6/08	[NT]	[NT]	LCS-W1	20/6/08%
Arsenic-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	106%
Cadmium-Dissolved	µg/L	0.1	Metals.22 ICP-MS	<0.10	[NT]	[NT]	LCS-W1	104%
Chromium-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	98%
Copper-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	98%
Lead-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	100%
Mercury-Dissolved	µg/L	0.5	Metals.21 CV-AAS	<0.50	[NT]	[NT]	LCS-W1	99%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Nickel-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	94%
Zinc-Dissolved	µg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	104%

QUALITY CONTROL Ion Balance	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			[NT]	[NT]	[NT]	LCS-1	20/6/08%
Date analysed	-			[NT]	[NT]	[NT]	LCS-1	20/6/08%
Calcium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	[NT]	[NT]	LCS-1	102%
Potassium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	[NT]	[NT]	LCS-1	94%
Sodium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	[NT]	[NT]	LCS-1	100%
Magnesium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	[NT]	[NT]	LCS-1	100%
Carbonate Alkalinity as $CaCO_3$	mg/L	0.1	LAB.6	<0.1	[NT]	[NT]	LCS-1	100%
Bicarbonate Alkalinity as $CaCO_3$	mg/L	0.1	LAB.6	<0.1	[NT]	[NT]	LCS-1	100%
Sulphate, SO4	mg/L	5	LAB.9	<5	[NT]	[NT]	LCS-1	100%
Chloride (titration) - water	mg/L	20	LAB.11	<20	[NT]	[NT]	LCS-1	109%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			20/6/08	20315-1	20/06/2008 || 20/06/2008	LCS-1	20/6/08%
Date analysed	-			20/6/08	20315-1	20/06/2008 || 20/06/2008	LCS-1	20/6/08%
Ammonia as N in water	mg/L	0.1	LAB.57	<0.1	20315-1	<0.1 || <0.1	LCS-1	104%
Total Nitrogen	mg/L	0.05	Ext-020	<0.05	20315-1	9.5 || [N/T]	[NR]	[NR]
Phosphorus - Total	mg/L	0.05	Metals.20 ICP-AES	<0.05	20315-1	0.060 || [N/T]	LCS-1	95%
Salinity as NACL *	mg/L	1	LAB.2	<1.0	20315-1	610 || [N/T]	LCS-1	100%
Total Dissolved Solids (grav)	mg/L	5	LAB.18	<5	20315-1	660 || 630 || RPD: 5	LCS-1	98%
Resistivity	ohm m	1	LAB.2	<1.0	20315-1	10 || [N/T]	LCS-1	100%

QUALITY CONTROL Ion Balance	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	[NR]	[NR]
Date analysed	-	[NT]	[NT]	[NR]	[NR]
Calcium - Dissolved	mg/L	[NT]	[NT]	20315-1	96%
Potassium - Dissolved	mg/L	[NT]	[NT]	20315-1	101%

QUALITY CONTROL Ion Balance	**UNITS**	**Dup. Sm#**	**Duplicate Base + Duplicate + %RPD**	**Spike Sm#**	**Spike % Recovery**
Sodium - Dissolved	mg/L	[NT]	[NT]	20315-1	102%
Magnesium - Dissolved	mg/L	[NT]	[NT]	20315-1	102%
Carbonate Alkalinity as $CaCO_3$	mg/L	[NT]	[NT]	[NR]	[NR]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4	mg/L	[NT]	[NT]	[NR]	[NR]
Chloride (titration) - water	mg/L	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	20315-1	20/6/08%
Date analysed	-	[NT]	[NT]	20315-1	20/6/08%
Ammonia as N in water	mg/L	[NT]	[NT]	[NR]	[NR]
Total Nitrogen	mg/L	[NT]	[NT]	[NR]	[NR]
Phosphorus - Total	mg/L	[NT]	[NT]	20315-1	103%
Salinity as NACL *	mg/L	[NT]	[NT]	[NR]	[NR]
Total Dissolved Solids (grav)	mg/L	[NT]	[NT]	[NR]	[NR]
Resistivity	ohm m	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	20315-1	20/6/08%
Date analysed	-	[NT]	[NT]	20315-1	20/6/08%
Arsenic-Dissolved	µg/L	[NT]	[NT]	20315-1	113%
Cadmium-Dissolved	µg/L	[NT]	[NT]	20315-1	102%
Chromium-Dissolved	µg/L	[NT]	[NT]	20315-1	100%
Copper-Dissolved	µg/L	[NT]	[NT]	20315-1	98%
Lead-Dissolved	µg/L	[NT]	[NT]	20315-1	100%
Mercury-Dissolved	µg/L	[NT]	[NT]	20315-1	92%
Nickel-Dissolved	µg/L	[NT]	[NT]	20315-1	98%
Zinc-Dissolved	µg/L	[NT]	[NT]	20315-1	102%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	20315-2	20/6/08%
Date analysed	-	[NT]	[NT]	20315-2	20/6/08%
Ammonia as N in water	mg/L	[NT]	[NT]	20315-2	#
Total Nitrogen	mg/L	[NT]	[NT]	[NR]	[NR]
Phosphorus - Total	mg/L	[NT]	[NT]	[NR]	[NR]
Salinity as NACL *	mg/L	[NT]	[NT]	[NR]	[NR]
Total Dissolved Solids (grav)	mg/L	[NT]	[NT]	[NR]	[NR]
Resistivity	ohm m	[NT]	[NT]	[NR]	[NR]

Report Comments:

Ammonia in water: # Spike recovery failed due to high amount of analyte in the sample.

Total Nitrogen analysed by NMI: Report Number - 20522.
Asbestos was analysed by Approved Identifier: Not applicable for this job

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200

email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS **162123**

Client:
Consulting Earth Scientists Pty Ltd
Suite 3, Level 1
55 Grandview Street
Pymble
NSW 2073

Attention: M Read T Goodbody

Sample log in details:

Your Reference:	**CES130608-BP**		
No. of samples:	11 waters		
Date samples received / completed instructions received	17/02/17	/	17/02/17

This report replaces R00 due to changes to project ID. (client request)

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	24/02/17	/	27/02/17
Date of Preliminary Report:	Not Issued		

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Accredited for compliance with ISO/IEC 17025 - Testing **Tests not covered by NATA are denoted with *.**

Results Approved By:

David Springer
General Manager

ACCREDITED FOR TECHNICAL COMPETENCE

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	162123-1 BMW401 17/02/2017 Water	162123-2 BMW403 17/02/2017 Water	162123-3 BMW404 17/02/2017 Water	162123-4 AMW205 17/02/2017 Water	162123-5 ABH2105 17/02/2017 Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1	5
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	200
Dibromomethane	µg/L	<1	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	2
1,3-dichloropropane	µg/L	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1	<1

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	162123-1 BMW401 17/02/2017 Water	162123-2 BMW403 17/02/2017 Water	162123-3 BMW404 17/02/2017 Water	162123-4 AMW205 17/02/2017 Water	162123-5 ABH2105 17/02/2017 Water
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1	3
Bromobenzene	µg/L	<1	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1	3
2-chlorotoluene	µg/L	<1	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	97	95	97	97	98
Surrogate toluene-d8	%	98	95	96	95	96
Surrogate 4-BFB	%	98	97	101	99	98

VOCs in water					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference	-------------	ABH202	ABH2100	AMW203	QAQC1
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	162123-6 ABH202 17/02/2017 Water	162123-7 ABH2100 17/02/2017 Water	162123-8 AMW203 17/02/2017 Water	162123-9 QAQC1 17/02/2017 Water
Isopropylbenzene	µg/L	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	97	96	97	97
Surrogate toluene-d8	%	97	94	95	96
Surrogate 4-BFB	%	99	101	100	97

vTRH(C6-C10)/BTEXN in Water						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference	-------------	BMW401	BMW403	BMW404	AMW205	ABH2105
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
TRHC_6 - C_9	µg/L	<10	<10	<10	<10	260
TRHC_6 - C_{10}	µg/L	<10	<10	<10	<10	260
TRHC_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	54
Benzene	µg/L	<1	<1	<1	<1	200
Toluene	µg/L	<1	<1	<1	<1	2
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	97	95	97	97	98
Surrogate toluene-d8	%	98	95	96	95	96
Surrogate 4-BFB	%	98	97	101	99	98

vTRH(C6-C10)/BTEXN in Water						
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9	162123-10
Your Reference	-------------	ABH202	ABH2100	AMW203	QAQC1	TS
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
TRHC_6 - C_9	µg/L	<10	<10	<10	<10	[NA]
TRHC_6 - C_{10}	µg/L	<10	<10	<10	<10	[NA]
TRHC_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	[NA]
Benzene	µg/L	<1	<1	<1	<1	82%
Toluene	µg/L	<1	<1	<1	<1	92%
Ethylbenzene	µg/L	<1	<1	<1	<1	94%
m+p-xylene	µg/L	<2	<2	<2	<2	94%
o-xylene	µg/L	<1	<1	<1	<1	96%
Naphthalene	µg/L	<1	<1	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	97	96	97	97	100
Surrogate toluene-d8	%	97	94	95	96	100
Surrogate 4-BFB	%	99	101	100	97	103

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	162123-11
Your Reference	-------------	TB
Date Sampled	------------	17/02/2017
Type of sample		Water
Date extracted	-	20/02/2017
Date analysed	-	21/02/2017
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate toluene-d8	%	100
Surrogate 4-BFB	%	96

svTRH (C10-C40) in Water						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference	-------------	BMW401	BMW403	BMW404	AMW205	ABH2105
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	20/02/2017	20/02/2017
TRHC $_{10}$ - C $_{14}$	µg/L	<50	<50	<50	<50	<50
TRHC $_{15}$ - C $_{28}$	µg/L	<100	<100	<100	<100	<100
TRHC $_{29}$ - C $_{36}$	µg/L	<100	<100	<100	<100	<100
TRH>C $_{10}$ - C $_{16}$	µg/L	<50	<50	<50	<50	<50
TRH>C $_{10}$ - C $_{16}$ less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH>C $_{16}$ - C $_{34}$	µg/L	<100	<100	<100	<100	<100
TRH>C $_{34}$ - C $_{40}$	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	86	71	83	79	75

svTRH (C10-C40) in Water					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference	-------------	ABH202	ABH2100	AMW203	QAQC1
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	20/02/2017	20/02/2017	21/02/2017	21/02/2017
TRHC $_{10}$ - C $_{14}$	µg/L	<50	<50	<50	<50
TRHC $_{15}$ - C $_{28}$	µg/L	<100	<100	<100	<100
TRHC $_{29}$ - C $_{36}$	µg/L	<100	<100	<100	<100
TRH>C $_{10}$ - C $_{16}$	µg/L	<50	<50	<50	<50
TRH>C $_{10}$ - C $_{16}$ less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH>C $_{16}$ - C $_{34}$	µg/L	<100	<100	<100	<100
TRH>C $_{34}$ - C $_{40}$	µg/L	<100	<100	<100	<100
Surrogate o-Terphenyl	%	77	82	80	90

PAHs in Water Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- - ------------	162123-1 BMW401 17/02/2017 Water	162123-2 BMW403 17/02/2017 Water	162123-3 BMW404 17/02/2017 Water	162123-4 AMW205 17/02/2017 Water	162123-5 ABH2105 17/02/2017 Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Naphthalene	µg/L	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1	<1
Benzo(b,j+k)fluoranthene	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	97	73	75	74	79

PAHs in Water					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference	-------------	ABH202	ABH2100	AMW203	QAQC1
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Naphthalene	µg/L	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1
Benzo(b,j+k)fluoranthene	µg/L	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	90	88	94	88

OCP in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- --------------	162123-1 BMW401 17/02/2017 Water	162123-2 BMW403 17/02/2017 Water	162123-3 BMW404 17/02/2017 Water	162123-4 AMW205 17/02/2017 Water	162123-5 ABH2105 17/02/2017 Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
HCB	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	133	101	136	110	128

OCP in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	162123-6 ABH202 17/02/2017 Water	162123-7 ABH2100 17/02/2017 Water	162123-8 AMW203 17/02/2017 Water	162123-9 QAQC1 17/02/2017 Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017
HCB	µg/L	<0.2	<0.2	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	117	126	120	129

OP Pesticides in water						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference	-------------	BMW401	BMW403	BMW404	AMW205	ABH2105
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Azinphos-methyl (Guthion)	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Diazinon	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dichlorovos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	133	101	136	110	128

OP Pesticides in water					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference	-------------	ABH202	ABH2100	AMW203	QAQC1
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Azinphos-methyl (Guthion)	µg/L	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2	<0.2	<0.2
Diazinon	µg/L	<0.2	<0.2	<0.2	<0.2
Dichlorovos	µg/L	<0.2	<0.2	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2	<0.2	<0.2
Malathion	µg/L	<0.2	<0.2	<0.2	<0.2
Parathion	µg/L	<0.2	<0.2	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	117	126	120	129

PCBs in Water						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference	-------------	BMW401	BMW403	BMW404	AMW205	ABH2105
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Aroclor 1016	µg/L	<2	<2	<2	<2	<2
Aroclor 1221	µg/L	<2	<2	<2	<2	<2
Aroclor 1232	µg/L	<2	<2	<2	<2	<2
Aroclor 1242	µg/L	<2	<2	<2	<2	<2
Aroclor 1248	µg/L	<2	<2	<2	<2	<2
Aroclor 1254	µg/L	<2	<2	<2	<2	<2
Aroclor 1260	µg/L	<2	<2	<2	<2	<2
Surrogate TCLMX	%	133	101	136	110	128

PCBs in Water					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference	-------------	ABH202	ABH2100	AMW203	QAQC1
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Aroclor 1016	µg/L	<2	<2	<2	<2
Aroclor 1221	µg/L	<2	<2	<2	<2
Aroclor 1232	µg/L	<2	<2	<2	<2
Aroclor 1242	µg/L	<2	<2	<2	<2
Aroclor 1248	µg/L	<2	<2	<2	<2
Aroclor 1254	µg/L	<2	<2	<2	<2
Aroclor 1260	µg/L	<2	<2	<2	<2
Surrogate TCLMX	%	117	126	120	129

HM in water - dissolved Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	162123-1 BMW401 17/02/2017 Water	162123-2 BMW403 17/02/2017 Water	162123-3 BMW404 17/02/2017 Water	162123-4 AMW205 17/02/2017 Water	162123-5 ABH2105 17/02/2017 Water
Date prepared	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Arsenic-Dissolved	µg/L	14	3	8	4	4
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	3	1	<1
Copper-Dissolved	µg/L	3	1	<1	<1	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	<1	1	1	2	<1
Zinc-Dissolved	µg/L	4	1	1	<1	5

HM in water - dissolved Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	162123-6 ABH202 17/02/2017 Water	162123-7 ABH2100 17/02/2017 Water	162123-8 AMW203 17/02/2017 Water	162123-9 QAQC1 17/02/2017 Water
Date prepared	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Arsenic-Dissolved	µg/L	9	14	32	32
Cadmium-Dissolved	µg/L	<0.1	0.4	<0.1	<0.1
Chromium-Dissolved	µg/L	6	4	<1	<1
Copper-Dissolved	µg/L	1	3	<1	<1
Lead-Dissolved	µg/L	<1	7	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	83	17	<1	<1
Zinc-Dissolved	µg/L	14	8	<1	<1

Ion Balance Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	162123-1 BMW401 17/02/2017 Water	162123-2 BMW403 17/02/2017 Water	162123-3 BMW404 17/02/2017 Water	162123-4 AMW205 17/02/2017 Water	162123-5 ABH2105 17/02/2017 Water
Date prepared	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Date analysed	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Calcium - Dissolved	mg/L	110	82	230	230	97
Potassium - Dissolved	mg/L	12	23	120	36	8.8
Sodium - Dissolved	mg/L	36	250	3,500	630	84
Magnesium - Dissolved	mg/L	14	24	300	66	16
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	460	450	320	530	270
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	460	450	320	530	270
Sulphate, SO4	mg/L	3	17	650	410	54
Chloride, Cl	mg/L	30	320	5,300	880	140
Ionic Balance	%	-8.1	-3.2	5.8	1.8	-0.86

Ion Balance Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	162123-6 ABH202 17/02/2017 Water	162123-7 ABH2100 17/02/2017 Water	162123-8 AMW203 17/02/2017 Water	162123-9 QAQC1 17/02/2017 Water
Date prepared	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Date analysed	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Calcium - Dissolved	mg/L	150	97	300	310
Potassium - Dissolved	mg/L	10	33	230	240
Sodium - Dissolved	mg/L	140	960	7,200	7,300
Magnesium - Dissolved	mg/L	24	42	660	670
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	270	360	370	370
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	270	360	370	370
Sulphate, SO4	mg/L	110	340	1,500	1,400
Chloride, Cl	mg/L	320	1,400	10,000	9,700
Ionic Balance	%	-2.2	-2.2	9.1	12

Metals in Waters - Acid extractable						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference	-------------	BMW401	BMW403	BMW404	AMW205	ABH2105
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Phosphorus - Total	mg/L	0.8	0.2	1.3	0.2	1.4

Metals in Waters - Acid extractable					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference	-------------	ABH202	ABH2100	AMW203	QAQC1
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date prepared	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Phosphorus - Total	mg/L	1	<0.05	0.7	0.7

Miscellaneous Inorganics						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference	-------------	BMW401	BMW403	BMW404	AMW205	ABH2105
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Date analysed	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Ammonia as N in water	mg/L	0.92	8.0	1.7	1.0	3.0
Total Nitrogen in water	mg/L	1.2	9.2	2.8	2.2	4.1
pH	pH Units	[NA]	7.1	[NA]	7.0	[NA]
Electrical Conductivity	µS/cm	[NA]	1,700	[NA]	3,900	[NA]
Salinity as NaCl *	mg/L	[NA]	1,100	[NA]	2,500	[NA]
Resistivity	ohm m	[NA]	6.0	[NA]	2.6	[NA]
Total Dissolved Solids (grav)	mg/L	[NA]	920	[NA]	2,500	[NA]

Miscellaneous Inorganics					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference	-------------	ABH202	ABH2100	AMW203	QAQC1
Date Sampled	------------	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date prepared	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Date analysed	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Ammonia as N in water	mg/L	0.73	0.29	1.1	1.1
Total Nitrogen in water	mg/L	1.8	1.2	1.4	1.3

Method ID	Methodology Summary
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-022	Determination of various metals by ICP-MS.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-020	Determination of various metals by ICP-AES.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 10% ie total anions = total cations +/-10%.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Soils are analysed following a KCl extraction.
Inorg-055/062	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons. Resistivity is calculated from Conductivity.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-5°C.

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/02/2017	162123-1	20/02/2017 || 21/02/2017	LCS-W1	20/02/2017
Date analysed	-			21/02/2017	162123-1	21/02/2017 || 22/02/2017	LCS-W1	21/02/2017
Dichlorodifluoromethane	µg/L	10	Org-013	<10	162123-1	<10 || <10	[NR]	[NR]
Chloromethane	µg/L	10	Org-013	<10	162123-1	<10 || <10	[NR]	[NR]
Vinyl Chloride	µg/L	10	Org-013	<10	162123-1	<10 || <10	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	162123-1	<10 || <10	[NR]	[NR]
Chloroethane	µg/L	10	Org-013	<10	162123-1	<10 || <10	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	162123-1	<10 || <10	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,1-dichloroethane	µg/L	1	Org-013	<1	162123-1	<1 || <1	LCS-W1	86%
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Bromochloromethane	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Chloroform	µg/L	1	Org-013	<1	162123-1	<1 || <1	LCS-W1	93%
2,2-dichloropropane	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,2-dichloroethane	µg/L	1	Org-013	<1	162123-1	<1 || <1	LCS-W1	97%
1,1,1-trichloroethane	µg/L	1	Org-013	<1	162123-1	<1 || <1	LCS-W1	102%
1,1-dichloropropene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Cyclohexane	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Carbon tetrachloride	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Benzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Dibromomethane	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,2-dichloropropane	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Trichloroethene	µg/L	1	Org-013	<1	162123-1	<1 || <1	LCS-W1	92%
Bromodichloromethane	µg/L	1	Org-013	<1	162123-1	<1 || <1	LCS-W1	98%
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Toluene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,3-dichloropropane	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Dibromochloromethane	µg/L	1	Org-013	<1	162123-1	<1 || <1	LCS-W1	103%
1,2-dibromoethane	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Tetrachloroethene	µg/L	1	Org-013	<1	162123-1	<1 || <1	LCS-W1	95%
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Chlorobenzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Ethylbenzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Bromoform	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
m+p-xylene	µg/L	2	Org-013	<2	162123-1	<2 || <2	[NR]	[NR]
Styrene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
o-xylene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
1,2,3-trichloropropane	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Isopropylbenzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Bromobenzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
n-propyl benzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
2-chlorotoluene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
4-chlorotoluene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Tert-butyl benzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Sec-butyl benzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
4-isopropyl toluene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
n-butyl benzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-013	98	162123-1	97 || 101 || RPD: 4	LCS-W1	109%
Surrogate toluene-d8	%		Org-013	98	162123-1	98 || 101 || RPD: 3	LCS-W1	111%
Surrogate 4-BFB	%		Org-013	102	162123-1	98 || 101 || RPD: 3	LCS-W1	102%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/02/2017	162123-1	20/02/2017 || 21/02/2017	LCS-W1	20/02/2017
Date analysed	-			21/02/2017	162123-1	21/02/2017 || 22/02/2017	LCS-W1	21/02/2017
TRHC_6 - C_9	µg/L	10	Org-016	<10	162123-1	<10 || <10	LCS-W1	87%
TRHC_6 - C_{10}	µg/L	10	Org-016	<10	162123-1	<10 || <10	LCS-W1	87%
Benzene	µg/L	1	Org-016	<1	162123-1	<1 || <1	LCS-W1	87%
Toluene	µg/L	1	Org-016	<1	162123-1	<1 || <1	LCS-W1	91%
Ethylbenzene	µg/L	1	Org-016	<1	162123-1	<1 || <1	LCS-W1	84%
m+p-xylene	µg/L	2	Org-016	<2	162123-1	<2 || <2	LCS-W1	86%
o-xylene	µg/L	1	Org-016	<1	162123-1	<1 || <1	LCS-W1	84%
Naphthalene	µg/L	1	Org-013	<1	162123-1	<1 || <1	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	98	162123-1	97 || 101 || RPD: 4	LCS-W1	109%
Surrogate toluene-d8	%		Org-016	98	162123-1	98 || 101 || RPD: 3	LCS-W1	111%
Surrogate 4-BFB	%		Org-016	102	162123-1	98 || 101 || RPD: 3	LCS-W1	102%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/02/2017	162123-1	20/02/2017 || 20/02/2017	LCS-W3	20/02/2017
Date analysed	-			20/02/2017	162123-1	21/02/2017 || 21/02/2017	LCS-W3	20/02/2017
TRHC_{10} - C_{14}	µg/L	50	Org-003	<50	162123-1	<50 || <50	LCS-W3	98%
TRHC_{15} - C_{28}	µg/L	100	Org-003	<100	162123-1	<100 || <100	LCS-W3	86%
TRHC_{29} - C_{36}	µg/L	100	Org-003	<100	162123-1	<100 || <100	LCS-W3	84%
TRH>C_{10} - C_{16}	µg/L	50	Org-003	<50	162123-1	<50 || <50	LCS-W3	98%
TRH>C_{16} - C_{34}	µg/L	100	Org-003	<100	162123-1	<100 || <100	LCS-W3	86%
TRH>C_{34} - C_{40}	µg/L	100	Org-003	<100	162123-1	<100 || <100	LCS-W3	84%
Surrogate o-Terphenyl	%		Org-003	85	162123-1	86 || 90 || RPD: 5	LCS-W3	102%

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/02/2017	162123-1	20/02/2017 || 20/02/2017	LCS-W4	20/02/2017
Date analysed	-			21/02/2017	162123-1	21/02/2017 || 21/02/2017	LCS-W4	21/02/2017
Naphthalene	µg/L	1	Org-012	<1	162123-1	<1 || <1	LCS-W4	113%
Acenaphthylene	µg/L	1	Org-012	<1	162123-1	<1 || <1	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012	<1	162123-1	<1 || <1	[NR]	[NR]
Fluorene	µg/L	1	Org-012	<1	162123-1	<1 || <1	LCS-W4	122%
Phenanthrene	µg/L	1	Org-012	<1	162123-1	<1 || <1	LCS-W4	115%
Anthracene	µg/L	1	Org-012	<1	162123-1	<1 || <1	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012	<1	162123-1	<1 || <1	LCS-W4	129%
Pyrene	µg/L	1	Org-012	<1	162123-1	<1 || <1	LCS-W4	126%
Benzo(a)anthracene	µg/L	1	Org-012	<1	162123-1	<1 || <1	[NR]	[NR]

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Chrysene	µg/L	1	Org-012	<1	162123-1	<1 || <1	LCS-W4	124%
Benzo(b,j+k) fluoranthene	µg/L	2	Org-012	<2	162123-1	<2 || <2	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012	<1	162123-1	<1 || <1	LCS-W4	125%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012	<1	162123-1	<1 || <1	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012	<1	162123-1	<1 || <1	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012	<1	162123-1	<1 || <1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	87	162123-1	97 || 101 || RPD: 4	LCS-W4	96%

QUALITY CONTROL OCP in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/02/2017	162123-1	20/02/2017 || 20/02/2017	LCS-W2	20/02/2017
Date analysed	-			21/02/2017	162123-1	21/02/2017 || 21/02/2017	LCS-W2	21/02/2017
HCB	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
alpha-BHC	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	LCS-W2	99%
gamma-BHC	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
beta-BHC	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	LCS-W2	108%
Heptachlor	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	LCS-W2	102%
delta-BHC	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
Aldrin	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	LCS-W2	101%
Heptachlor Epoxide	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	LCS-W2	105%
gamma-Chlordane	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
alpha-Chlordane	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
Endosulfan I	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
pp-DDE	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	LCS-W2	111%
Dieldrin	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	LCS-W2	115%
Endrin	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	LCS-W2	106%
pp-DDD	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	LCS-W2	119%
Endosulfan II	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
pp-DDT	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
Endrin Aldehyde	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	LCS-W2	101%
Methoxychlor	µg/L	0.2	Org-005	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
Surrogate TCMX	%		Org-005	124	162123-1	133 || 124 || RPD: 7	LCS-W2	128%

QUALITY CONTROL OP Pesticides in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/02/2017	162123-1	20/02/2017 || 20/02/2017	LCS-W2	20/02/2017
Date analysed	-			21/02/2017	162123-1	21/02/2017 || 21/02/2017	LCS-W2	21/02/2017
Azinphos-methyl (Guthion)	µg/L	0.2	Org-008	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
Bromophos ethyl	µg/L	0.2	Org-008	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
Chlorpyriphos	µg/L	0.2	Org-008	<0.2	162123-1	<0.2 || <0.2	LCS-W2	78%
Chlorpyriphos-methyl	µg/L	0.2	Org-008	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
Diazinon	µg/L	0.2	Org-008	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
Dichlorovos	µg/L	0.2	Org-008	<0.2	162123-1	<0.2 || <0.2	LCS-W2	83%
Dimethoate	µg/L	0.2	Org-008	<0.2	162123-1	<0.2 || <0.2	[NR]	[NR]
Ethion	µg/L	0.2	Org-008	<0.2	162123-1	<0.2 || <0.2	LCS-W2	89%
Fenitrothion	µg/L	0.2	Org-008	<0.2	162123-1	<0.2 || <0.2	LCS-W2	98%
Malathion	µg/L	0.2	Org-008	<0.2	162123-1	<0.2 || <0.2	LCS-W2	105%
Parathion	µg/L	0.2	Org-008	<0.2	162123-1	<0.2 || <0.2	LCS-W2	90%
Ronnel	µg/L	0.2	Org-008	<0.2	162123-1	<0.2 || <0.2	LCS-W2	81%
Surrogate TCMX	%		Org-008	124	162123-1	133 || 124 || RPD: 7	LCS-W2	110%

QUALITY CONTROL PCBs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/02/2017	162123-1	20/02/2017 || 20/02/2017	LCS-W2	20/02/2017
Date analysed	-			21/02/2017	162123-1	21/02/2017 || 21/02/2017	LCS-W2	21/02/2017
Aroclor 1016	µg/L	2	Org-006	[NT]	162123-1	<2 || <2	[NR]	[NR]
Aroclor 1221	µg/L	2	Org-006	[NT]	162123-1	<2 || <2	[NR]	[NR]
Aroclor 1232	µg/L	2	Org-006	[NT]	162123-1	<2 || <2	[NR]	[NR]
Aroclor 1242	µg/L	2	Org-006	[NT]	162123-1	<2 || <2	[NR]	[NR]
Aroclor 1248	µg/L	2	Org-006	[NT]	162123-1	<2 || <2	[NR]	[NR]
Aroclor 1254	µg/L	2	Org-006	[NT]	162123-1	<2 || <2	LCS-W2	83%
Aroclor 1260	µg/L	2	Org-006	[NT]	162123-1	<2 || <2	[NR]	[NR]
Surrogate TCLMX	%		Org-006	124	162123-1	133 || 124 || RPD: 7	LCS-W2	110%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			20/02/2017	162123-1	20/02/2017 || 20/02/2017	LCS-W1	20/02/2017
Date analysed	-			20/02/2017	162123-1	20/02/2017 || 20/02/2017	LCS-W1	20/02/2017
Arsenic-Dissolved	µg/L	1	Metals-022	<1	162123-1	14 || 14 || RPD: 0	LCS-W1	99%
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	162123-1	<0.1 || <0.1	LCS-W1	101%
Chromium-Dissolved	µg/L	1	Metals-022	<1	162123-1	<1 || <1	LCS-W1	99%
Copper-Dissolved	µg/L	1	Metals-022	<1	162123-1	3 || 3 || RPD: 0	LCS-W1	99%
Lead-Dissolved	µg/L	1	Metals-022	<1	162123-1	<1 || <1	LCS-W1	100%
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	162123-1	<0.05 || [N/T]	LCS-W1	96%
Nickel-Dissolved	µg/L	1	Metals-022	<1	162123-1	<1 || <1	LCS-W1	99%
Zinc-Dissolved	µg/L	1	Metals-022	<1	162123-1	4 || 4 || RPD: 0	LCS-W1	97%

QUALITY CONTROL Ion Balance	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			17/02/2017	162123-1	17/02/2017 || 17/02/2017	LCS-W1	17/02/2017
Date analysed	-			17/02/2017	162123-1	17/02/2017 || 17/02/2017	LCS-W1	17/02/2017
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	162123-1	110 || 110 || RPD: 0	LCS-W1	99%
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	162123-1	12 || 13 || RPD: 8	LCS-W1	96%
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	162123-1	36 || 38 || RPD: 5	LCS-W1	101%
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	162123-1	14 || 14 || RPD: 0	LCS-W1	98%
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	162123-1	<5 || <5	[NR]	[NR]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	162123-1	460 || 460 || RPD: 0	[NR]	[NR]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	162123-1	<5 || <5	[NR]	[NR]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	162123-1	460 || 460 || RPD: 0	LCS-W1	105%
Sulphate, SO4	mg/L	1	Inorg-081	<1	162123-1	3 || 2 || RPD: 40	LCS-W1	94%
Chloride, Cl	mg/L	1	Inorg-081	<1	162123-1	30 || 28 || RPD: 7	LCS-W1	102%
Ionic Balance	%		Inorg-040	[NT]	162123-1	-8.1 || -7.5 || RPD: -8	[NR]	[NR]

QUALITY CONTROL Metals in Waters - Acid extractable	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			20/02/2017	162123-1	20/02/2017 || 20/02/2017	LCS-W1	20/02/2017
Date analysed	-			20/02/2017	162123-1	20/02/2017 || 20/02/2017	LCS-W1	20/02/2017
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	162123-1	0.8 || 0.8 || RPD: 0	LCS-W1	97%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			17/02/2017	162123-1	17/02/2017 || 17/02/2017	LCS-W1	17/02/2017
Date analysed	-			17/02/2017	162123-1	17/02/2017 || 17/02/2017	LCS-W1	17/02/2017
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	162123-1	0.92 || 0.93 || RPD: 1	LCS-W1	93%
Total Nitrogen in water	mg/L	0.1	Inorg-055/062	<0.1	162123-1	1.2 || 1.2 || RPD: 0	LCS-W1	98%
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-W1	102%
Electrical Conductivity	µS/cm	1	Inorg-002	<1	[NT]	[NT]	LCS-W1	102%
Salinity as NaCl *	mg/L	1	Inorg-002	<1.0	[NT]	[NT]	[NR]	[NR]
Resistivity	ohm m	1	Inorg-002	<1.0	[NT]	[NT]	[NR]	[NR]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	[NT]	[NT]	LCS-W1	85%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	162123-2	20/02/2017
Date analysed	-	[NT]	[NT]	162123-2	21/02/2017
TRHC $_{10}$ - C $_{14}$	µg/L	[NT]	[NT]	162123-2	110%
TRHC $_{15}$ - C $_{28}$	µg/L	[NT]	[NT]	162123-2	105%
TRHC $_{29}$ - C $_{36}$	µg/L	[NT]	[NT]	162123-2	90%
TRH>C $_{10}$ - C $_{16}$	µg/L	[NT]	[NT]	162123-2	110%
TRH>C $_{16}$ - C $_{34}$	µg/L	[NT]	[NT]	162123-2	105%
TRH>C $_{34}$ - C $_{40}$	µg/L	[NT]	[NT]	162123-2	90%
Surrogate o-Terphenyl	%	[NT]	[NT]	162123-2	71%

QUALITY CONTROL PAHs in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	162123-2	20/02/2017
Date analysed	-	[NT]	[NT]	162123-2	21/02/2017
Naphthalene	µg/L	[NT]	[NT]	162123-2	95%
Acenaphthylene	µg/L	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	[NT]	[NT]	162123-2	97%
Phenanthrene	µg/L	[NT]	[NT]	162123-2	97%
Anthracene	µg/L	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	[NT]	[NT]	162123-2	93%
Pyrene	µg/L	[NT]	[NT]	162123-2	95%

QUALITY CONTROL PAHs in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	µg/L	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	[NT]	[NT]	162123-2	93%
Benzo(b,j+k)fluoranthene	µg/L	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	[NT]	[NT]	162123-2	110%
Indeno(1,2,3-c,d)pyrene	µg/L	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	162123-2	73%

QUALITY CONTROL OCP in water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	162123-2	20/02/2017
Date analysed	-	[NT]	[NT]	162123-2	21/02/2017
HCB	µg/L	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	[NT]	[NT]	162123-2	69%
gamma-BHC	µg/L	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	[NT]	[NT]	162123-2	74%
Heptachlor	µg/L	[NT]	[NT]	162123-2	70%
delta-BHC	µg/L	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	[NT]	[NT]	162123-2	69%
Heptachlor Epoxide	µg/L	[NT]	[NT]	162123-2	70%
gamma-Chlordane	µg/L	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	µg/L	[NT]	[NT]	[NR]	[NR]
Endosulfan I	µg/L	[NT]	[NT]	[NR]	[NR]
pp-DDE	µg/L	[NT]	[NT]	162123-2	78%
Dieldrin	µg/L	[NT]	[NT]	162123-2	78%
Endrin	µg/L	[NT]	[NT]	162123-2	118%
pp-DDD	µg/L	[NT]	[NT]	162123-2	91%
Endosulfan II	µg/L	[NT]	[NT]	[NR]	[NR]
pp-DDT	µg/L	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	µg/L	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	µg/L	[NT]	[NT]	162123-2	81%
Methoxychlor	µg/L	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	162123-2	113%

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	162123-3	20/02/2017 || 20/02/2017	162123-2	20/02/2017
Date analysed	-	162123-3	20/02/2017 || 20/02/2017	162123-2	20/02/2017
Arsenic-Dissolved	µg/L	162123-3	8 || [N/T]	162123-2	104%
Cadmium-Dissolved	µg/L	162123-3	<0.1 || [N/T]	162123-2	107%
Chromium-Dissolved	µg/L	162123-3	3 || [N/T]	162123-2	101%
Copper-Dissolved	µg/L	162123-3	<1 || [N/T]	162123-2	95%
Lead-Dissolved	µg/L	162123-3	<1 || [N/T]	162123-2	95%
Mercury-Dissolved	µg/L	162123-3	<0.05 || <0.05	[NR]	[NR]
Nickel-Dissolved	µg/L	162123-3	1 || [N/T]	162123-2	97%
Zinc-Dissolved	µg/L	162123-3	1 || [N/T]	162123-2	98%

QUALITY CONTROL Ion Balance	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	162123-2	17/02/2017
Date analysed	-	[NT]	[NT]	162123-2	17/02/2017
Calcium - Dissolved	mg/L	[NT]	[NT]	162123-2	#
Potassium - Dissolved	mg/L	[NT]	[NT]	162123-2	#
Sodium - Dissolved	mg/L	[NT]	[NT]	162123-2	#
Magnesium - Dissolved	mg/L	[NT]	[NT]	162123-2	70%
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	[NT]	[NT]	[NR]	[NR]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	[NT]	[NT]	[NR]	[NR]
Carbonate Alkalinity as $CaCO_3$	mg/L	[NT]	[NT]	[NR]	[NR]
Total Alkalinity as $CaCO_3$	mg/L	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4	mg/L	[NT]	[NT]	162123-2	121%
Chloride, Cl	mg/L	[NT]	[NT]	162123-2	85%
Ionic Balance	%	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL Metals in Waters - Acid extractable	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	162123-2	20/02/2017
Date analysed	-	[NT]	[NT]	162123-2	20/02/2017
Phosphorus - Total	mg/L	[NT]	[NT]	162123-2	102%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	162123-2	17/02/2017
Date analysed	-	[NT]	[NT]	162123-2	17/02/2017
Ammonia as N in water	mg/L	[NT]	[NT]	162123-2	#
Total Nitrogen in water	mg/L	[NT]	[NT]	162123-2	86%
pH	pH Units	[NT]	[NT]	[NR]	[NR]
Electrical Conductivity	µS/cm	[NT]	[NT]	[NR]	[NR]
Salinity as NaCl *	mg/L	[NT]	[NT]	[NR]	[NR]
Resistivity	ohm m	[NT]	[NT]	[NR]	[NR]
Total Dissolved Solids (grav)	mg/L	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL OP Pesticides in water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	162123-3	20/02/2017
Date analysed	-	[NT]	[NT]	162123-3	21/02/2017
Azinphos-methyl (Guthion)	µg/L	[NT]	[NT]	[NR]	[NR]
Bromophos ethyl	µg/L	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	µg/L	[NT]	[NT]	162123-3	86%
Chlorpyriphos-methyl	µg/L	[NT]	[NT]	[NR]	[NR]
Diazinon	µg/L	[NT]	[NT]	[NR]	[NR]
Dichlorovos	µg/L	[NT]	[NT]	162123-3	89%
Dimethoate	µg/L	[NT]	[NT]	[NR]	[NR]
Ethion	µg/L	[NT]	[NT]	162123-3	87%
Fenitrothion	µg/L	[NT]	[NT]	162123-3	82%
Malathion	µg/L	[NT]	[NT]	162123-3	78%
Parathion	µg/L	[NT]	[NT]	162123-3	75%
Ronnel	µg/L	[NT]	[NT]	162123-3	83%
Surrogate TCMX	%	[NT]	[NT]	162123-3	106%

QUALITY CONTROL PCBs in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	162123-3	20/02/2017
Date analysed	-	[NT]	[NT]	162123-3	21/02/2017
Aroclor 1016	µg/L	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	µg/L	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	µg/L	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	µg/L	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	µg/L	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	µg/L	[NT]	[NT]	162123-3	88%
Aroclor 1260	µg/L	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	162123-3	106%

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	162123-4	20/02/2017
Date analysed	-	[NT]	[NT]	162123-4	20/02/2017
Arsenic-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Cadmium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Chromium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Copper-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Lead-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Mercury-Dissolved	µg/L	[NT]	[NT]	162123-4	88%
Nickel-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Zinc-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]

Report Comments:

Ion Balance:
Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

MISC_INORG:
Ammonia as N # Percent recovery is not possible to report due to the high concentration of the compound/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES0805939**	Page	: 1 of 7
Client	: **CONSULTING EARTH SCIENTISTS**	Laboratory	: Environmental Division Sydney
Contact	: MS KELLY WEIR	Contact	: Ashwini Sharma
Address	: JONES BAY WHARF 19-21, LOWER DECK, SUITE 121, 26-32 PIRRAMA ROAD PYRMONT NSW, AUSTRALIA 2040	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: kweir@consultingearth.com.au	E-mail	: Ashwini.Sharma@alsenviro.com
Telephone	: +61 85692200	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 95524399	Facsimile	: +61-2-8784 8500
Project	: CES050706-BCC	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: 128651	Date Samples Received	: 30-APR-2008
Sampler	: K.WEIR/ LJ	Issue Date	: 08-MAY-2008
Site	: AREA B		
		No. of samples received	: 2
Quote number	: SY/096/08	No. of samples analysed	: 2

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Hoa Nguyen		Inorganics
Pabi Subba	Senior Organic Chemist (Volatile)	Inorganics
Pabi Subba	Senior Organic Chemist (Volatile)	Organics
PHALAK INTHAKESONE	Organics Co-ordinator	Inorganics
PHALAK INTHAKESONE	Organics Co-ordinator	Organics
Sarah Millington	Senior Inorganic Chemist	Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been preformed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insuffient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Key : CAS Number = Chemistry Abstract Services number
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

Analytical Results

Sub-Matrix: SOIL			Client sample ID	280408-14-KW	290408-41-KW	----	----	----
			Client sampling date / time	28-APR-2008 15:00	29-APR-2008 15:00	----	----	----
Compound	CAS Number	LOR	Unit	ES0805939-001	ES0805939-002	----	----	----
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1.0	%	**19.0**	**23.5**	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**11**	**56**	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	**4**	**72**	----	----	----
Copper	7440-50-8	5	mg/kg	<5	**133**	----	----	----
Lead	7439-92-1	5	mg/kg	<5	**268**	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	**3**	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	**111**	----	----	----
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	**0.3**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.10	mg/kg	----	<0.10	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	**0.10**	----	----	----
Endrin	72-20-8	0.05	mg/kg	----	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.2	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	<0.05	----	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	280408-14-KW	290408-41-KW	----	----	----
			Client sampling date / time	28-APR-2008 15:00	29-APR-2008 15:00	----	----	----
				ES0805939-001	ES0805939-002	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	----	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	----	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg	----	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	----	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg	----	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg	----	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg	----	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	----	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	----	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg	----	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.05	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	**0.6**	----	----	----
Pyrene	129-00-0	0.5	mg/kg	----	**0.6**	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	280408-14-KW	290408-41-KW	----	----	----
			Client sampling date / time	28-APR-2008 15:00	29-APR-2008 15:00	----	----	----
				ES0805939-001	ES0805939-002	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	----
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	**94.0**	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	----	**129**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	----	**103**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	----	**106**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	**94.3**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	----	**89.0**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	----	**97.7**	----	----	----
Anthracene-d10	1719-06-8	0.1	%	----	**104**	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	**93.8**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**93.2**	**97.1**	----	----	----
Toluene-D8	2037-26-5	0.1	%	**94.0**	**95.5**	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	**97.6**	**100**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	Recovery Limits (%) High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	164
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	136
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	10	136
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	24	113
2-Chlorophenol-D4	93951-73-6	23	134
2.4.6-Tribromophenol	118-79-6	19	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	30	115
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	18	137
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES0806132**	Page	: 1 of 11
Client	: **CONSULTING EARTH SCIENTISTS**	Laboratory	: Environmental Division Sydney
Contact	: MS ANGELA MAROYA	Contact	: Ashwini Sharma
Address	: JONES BAY WHARF 19-21, LOWER DECK, SUITE 121, 26-32 PIRRAMA ROAD PYRMONT NSW, AUSTRALIA 2040	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: amaroya@consultingearth.com.au	E-mail	: Ashwini.Sharma@alsenviro.com
Telephone	: +61 85692200	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 95524399	Facsimile	: +61-2-8784 8500
Project	: CES050706-BCC	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: 128653	Date Samples Received	: 05-MAY-2008
Sampler	: LJ, KW	Issue Date	: 15-MAY-2008
Site	: AREA B		
		No. of samples received	: 2
Quote number	: SY/096/08	No. of samples analysed	: 2

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Spectroscopist	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Organics
Hoa Nguyen		Inorganics
Marc Centner	Technical Manager	Organics
Pabi Subba	Senior Organic Chemist (Volatile)	Inorganics
Pabi Subba	Senior Organic Chemist (Volatile)	Organics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been preformed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insuffient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Key : CAS Number = Chemistry Abstract Services number
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG005T: LCS recovery for Cd , Zn and Ni falls outside ALS Dynamic Control Limit. However, it is within the acceptance criteria based on ALS DQO. No further action is required.**
- **EP202: Sample required dilution due to matrix interferences. LOR values have been adjusted accordingly.**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	010508-124-KW	010508-138-KW	----	----	----
			Client sampling date / time	01-MAY-2008 15:00	01-MAY-2008 15:00	----	----	----
				ES0806132-001	**ES0806132-002**	----	----	----
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	**6.1**	----	----	----
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	**53**	----	----	----
EA014 Total Soluble Salts								
^ Total Soluble Salts	----	5	mg/kg	----	**171**	----	----	----
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1.0	%	**7.0**	**22.4**	----	----	----
ED040S: Soluble Major Anions								
Sulphate as SO4 2-	14808-79-8	10	mg/kg	----	**10**	----	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	----	<10	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	**2**	**3**	----	----	----
Copper	7440-50-8	5	mg/kg	**6**	**6**	----	----	----
Lead	7439-92-1	5	mg/kg	**12**	**18**	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	----	----	----
Zinc	7440-66-6	5	mg/kg	**7**	**18**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	----	0.100	mg/kg	<0.100	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
^ Nitrate as N (Sol.)	----	0.100	mg/kg	<0.100	----	----	----	----
EK059G: NOX as N by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.100	mg/kg	<0.100	----	----	----	----
EK061G: Total Kjeldahl Nitrogen as N								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	**720**	----	----	----	----
EK062: Total Nitrogen as N								
^ Total Nitrogen as N	----	20	mg/kg	**720**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	**268**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	010508-124-KW	010508-138-KW	----	----	----
			Client sampling date / time	01-MAY-2008 15:00	01-MAY-2008 15:00	----	----	----
				ES0806132-001	ES0806132-002	----	----	----
EP066: Polychlorinated Biphenyls (PCB) - Continued								
Total Polychlorinated biphenyls	----	0.10	mg/kg	<0.10	<0.10	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: **SOIL**			Client sample ID	010508-124-KW	010508-138-KW	----	----	----
			Client sampling date / time	01-MAY-2008 15:00	01-MAY-2008 15:00	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES0806132-001**	**ES0806132-002**	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	----	----

Analytical Results

Sub-Matrix: **SOIL**			Client sample ID	010508-124-KW	010508-138-KW	----	----	----
			Client sampling date / time	01-MAY-2008 15:00	01-MAY-2008 15:00	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES0806132-001**	**ES0806132-002**	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Bromomethane	74-83-9	5	mg/kg	<5	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	010508-124-KW	010508-138-KW	----	----	----
			Client sampling date / time	01-MAY-2008 15:00	01-MAY-2008 15:00	----	----	----
				ES0806132-001	ES0806132-002	----	----	----
EP074G: Trihalomethanes - Continued								
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	<5	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	----	<1.0	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	----	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	----	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	----	<0.5	----	----	----
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	----	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	----	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	----	<0.5	----	----	----
Pentachlorophenol	87-86-5	2.0	mg/kg	----	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----

Analytical Results

Sub-Matrix: SOIL			Client sample ID	010508-124-KW	010508-138-KW	----	----	----
			Client sampling date / time	01-MAY-2008 15:00	01-MAY-2008 15:00	----	----	----
Compound	CAS Number	LOR	Unit	ES0806132-001	ES0806132-002	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	----
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	----	<0.04	----	----	----
2.4-DB	94-82-6	0.02	mg/kg	----	<0.04	----	----	----
Dicamba	1918-00-9	0.02	mg/kg	----	<0.04	----	----	----
Mecoprop	93-65-2	0.02	mg/kg	----	<0.04	----	----	----
MCPA	94-74-6	0.02	mg/kg	----	<0.04	----	----	----
2.4-DP	120-36-5	0.02	mg/kg	----	<0.04	----	----	----
2.4-D	94-75-7	0.02	mg/kg	----	<0.04	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg	----	<0.04	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	----	<0.04	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg	----	<0.04	----	----	----
MCPB	94-81-5	0.02	mg/kg	----	<0.04	----	----	----
Picloram	1918-02-1	0.02	mg/kg	----	<0.04	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg	----	<0.04	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg	----	<0.04	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**82.0**	**102**	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	**101**	**121**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	**68.7**	**84.1**	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**103**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	**103**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	**110**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	**69.5**	**65.8**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	**66.7**	**66.0**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	**52.3**	**53.2**	----	----	----
EP075(SIM)T: PAH Surrogates								

Analytical Results

Sub-Matrix: **SOIL**

			Client sample ID	010508-124-KW	010508-138-KW	----	----	----
			Client sampling date / time	01-MAY-2008 15:00	01-MAY-2008 15:00	----	----	----
Compound	CAS Number	LOR	Unit	ES0806132-001	ES0806132-002	----	----	----
EP075(SIM)T: PAH Surrogates - Continued								
2-Fluorobiphenyl	321-60-8	0.1	%	**77.4**	**79.7**	----	----	----
Anthracene-d10	1719-06-8	0.1	%	**100**	**100**	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	**82.6**	**85.6**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**105**	**107**	----	----	----
Toluene-D8	2037-26-5	0.1	%	**94.9**	**95.4**	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	**94.7**	**102**	----	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	----	**124**	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	*CAS Number*	*Recovery Limits (%) Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	164
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	136
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	10	136
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	24	113
2-Chlorophenol-D4	93951-73-6	23	134
2.4.6-Tribromophenol	118-79-6	19	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	30	115
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	18	137
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	70	130

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES0806313**	Page	: 1 of 11
Client	: **CONSULTING EARTH SCIENTISTS**	Laboratory	: Environmental Division Sydney
Contact	: MS ANGELA MAROYA	Contact	: Ashwini Sharma
Address	: JONES BAY WHARF 19-21, LOWER DECK, SUITE 121, 26-32 PIRRAMA ROAD PYRMONT NSW, AUSTRALIA 2040	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: amaroya@consultingearth.com.au	E-mail	: Ashwini.Sharma@alsenviro.com
Telephone	: +61 85692200	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 95524399	Facsimile	: +61-2-8784 8500
Project	: CES050706-BCC	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: 128656	Date Samples Received	: 07-MAY-2008
Sampler	: LJ, KW	Issue Date	: 16-MAY-2008
Site	: AREA A		
		No. of samples received	: 2
Quote number	: SY/096/08	No. of samples analysed	: 2

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA
WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ashwini Sharma	Laboratory Manager	Inorganics
Celine Conceicao	Spectroscopist	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Organics
Hoa Nguyen		Inorganics
Marc Centner	Technical Manager	Organics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been preformed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insuffient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Key : CAS Number = Chemistry Abstract Services number
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **ED040S: Poor precision was obtained on batch ES0806170#21 due to sample heterogeneity. Results have been confirmed by reanalysis.**
- **EP202: Sample required dilution due to matrix interferences. LOR values have been adjusted accordingly.**

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	060508-16-KW	060508-38-KW	----	----	----
			Client sampling date / time	06-MAY-2008 15:00	06-MAY-2008 15:00	----	----	----
				ES0806313-001	ES0806313-002	----	----	----
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	**6.7**	----	----	----	----
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	**105**	----	----	----	----
EA014 Total Soluble Salts								
^ Total Soluble Salts	----	5	mg/kg	**340**	----	----	----	----
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1.0	%	**17.1**	**20.2**	----	----	----
ED040S: Soluble Major Anions								
Sulphate as SO4 2-	14808-79-8	10	mg/kg	**50**	----	----	----	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	**100**	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	<2	**3**	----	----	----
Copper	7440-50-8	5	mg/kg	<5	<5	----	----	----
Lead	7439-92-1	5	mg/kg	<5	<5	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	<2	----	----	----
Zinc	7440-66-6	5	mg/kg	**28**	<5	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)	----	0.100	mg/kg	**0.199**	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
^ Nitrate as N (Sol.)	----	0.100	mg/kg	<0.100	----	----	----	----
EK059G: NOX as N by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)	----	0.100	mg/kg	**0.271**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen as N								
Total Kjeldahl Nitrogen as N	----	20	mg/kg	**140**	----	----	----	----
EK062: Total Nitrogen as N								
^ Total Nitrogen as N	----	20	mg/kg	**140**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	2	mg/kg	**24**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	060508-16-KW	060508-38-KW	----	----	----
Client sampling date / time				06-MAY-2008 15:00	06-MAY-2008 15:00	----	----	----
				ES0806313-001	**ES0806313-002**	----	----	----
EP066: Polychlorinated Biphenyls (PCB) - Continued								
Total Polychlorinated biphenyls	----	0.10	mg/kg	<0.10	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	060508-16-KW	060508-38-KW	----	----	----
			Client sampling date / time	06-MAY-2008 15:00	06-MAY-2008 15:00	----	----	----
				ES0806313-001	ES0806313-002	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
Styrene	100-42-5	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	----	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	----	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	5	mg/kg	<5	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg	<5	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	----	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	----	----	----	----
Chloromethane	74-87-3	5	mg/kg	<5	----	----	----	----
Vinyl chloride	75-01-4	5	mg/kg	<5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL			Client sample ID	060508-16-KW	060508-38-KW	----	----	----
			Client sampling date / time	06-MAY-2008 15:00	06-MAY-2008 15:00	----	----	----
Compound	CAS Number	LOR	Unit	ES0806313-001	ES0806313-002	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Bromomethane	74-83-9	5	mg/kg	<5	----	----	----	----
Chloroethane	75-00-3	5	mg/kg	<5	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg	<5	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg	<0.5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL			Client sample ID	060508-16-KW	060508-38-KW	----	----	----
			Client sampling date / time	06-MAY-2008 15:00	06-MAY-2008 15:00	----	----	----
Compound	CAS Number	LOR	Unit	ES0806313-001	ES0806313-002	----	----	----
EP074G: Trihalomethanes - Continued								
Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg	<0.5	----	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	mg/kg	<5	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1.0	mg/kg	<1.0	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	----	----	----	----
4-Chloro-3-Methylphenol	59-50-7	0.5	mg/kg	<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2.0	mg/kg	<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----

Analytical Results

Sub-Matrix: **SOIL**

Compound	CAS Number	LOR	Unit	060508-16-KW	060508-38-KW	----	----	----
			Client sampling date / time	06-MAY-2008 15:00	06-MAY-2008 15:00	----	----	----
				ES0806313-001	**ES0806313-002**	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
EP202A: Phenoxyacetic Acid Herbicides by LCMS								
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.04	----	----	----	----
2.4-DB	94-82-6	0.02	mg/kg	<0.04	----	----	----	----
Dicamba	1918-00-9	0.02	mg/kg	<0.04	----	----	----	----
Mecoprop	93-65-2	0.02	mg/kg	<0.04	----	----	----	----
MCPA	94-74-6	0.02	mg/kg	<0.04	----	----	----	----
2.4-DP	120-36-5	0.02	mg/kg	<0.04	----	----	----	----
2.4-D	94-75-7	0.02	mg/kg	<0.04	----	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg	<0.04	----	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.04	----	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg	<0.04	----	----	----	----
MCPB	94-81-5	0.02	mg/kg	<0.04	----	----	----	----
Picloram	1918-02-1	0.02	mg/kg	<0.04	----	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg	<0.04	----	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg	<0.04	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**87.0**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	**133**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	**92.2**	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**112**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	**111**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	**111**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	**79.7**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	**69.5**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	**74.6**	----	----	----	----
EP075(SIM)T: PAH Surrogates								

Analytical Results

Sub-Matrix: **SOIL**

			Client sample ID	**060508-16-KW**	**060508-38-KW**	----	----	----
			Client sampling date / time	06-MAY-2008 15:00	06-MAY-2008 15:00	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES0806313-001**	**ES0806313-002**	----	----	----
EP075(SIM)T: PAH Surrogates - Continued								
2-Fluorobiphenyl	321-60-8	0.1	%	**93.6**	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	**107**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	**108**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**118**	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	**99.6**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	**104**	----	----	----	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate								
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	**74.8**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	*CAS Number*	*Recovery Limits (%)* Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	164
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	136
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	10	136
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	24	113
2-Chlorophenol-D4	93951-73-6	23	134
2.4.6-Tribromophenol	118-79-6	19	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	30	115
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	18	137
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	70	130

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES0806463**	Page	: 1 of 6
Client	: **CONSULTING EARTH SCIENTISTS**	Laboratory	: Environmental Division Sydney
Contact	: MS KELLY WEIR	Contact	: Ashwini Sharma
Address	: JONES BAY WHARF 19-21, LOWER DECK, SUITE 121, 26-32 PIRRAMA ROAD PYRMONT NSW, AUSTRALIA 2040	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: kweir@consultingearth.com.au	E-mail	: Ashwini.Sharma@alsenviro.com
Telephone	: +61 85692200	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 95524399	Facsimile	: +61-2-8784 8500
Project	: CES050706-BCC	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: 128602	Date Samples Received	: 08-MAY-2008
Sampler	: LJ, KW	Issue Date	: 16-MAY-2008
Site	: AREA A		
		No. of samples received	: 1
Quote number	: SY/096/08	No. of samples analysed	: 1

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA
WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ashwini Sharma	Laboratory Manager	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Organics
Hoa Nguyen		Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been preformed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insuffient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Key : CAS Number = Chemistry Abstract Services number
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

Analytical Results

Sub-Matrix: **SOIL**			Client sample ID	**070508-57-KW**	----	----	----	----
			Client sampling date / time	07-MAY-2008 15:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES0806463-001**	----	----	----	----
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1.0	%	**21.9**	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**2**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**6**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**9**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	<2	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**8**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL			Client sample ID	070508-57-KW	----	----	----	----
			Client sampling date / time	07-MAY-2008 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES0806463-001	----	----	----	----
EP080: BTEX - Continued								
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	91.4	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	85.4	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	111	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	88.5	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	87.5	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	87.3	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	88.6	----	----	----	----
Toluene-D8	2037-26-5	0.1	%	91.8	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%	83.7	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	Recovery Limits (%) High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	24	113
2-Chlorophenol-D4	93951-73-6	23	134
2.4.6-Tribromophenol	118-79-6	19	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	30	115
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	18	137
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES080593C**	gl : P	13 of L
NU eLdU eLT	: **3**		
i sPvy	1 **I OGSARHIG. EN+H6 SI IEGHISHS**	bl r otl yotC	1 EvmtovDPvyl sd mmerov SCcvPC
i ovyl My	1 KS YEbbWI EPA	i ovyl My	1 hewJ rvnSwl tDI
hcctPee	1 ONBES HhWI 9hAa 3F-23, bNI EA d Ei Y, SURTE 323, 26-72 gRAAhKh ANhd gWAKNBT BSI , hUSTAhbRh 20p0	hcctPee	1 2LL-28F I oockl tu Aol c SDrywfrPs BSI h@ytl st 236p
E-DI rs	1 uJ Pt. Move@yv: Pl tyw+MoD+ @	E-DI rs	1 hewJ rvn+Swl tDI . I sePvmto+MoD
TPsPkwovP	1 563 846F2200	TPsPkwovP	1 563-2-8L8p 8444
al MerD rsP	1 563 02 F442p7FF	al MerD rsP	1 563-2-8L8p 8400
gtojPMy	1 i ES040L06-Hi i	Qi bPmPs	1 BEgK 3FFF SMwPc@P H(7) I vc hbS Qi S7 tPq@tPDPvy
NtcPt v@r Pt	1 ----		
i -N-i v@r Pt	1 32860p	dl yP SI DksPe APMPmPc	1 0F-KhW-2008
SI DksPt	1 b+OEBYRBS, Y+I EPA	Ree@P dl yP	1 26-KhW-2008
SnjP	1 hAEh h		
		Bo+of el DksPe tPMPmPc	13
Q@yP v@r Pt	1 SW0F6/08	Bo+of el DksPe I vl sCePc	13

Twre tPkoty e@tPtePcPe I vC ktPmo@e tPkoty(e) J ryw ywre tPfPtPvMP+ APe@ye I kksC yo ywP el DksP(e) I e e@DrnyPc+ hss kl : Pe of ywre tPkoty wl mP rPPv MwPMuPc I vc I kktomPc fot tPsPl eP+

Twre i PtyfrMl yP of hvl sCere Movyl rve ywP fosoJ rv: rvfotDI yrov1

- GPvPtl si oDDPvye
- hvl sCyrMl sAPe@ye
- S@to: I yP i ovytosbrD rye

BhTh hMMPcryPc bl r otl yotC824

Twre coM@DPvyre ree@Pc rv I MMotcl vMP J ryw BhTh I MMPcryl yrov tPq@rtPDPvye+

hMMPcryPc fot MoDksrl vMP J ryw RSN/REi 3L024+

Signatories

Twre coM@DPvy wl e rPPv PsPMytovrMl ssC en vPc rC ywP I @ywotrzPc en vl yotrPe rvcrMl yPc rPsoJ + EsPMytovrM en vrv: wl e rPPv M ttrPc o@yrv MoDksrl vMP J ryw ktoMPc@tPe ekPMrfrPc rv 23 i aA gl ty33+

Signatories	*Position*	*Accreditation Category*
hewJ rvnSwl tDI	bl r otl yotCKI vl : Pt	Rot: I vrMe
9ol B: @Pv		Rot: I vrMe
g9hbhY RBT9hYESNBE	Nt: I vrMe i o-otcrvl yot	Rot: I vrMe
g9hbhY RBT9hYESNBE	Nt: I vrMe i o-otcrvl yot	Nt: I vrMe

NATA
WORLD RECOGNISED ACCREDITATION

General Comments

TwP I vI sOyMI s ktoMPc@Pe @Pc r C ywP EvmttovDPvyI s dmmerov wI mP r PPv cPmPsokPc ftoD PeyI rsrewPc nvyPtvI ymovI ssC tPMo: vnzPc ktoMPc@Pe e@Mw I e ywoeP k@srewPc r C ywP USEgh, hg9h, hS I vc BEgK+ Rr wo@P cPmPsokPc ktoMPc@Pe I tP PDksoOPc nv ywP I rePvMP of coM@DPvyPc eyI vcI tce ot r CMsPvytPq@Pey+

I wPtP Dorey@P cPyPtDnvI ymov wI e r PPv ktPfotDPc, tPe@Ise I tP tPkotyPc ov I ctCJ Pn wyr I ene+

I wPtP I tPkotyPc sPee ywI v (<) tPe@Iyne wn wPt ywI v ywP bNA, ywne DI Cr P c@P yo ktnDI tCeI DksP PxytI MyCn PeyI yP cns@mov I vc/ot nve@ffnPvyeI DksP fot I vI sOene+

I wPtP ywP bNA of I tPkotyPc tPe@IycnffPte ftoD eyI vcI tc bNA, ywne DI Cr P c@P yo wn w Dorey@P MovyPvy, nve@ffnMnPvyeI DksP (tPc@MPc J Pn wyPDksoOPc) ot DI ytnx nvyPtfPtPvMP+

I wPv cI yP(e) I vc/ot ynDP(e) I tP ewoJ v rtI MuPyPc, ywPeP wI mP r PPv I ee@DPc r C ywP s rotI yotCfot ktoMPeenv: k@tkoePe+R ywP eI Dksnv: ynDP ne cnrekI OPc I e 0100 ywP nvfotDI ymov J I e voyktomncPc r CMsPvy+

YPC1 i hS B@Dr Pt = i wPDneytChr eytI MySPtnnMPe v@Dr Pt
bNA = bnDnyof tPkotynv:
K = Twne tPe@Iyne MoDk@yPc ftoD nvcnmnc@sI vI sOyP cPyPMymove I yot I r omP ywP sPmPsof tPkotynv:

Analytical Results

S@-KI ytrx: SOIR

			Client sample ID	0809087349 7MW	----	----	----	----
			Client sampling date / time	08-KhW-2008 34:00	----	----	----	----
Compound	**CAS Number**	**LOR**	**Unit**	**ES080593C7003**	7777	7777	7777	7777
EN099: i otbTure I oLTeLT								
Ki otbTure I oLTeLTrdrted (30@I)	----	3·0	%	**40·4**	----	----	----	----
E. 009H: HoTg1i eTg1b my II P7NES								
NrbeLt^	Lpp0-78-2	4	D: /u:	<4	----	----	----	----
I gdU tuU	Lpp0-p7-F	3	D: /u:	<3	----	----	----	----
I hroU tuU	Lpp0-pL-7	2	D: /u:	**4**	----	----	----	----
I opper	Lpp0-40-8	4	D: /u:	<4	----	----	----	----
Regd	Lp7F-F2-3	4	D: /u:	<4	----	----	----	----
Gt^ke1	Lpp0-02-0	2	D: /u:	<2	----	----	----	----
ZtL^	Lpp0-66-6	4	D: /u:	<4	----	----	----	----
E. 0@H: HoTg1+e^oFergmte i er^ury my BIi S								
i er^ury	Lp7F-FL-6	0·8	D: /u:	<0·8	----	----	----	----
EP055: Po1y^h1ortLgTed x tpheLy1b rPI x)								
HoTg1Po1y^h1ortLgTed mtpheLy1b	----	0·80	D: /u:	<0·80	----	----	----	----
EP058N: OrcgLo^h1ortLe PebTt^tdeb rOI)								
g1phg7x6I	73F-8p-6	0·04	D: /u:	<0·04	----	----	----	----
6ezg^h1bromeLfeLe r6I x)	338-Lp-3	0·04	D: /u:	<0·04	----	----	----	----
meTg7x6I	73F-84-L	0·04	D: /u:	<0·04	----	----	----	----
cgU U g7x6I	48-8F-F	0·04	D: /u:	<0·04	----	----	----	----
de1Tg7x6I	73F-86-8	0·04	D: /u:	<0·04	----	----	----	----
6epTg^h1or	L6-pp-8	0·04	D: /u:	<0·04	----	----	----	----
N1drtL	70F-00-2	0·04	D: /u:	<0·04	----	----	----	----
6epTg^h1or epoztde	302p-4L-7	0·04	D: /u:	<0·04	----	----	----	----
TrgLb7I h1ordgLe	4307-Lp-2	0·04	D: /u:	<0·04	----	----	----	----
g1phg7ELdobu1TgL	F4F-F8-8	0·04	D: /u:	<0·04	----	----	----	----
^tb7I h1ordgLe	4307-L3-F	0·04	D: /u:	<0·04	----	----	----	----
` te1drtL	60-4L-3	0·04	D: /u:	<0·04	----	----	----	----
a-av7 ` E	L2-44-F	0·04	D: /u:	<0·04	----	----	----	----
ELdrtL	L2-20-8	0·04	D: /u:	<0·04	----	----	----	----
meTg7ELdobu1TgL	77237-64-F	0·04	D: /u:	<0·04	----	----	----	----
a-av7 ` `	L2-4p-8	0·04	D: /u:	<0·04	----	----	----	----
ELdrtL g1dehyde	Lp23-F7-p	0·04	D: /u:	<0·04	----	----	----	----
ELdobu1TgL bu1TgTe	3073-0L-8	0·04	D: /u:	<0·04	----	----	----	----
a-av7 ` H	40-2F-7	0·2	D: /u:	<0·2	----	----	----	----
ELdrtL keToLe	47pFp-L0-4	0·04	D: /u:	<0·04	----	----	----	----
i eThozy^h1or	L2-p7-4	0·2	D: /u:	<0·2	----	----	----	----
EP058x: OrcgLophobphorub PebTt^tdeb rOP)								
` t^h1orFob	62-L7-L	0·04	D: /u:	<0·04	----	----	----	----

Analytical Results

S@-KI ytrx: SOIR

Compound	CAS Number	LOR	Unit	08090873497MW	----	----	----	----
			Client sampling date / time	08-KhW2008 34100	----	----	----	----
				ES080593C7003	7777	7777	7777	7777
EP058x : OrcgLophobphorub PebTt^tdeb rOP) 7I oLTtLued								
` eU eToL7S7U eThy1	F3F-86-8	0.04	D: /u:	<0.04	----	----	----	----
i oLo^roTophob	6F27-22-p	0.2	D: /u:	<0.2	----	----	----	----
` tU eThogTe	60-43-4	0.04	D: /u:	<0.04	----	----	----	----
` tgf tLoL	777-p3-4	0.04	D: /u:	<0.04	----	----	----	----
I h1orpyrtDob7U eThy1	44F8-37-0	0.04	D: /u:	<0.04	----	----	----	----
PgrgThtoL7U eThy1	2F8-00-0	0.2	D: /u:	<0.2	----	----	----	----
i g1gThtoL	323-L4-4	0.04	D: /u:	<0.04	----	----	----	----
BeLThtoL	44-78-F	0.04	D: /u:	<0.04	----	----	----	----
I h1orpyrtDob	2F23-88-2	0.04	D: /u:	<0.04	----	----	----	----
PgrgThtoL	46-78-2	0.2	D: /u:	<0.2	----	----	----	----
PtrtU phob7eThy1	27404-p3-3	0.04	D: /u:	<0.04	----	----	----	----
I h1orDeLFtLphob	pL0-F0-6	0.04	D: /u:	<0.04	----	----	----	----
x roU ophob7eThy1	p82p-L8-6	0.04	D: /u:	<0.04	----	----	----	----
BeLgU tphob	2222p-F2-6	0.04	D: /u:	<0.04	----	----	----	----
ProThtoDob	7p6p7-p6-p	0.04	D: /u:	<0.04	----	----	----	----
EThtoL	467-32-2	0.04	D: /u:	<0.04	----	----	----	----
I grmopheLoThtoL	L86-3F-6	0.04	D: /u:	<0.04	----	----	----	----
NftLphob i eThy1	86-40-0	0.04	D: /u:	<0.04	----	----	----	----
EP0w9rSli)x : Po1yLu^1egr NroU gTt^ 6ydro^grmoLb								
GgphThg1eLe	F3-20-7	0.4	D: /u:	<0.4	----	----	----	----
N^eLgphThy1eLe	208-F6-8	0.4	D: /u:	<0.4	----	----	----	----
N^eLgphTheLe	87-72-F	0.4	D: /u:	<0.4	----	----	----	----
B1uoreLe	86-L7-L	0.4	D: /u:	<0.4	----	----	----	----
PheLgLThreLe	84-03-8	0.4	D: /u:	<0.4	----	----	----	----
NLThrg^eLe	320-32-L	0.4	D: /u:	<0.4	----	----	----	----
B1uorgLTheLe	206-pp-0	0.4	D: /u:	<0.4	----	----	----	----
PyreLe	32F-00-0	0.4	D: /u:	<0.4	----	----	----	----
x eLf rg)gLThrg^eLe	46-44-7	0.4	D: /u:	<0.4	----	----	----	----
I hrybeLe	238-03-F	0.4	D: /u:	<0.4	----	----	----	----
x eLf orn)DuorgLTheLe	204-FF-2	0.4	D: /u:	<0.4	----	----	----	----
x eLf ork)DuorgLTheLe	20L-08-F	0.4	D: /u:	<0.4	----	----	----	----
x eLf org)pyreLe	40-72-8	0.4	D: /u:	<0.4	----	----	----	----
ILdeLor3-4-@^d)pyreLe	3F7-7F-4	0.4	D: /u:	<0.4	----	----	----	----
` tmeLf rg-h)gLThrg^eLe	47-L0-7	0.4	D: /u:	<0.4	----	----	----	----
x eLf orc-h-t)pery1eLe	3F3-2p-2	0.4	D: /u:	<0.4	----	----	----	----
EP080/0w3: HoTg1PeTro1euU 6ydro^grmoLb								
I 5 7I C Brg^TtoL	----	30	D: /u:	<30	----	----	----	----
I 30 7I 3a Brg^TtoL	----	40	D: /u:	<40	----	----	----	----

Analytical Results

S@-KI ytx: SOIR			Client sample ID	0809087349 7MW	----	----	----	----
			Client sampling date / time	08-KhW-2008 34:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES080593C7003	7777	7777	7777	7777
EP080/0w8: HoTg1PeTro1euU 6ydro^grmoLb 7I oLTtLued								
I 39 7I 48 Brg^TtoL	----	300	D: /u:	<300	----	----	----	----
I 4C7I @5 Brg^TtoL	----	300	D: /u:	<300	----	----	----	----
EP080: xHEX								
xeLfeLe	L3-p7-2	0-2	D: /u:	<0-2	----	----	----	----
Ho1ueLe	308-88-7	0-4	D: /u:	<0-4	----	----	----	----
EThy1neLfeLe	300-p3-p	0-4	D: /u:	<0-4	----	----	----	----
UeTg7& pgrg7Xy1eLe	308-78-7 306-p2-7	0-4	D: /u:	<0-4	----	----	----	----
orTho7Xy1eLe	F4-pL-6	0-4	D: /u:	<0-4	----	----	----	----
EP055S: PI x SurrocgTe								
` e^g^h1oromtpheLy1	2043-2p-7	0-8	%	**Ca-0**	----	----	----	----
EP058S: OrcgLo^h1ortLe PebTt^tde SurrocgTe								
` tmroUo7 ` E	23644-L7-2	0-8	%	**3@a**	----	----	----	----
EP058H: OrcgLophobphorub PebTt^tde SurrocgTe								
` EB	L8-p8-8	0-8	%	**8@w**	----	----	----	----
EP0w9rSli)S: PheLo1t^ I oUpouLd SurrocgTeb								
PheLo17d5	3732L-88-7	0-8	%	**wC-5**	----	----	----	----
47I h1oropheLo17 a	F7F43-L7-6	0-8	%	**wC-a**	----	----	----	----
4-a-57HrtmroUopheLo1	338-LF-6	0-8	%	**80-8**	----	----	----	----
EP0w9rSli)H: PN6 SurrocgTeb								
47B1uoromtpheLy1	723-60-8	0-8	%	**wC-8**	----	----	----	----
NLThrg^eLe7d30	3L3F-06-8	0-8	%	**C0-4**	----	----	----	----
a7HerpheLy17d3a	3L38-43-0	0-8	%	**304**	----	----	----	----
EP080S: HP6 rV)/xHEX SurrocgTeb								
3-47 t^h1oroeThgLe7 a	3L060-0L-0	0-8	%	**33w**	----	----	----	----
Ho1ueLe7 8	207L-26-4	0-8	%	**8C-a**	----	----	----	----
a7xroUoDluoromeLfeLe	p60-00-p	0-8	%	**C9-8**	----	----	----	----

Surrogate Control Limits

S@-Kl ytrx: SOIR

Compound	CAS Number	Recovery Limits (%) Low	High
EP055S: PI x SurrocgTe			
` e^g^h1bromtpheLy1	2043-2p-7	30	36p
EP058S: OrcgLo^h1brtLe PebTt^tde SurrocgTe			
` tmroU o7 ` E	23644-L7-2	30	376
EP058H: OrcgLophobphorub PebTt^tde SurrocgTe			
` EB	L8-p8-8	30	376
EP0w9rSli)S: PheLo1t^ I oU pouLd SurrocgTeb			
PheLo17d5	3732L-88-7	2p	337
47I h1oropheLo17 a	F7F43-L7-6	27	37p
4-a-57HrtmroU opheLo1	338-LF-6	3F	322
EP0w9rSli)H: PN6 SurrocgTeb			
47B1uoromtpheLy1	723-60-8	70	334
NLThrg^eLe7d30	3L3F-06-8	2L	377
a7HerpheLy17d3a	3L38-43-0	38	37L
EP080S: HP6 nV)/x HEX SurrocgTeb			
3-47 t^h1broeThgLe7 a	3L060-0L-0	80	320
Ho1ueLe7 8	207L-26-4	83	33L
a7x roU oDuoromeLf eLe	p60-00-p	Lp	323

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES080593C**	gl : P	13 of L
NU eLdU eLT	: I		
i sPvy	1 **GOASRHI .A+ EN6I 1 SG.EAI .SI S**	bl rotl yotC	1 EvmtiovDPvyl sdmmeov SCcvPC
i ovyl My	1 KY bWI E REAI hAS	i ovyl My	1 weJOrvnSJI tDI
wcctPee	1 RNAES BwH 9 - wYa 3F2, 3UbN9 EY dEi I USWiTE 3, 3U , 627, ghYYwKw YNwd gHYKNAT AS9 UwWSTYwbhw , 0p0	wcctPee	1, LL2, 8F 9 oockl tu Yol c SDryJfrPsc AS9 w@ytl sh , 36p
E2DI rs	1 sPvurve+ Mbve@yv: Pl tyJ5MbD5 @	E2DI rs	1 weJOrvn5SJI tDI + I sePvmtio5MbD
TPsPkJovP	1 j 63 846F, , 00	TPsPkJovP	1 j 632, 28L8p 8444
al MenD rsP	1 j 63 0, F44, p7FF	al MenD rsP	1 j 632, 28L8p 8400
gto.PMy	1 i ES040L062Bi i	Qi bPmPs	1 AEgK 3FFF SMJPc@P B(7) I vc wbS Qi S7 tPq@PDPvy
NtcPt v@r Pt	1 2222		
i 2N2 v@r Pt	1 3, 860p	dl yP SI DksPe YPMPmPc	1 0F2K wH2, 008
SI DksPt	1 b5REAI hASUI 59 EhY	hee@P dl yP	1, L2K wH2, 008
SnyP	1 wYEw w		
		Ao5of el DksPe tPMPmPc	13
Q@oyP v@r Pt	1 SH/0F6/08	Ao5of el DksPe I vl sCePc	13

TJre tPkoty e@tPtePcPe I vC ktPmo@e tPkoty(e) OryJ yJre tPfPtPvMP5 YPe@ye I kksC yo yJP el DksP(e) I e e@DnyPc5 wss kl : Pe of yJre tPkoty JI mP rPPv MJPMuPc I vc I kktomPc fot tPsPl eP5

TJre i PtyfiMI yP of wvI sCere Mbvyl rve yJP fosoOrv: rvfotDI yrov1

- GPvPtI si oDDPvye
- wvI sCyMI sYPe@ye
- S@to: I yP i ovytosbnDrye

NATA
WORLD RECOGNISED
ACCREDITATION

AwTw wMMPcryPc bl rotl yotC8, 4

TJre coM@DPvyre ree@Pc rv
I Mbotcl vMP OryJ AwTw
I MMPcryl yrov tPq@rPDPvye5

wMMPcryPc fot MbDksl vMP OryJ
hSN/hEi 3L0, 45

Signatories

TJre coM@DPvy JI e rPPv PsPMytovrMI ssC en vPc rC yJP I @JotrzPc en vI yotrPe rvcrMI yPc rPsoO5 EsPMytovrM en vrv: JI e rPPv MI ttrPc o@yrv MbDksrI vMP OryJ ktoMPc@tPe ekPMrfrPc rv , 3 i aY gl ty335

Signatories	*Position*	*Accreditation Category*
weJOrvnSJI tDI	bl rotl yotCKI vI : Pt	hvot: I vrMe
- ol A: @DPv		hvot: I vrMe
g- wbwl hAT- wl ESNAE	Nt: I vrMe i o2otcrvI yot	hvot: I vrMe
g- wbwl hAT- wl ESNAE	Nt: I vrMe i o2otcrvI yot	Nt: I vrMe

General Comments

TJP I vI sCynMI s ktoMPc@Pe @ePc r C yJP EvmtovDPvyI s dmmenov JI mP r PPv cPmPsokPc ftoD PeyI r seJPc nvyPtvI ynovI ssC tPMb: vnzPc ktoMPc@Pe e@MJ I e yJoeP k@ seJPc r C yJP WSEgwU wg- wU wS I vc AEgK5 hv Jo@eP cPmPsokPc ktoMPc@Pe I tP PDksoCPc nv yJP I r ePvMP of coM@DPvyPc eyI vcI tce ot r CMshPvytPq@Pey5

9 JPtP Doney@P cPyPtDnvI ynov JI e r PPv ktPfotDPcUtPe@sye I tP tPkotyPc ov I ctCOPn JyrI ene5

9 JPtP I tPkotyPc sPee yJI v (<) tPe@syne Jn JPt yJI v yJP bNYUyJne DI Cr P c@P yo ktnDI tCeI DksP PxytI MyJcn PeyI yP cns@ynov I vc/ot nve@ffnPvyeI DksP fot I vI sCene5

9 JPtP yJP bNY of I tPkotyPc tPe@sycnffPte ftoD eyI vcI tc bNYUyJne DI Cr P c@P yo Jn J Doney@P MbvyPvyUnve@ffnMPvyeI DksP (tPc@MPc OPn JyPDksoCPc) ot DI ytnx nvyPtfPtPvMP5

9 JPv cI yP(e) I vc/ot yDP(e) I tP eJoOv r tI MuPyPcUyJPeP JI mP r PPv I ee@DPc r CyJP sI r otI yotCfot ktoMPeev: k@tkoePe5hf yJP eI Dksv: yDP ne cnekst CPc I e 0100 yJP nvfotDI ynov OI e voyktomncPc r CMshPvy5

I PC1 i wS A@Dr Pt = i JPDneytCwr eytI MySPtmnMPe v@Dr Pt
bNY = bnDnyof tPkotyv:
K = TJne tPe@syne MbDk@yPc ftoD nvcmmc@ sI vI sCyP cPyPMynove I yot I r omP yJP sPmPsof tPkotyv:

Analytical Results

S@2K l ytrx: SO.H			Client sample ID	08090843l 94MW	2222	2222	2222	2222
			Client sampling date / time	082K wH2 008 34100	2222	2222	2222	2222
Compound	CAS Number	LOR	Unit	ES080593C4003	4444	4444	4444	4444
EN099: i otbTure GoLTeLT								
Ki otbTure GoLTeLTrdrted (30@G)	2222	350	%	l 02	2222	2222	2222	2222
E+ 009l : l oTg-i eTg-b my .GP4NES								
NrbeLt^	Lpp02782	4	D: /u:	<4	2222	2222	2222	2222
GgdU tuU	Lpp02p72F	3	D: /u:	<3	2222	2222	2222	2222
GhroU tuU	Lpp02pL27	,	D: /u:	l	2222	2222	2222	2222
Gopper	Lpp024028	4	D: /u:	<4	2222	2222	2222	2222
Hegd	Lp7F2F, 23	4	D: /u:	<4	2222	2222	2222	2222
At^ke-	Lpp020, 20	,	D: /u:	<,	2222	2222	2222	2222
ZtL^	Lpp026626	4	D: /u:	<4	2222	2222	2222	2222
E+ 0@l : l oTg- 6e^oFergme i er^ury my B.i S								
i er^ury	Lp7F2FL26	053	D: /u:	<053	2222	2222	2222	2222
EP055: Po-y^h-ortLgTed x tpheLy-b rPGx)								
l oTg- Po-y^h-ortLgTed mtpheLy-b	2222	0530	D: /u:	<0530	2222	2222	2222	2222
EP058N: OrcgLo^h-ortLe PebTt^tdeb rOG)								
g-phg4x 1 G	73F28p26	0504	D: /u:	<0504	2222	2222	2222	2222
1 ezg^h-oromeLf eLe nl Gx)	3382Lp23	0504	D: /u:	<0504	2222	2222	2222	2222
meTg4x 1 G	73F2842L	0504	D: /u:	<0504	2222	2222	2222	2222
cgU U g4x 1 G	4828F2F	0504	D: /u:	<0504	2222	2222	2222	2222
de-Tg4x 1 G	73F28628	0504	D: /u:	<0504	2222	2222	2222	2222
1 epTg^h-or	L62pp28	0504	D: /u:	<0504	2222	2222	2222	2222
N-drtL	70F2002	0504	D: /u:	<0504	2222	2222	2222	2222
1 epTg^h-or epoztde	30, p24L27	0504	D: /u:	<0504	2222	2222	2222	2222
TrgLb4Gh-ordgLe	43072Lp2	0504	D: /u:	<0504	2222	2222	2222	2222
g-phg4ELdobu-DgL	F4F2F828	0504	D: /u:	<0504	2222	2222	2222	2222
^tb4Gh-ordgLe	43072L32F	0504	D: /u:	<0504	2222	2222	2222	2222
` te-drtL	6024L23	0504	D: /u:	<0504	2222	2222	2222	2222
a2av4 ` E	L, 2442F	0504	D: /u:	<0504	2222	2222	2222	2222
ELdrtL	L, 2 028	0504	D: /u:	<0504	2222	2222	2222	2222
meTg4ELdobu-DgL	77, 372642F	0504	D: /u:	<0504	2222	2222	2222	2222
a2av4 ` `	L, 24p28	0504	D: /u:	<0504	2222	2222	2222	2222
ELdrtL g-dehyde	Lp, 32F72p	0504	D: /u:	<0504	2222	2222	2222	2222
ELdobu-DgL bu-DgTe	307320L28	0504	D: /u:	<0504	2222	2222	2222	2222
a2av4 ` l	402 F27	05	D: /u:	<05	2222	2222	2222	2222
ELdrtL keToLe	47pFp2L024	0504	D: /u:	<0504	2222	2222	2222	2222
i eThozy^h-or	L, 2p724	05	D: /u:	<05	2222	2222	2222	2222
EP058x : OrcgLophobphorub PebTt^tdeb rOP)								
` t^h-orFob	6, 2L72L	0504	D: /u:	<0504	2222	2222	2222	2222

Analytical Results

S@2K l ytrx: SO.H			Client sample ID	08090843l 94MW	2222	2222	2222	2222
			Client sampling date / time	082K wH2 008 34 100	2222	2222	2222	2222
Compound	CAS Number	LOR	Unit	ES080593C4003	4444	4444	4444	4444
EP058x : OrcgLophobphorub PebTt^tdeb rOP) 4GoLTtLued								
` eU eToL4S4U eThy-	F3F2862B	0504	D: /u:	<0504	2222	2222	2222	2222
i oLo^roTophob	6F, 72 , 2p	05	D: /u:	<05	2222	2222	2222	2222
` tU eThogTe	6024324	0504	D: /u:	<0504	2222	2222	2222	2222
` tgf tLoL	7772p324	0504	D: /u:	<0504	2222	2222	2222	2222
Gh-orpyrtDob4U eThy-	44F82372D	0504	D: /u:	<0504	2222	2222	2222	2222
PgrgThtoL4U eThy-	, F8202D	05	D: /u:	<05	2222	2222	2222	2222
i g-gThtoL	3, 32L424	0504	D: /u:	<0504	2222	2222	2222	2222
BeLThtoL	442782F	0504	D: /u:	<0504	2222	2222	2222	2222
Gh-orpyrtDob	, F, 32882	0504	D: /u:	<0504	2222	2222	2222	2222
PgrgThtoL	462782	05	D: /u:	<05	2222	2222	2222	2222
PtrtU phob4eThy-	, 74042p323	0504	D: /u:	<0504	2222	2222	2222	2222
Gh-orDeLFtLphob	pL02F026	0504	D: /u:	<0504	2222	2222	2222	2222
x roU ophob4eThy-	p8, p2L826	0504	D: /u:	<0504	2222	2222	2222	2222
BeLgU tphob	, , , , p2F, 26	0504	D: /u:	<0504	2222	2222	2222	2222
ProThtoDob	7p6p72p62p	0504	D: /u:	<0504	2222	2222	2222	2222
EThtoL	46723, 2	0504	D: /u:	<0504	2222	2222	2222	2222
GgrmopheLoThtoL	L8623F26	0504	D: /u:	<0504	2222	2222	2222	2222
Nf tLphob i eThy-	86240 2D	0504	D: /u:	<0504	2222	2222	2222	2222
EP0w9rS.i)x : Po-yLu^-egr NroU gTt^ 1 ydro^grmoLb								
AgphThg-eLe	F32, 027	054	D: /u:	<054	2222	2222	2222	2222
N^eLgphThy-eLe	, 082F628	054	D: /u:	<054	2222	2222	2222	2222
N^eLgphTheLe	8727, 2F	054	D: /u:	<054	2222	2222	2222	2222
B-uoreLe	862L72L	054	D: /u:	<054	2222	2222	2222	2222
PheLgLThreLe	8420328	054	D: /u:	<054	2222	2222	2222	2222
NLThrg^eLe	3, 023, 2L	054	D: /u:	<054	2222	2222	2222	2222
B-uorgLTheLe	, 062pp2D	054	D: /u:	<054	2222	2222	2222	2222
PyreLe	3, F2002D	054	D: /u:	<054	2222	2222	2222	2222
x eLf rg)gLThrg^eLe	4624427	054	D: /u:	<054	2222	2222	2222	2222
GhrybeLe	, 382032F	054	D: /u:	<054	2222	2222	2222	2222
x eLf orn)DuorgLTheLe	, 042FF2	054	D: /u:	<054	2222	2222	2222	2222
x eLf ork)DuorgLTheLe	, 0L2082F	054	D: /u:	<054	2222	2222	2222	2222
x eLf org)pyreLe	4027, 28	054	D: /u:	<054	2222	2222	2222	2222
.LdeLor82 2@^d)pyreLe	3F727F24	054	D: /u:	<054	2222	2222	2222	2222
` tmeLf rg2h)gLThrg^eLe	472L027	054	D: /u:	<054	2222	2222	2222	2222
x eLf orc2h2)pery-eLe	3F32, p2	054	D: /u:	<054	2222	2222	2222	2222
EP080/0w8: l oTg- PeTro-euU 1 ydro^grmoLb								
G5 4GC Brg^TtoL	2222	30	D: /u:	<30	2222	2222	2222	2222
G30 4G3a Brg^TtoL	2222	40	D: /u:	<40	2222	2222	2222	2222

Analytical Results

S@2K I ytrx: SO.H			Client sample ID	08090843I 94MW	2222	2222	2222	2222
			Client sampling date / time	082K wH2 008 34100	2222	2222	2222	2222
Compound	CAS Number	LOR	Unit	ES080593C4003	4444	4444	4444	4444
EP080/0w8: I oTg- PeTro-euU 1 ydro^grmoLb 4GoLTtLued								
G39 4GI 8 Brg^TtoL	2222	300	D: /u:	<300	2222	2222	2222	2222
GI C4G@5 Brg^TtoL	2222	300	D: /u:	<300	2222	2222	2222	2222
EP080: x I EX								
xeLfeLe	L32p72	05	D: /u:	<05	2222	2222	2222	2222
I o-ueLe	3082882	054	D: /u:	<054	2222	2222	2222	2222
ETthy-meLfeLe	3002p32p	054	D: /u:	<054	2222	2222	2222	2222
U eTg4& pgrg4Xy-eLe	308278Z7 3062p, 27	054	D: /u:	<054	2222	2222	2222	2222
orTho4Xy-eLe	F42pL26	054	D: /u:	<054	2222	2222	2222	2222
EP055S: PGx SurrocgTe								
` e^g^h-oromtpheLy-	, 0432 p27	053	%	Ca20	2222	2222	2222	2222
EP058S: OrcgLo^h-ortLe PebTt^tde SurrocgTe								
` tmroU o4 ` E	, 36442L72	053	%	3@a	2222	2222	2222	2222
EP058I : OrcgLophobphorub PebTt^tde SurrocgTe								
` EB	L82p828	053	%	8@w	2222	2222	2222	2222
EP0w9rS.i)S: PheLo-t^ GoU pouLd SurrocgTeb								
PheLo-4d5	373, L2882Z	053	%	wC25	2222	2222	2222	2222
I 4Gh-oropheLo-4 a	F7F432L726	053	%	wC2a	2222	2222	2222	2222
I 2a254 rtmroU opheLo-	3382LF26	053	%	8028	2222	2222	2222	2222
EP0w9rS.i)I : PN1 SurrocgTeb								
I 4B-uoromtpheLy-	7, 326028	053	%	wC28	2222	2222	2222	2222
NLThrg^eLe4d30	3L3F2062B	053	%	C02	2222	2222	2222	2222
a4 erpheLy-4d3a	3L382432D	053	%	30I	2222	2222	2222	2222
EP080S: I P1 rV)/x I EX SurrocgTeb								
324 t^h-oroeThgLe4 a	3L06020L20	053	%	33w	2222	2222	2222	2222
I o-ueLe4 8	, 07L2 624	053	%	8C2a	2222	2222	2222	2222
a4x roU oDuoromeLfeLe	p602002p	053	%	C928	2222	2222	2222	2222

Surrogate Control Limits

S@2K l ytrx: **SO.H**

Compound	CAS Number	Recovery Limits (%) Low	High
EP055S: PGx SurrocgTe			
` e^g^h-orontpheLy-	, 0432 p27	30	36p
EP058S: OrcgLo^h-ortLe PebTt^tde SurrocgTe			
` tmroU o4 ` E	, 36442L72,	30	376
EP058I : OrcgLophobphorub PebTt^tde SurrocgTe			
` EB	L82p828	30	376
EP0w9rS.i)S: PheLo-t^ GoU pouLd SurrocgTeb			
PheLo-4d5	373, L28827	, p	337
I 4Gh-oropheLo-4 a	F7F432L726	, 7	37p
I 2a254 rtmroU opheLo-	3382LF26	3F	3, ,
EP0w9rS.i)I : PN1 SurrocgTeb			
I 4B-uorontpheLy-	7, 326028	70	334
NLTrrg^eLe4d30	3L3F20628	, L	377
a4 erpheLy-4d3a	3L3824320	38	37L
EP080S: I P1 rV)/x I EX SurrocgTeb			
32 4 t^h-oroeThgLe4 a	3L06020L20	80	3, 0
I o-ueLe4 8	, 07L2, 624	83	33L
a4x roU oDuoromeLf eLe	p602002p	Lp	3, 3

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES0806641**	Page	: 31 of5
t lyeCb	: **CONSULTING EARTH SCIENTISTS**	f a7 Lab Lr	: ECi yL On eCbal1v yi ysy C1Sr mCer
t CbaDb	: d S1c Ef f MK EYW	t CbaDb	: I sRAyCyfSRaLn a
I mrLess	: hwJ ES1OI MK NI WF13BH 32f wK EWv Et c21S, YUE13- 32 - 5H- 1PYWWI d I 1Wwl v PMWd wJ U1U SK 21 , SUWI f Y 1- 090	I mrLess	: - 66H 8B1K m4aLp1W am1Sn yRoyelm1U SK 1 ksbLalya1- 359
EHn ay	: pAeyLu D CsklbyCgeaLR@ n @k	EHn ay	: I sRAyCy@RaLn au alseCi yL @ n
Uele4R Ce	: . 5318+5B- - 00	Uele4R Ce	: . 53H H8689 18+++
FaDsyn ye	: . 5310- 1B++- 9TBB	FaDsyn ye	: . 53H H8689 18+00
PL jeDb	: t ES0+0605HOt t	Qt 1f ei el	: J EPd 13BBB11SDRemkle1O(T)1aOm1 f S1Qt ST1LeqkyLen eCb
wLmeL1Ckn 7eL	: HHHH		
t HvHI 1Ckn 7eL	: 3T0- 93	v abe1San 4les1WeDeyi em	: 3THd I MH 008
San 4leL	: cK	Ysske1v abe	: - 3Hd I MH 008
Syle	: I WEI 1		
		J @ofsan 4les1LeDeyi em	: T
Qk be1Ckn 7eL	: SM0B5/08	J @ofsan 4les1aCalr sem	: T

URys1 Le4 Lb1 sk4eLsemes1 aCr 1 4Lei y ks1 Le4 Lb(s)1 AybR1 bRys1 LeoeLeCDe@ Wesklbs1 a44lr 1 b 1 bRe1 san 4le(s)1 as1 sk7n ybem@ I Il1 4ages1 of bRys1 Le4 Lb1 Rai e1 7eeC1 DReDpem1 aOm1 a44L i em1 o L Lelease@

URys1 eLbgDabe1 of Calr sys1D CbayCs1bRe1o II AyCg1yCo Ln aby C:

- GeCeLal1t n n eCbs
- I CalrbyDal1Wesklbs
- SkLL gabe1t CbL I1f yn ybs

NATA
WORLD RECOGNISED ACCREDITATION

J I UI 1 DDLembem1f a7 Lab Lr 13- +
1
URys1m Dkn eCbys1ysskem1yC1
aDD LmaCDe1AybR1I UI 1
aDDLembaby C1LeqkyLen eCbs@

I DDLembemb LD n 4lyaCDe1AybR1
YSw/Et 1360- +@

Signatories

URys1 m Dkn eCb1 Ras1 7eeC1 eleDbL OyDallr 1 sygCem1 7r 1 bRe1 akbR Lyzem1 sygCab Lyes1 yOmyDabem1 7el A@ EleDbL OyD1 sygCyCg1 Ras1 7eeC DaLLyem1 kbyC D n 4lyaCDe1AybR1L DemkLes1s4eDyoyem1yC1- 31t FWPaLb33@

Signatories	Position	Accreditation Category
I sRAyCyfSRaLn a	f a7 Lab Lr 1d aCageL	YC LgaCyDs
N a1U gkr eC		YC LgaCyDs
Pa7yfSk77a	SeCy L1wLgaCyDt Ren ysb(V labyle)	YC LgaCyDs
Pa7yfSk77a	SeCy L1wLgaCyDt Ren ysb(V labyle)	wLgaCyDs

General Comments

URe1 aCalr bDal1 4L DemkLes1 ksem1 7r 1 bRe1 ECi yL On eCbal1 v yj ysy C1 Rai e1 7eeC1 mei el 4em1 dL n 1 esba7lysRem1 yCbeLCaby Callr 1 LeD gCyzem1 4L DemkLes1 skDR1 as1 bR se1 4k7lysRem1 7r 1 bRe1 , SEPI 2I I PNI 2I I S1 aCm1 J EPd @ YC1 R kse1 mei el 4em14L DemkLes1aLe1en 4I r em1yC1bRe1a7seCDe1 ofm Dkn eCbem1sbaCmaLms1 L17r 1DyeCb1Leqkesb@

K ReLe1n ysbkLe1mebeLn yCaby C1Ras17eeC14Leo Ln em2Lesklbs1aLe1Le4 Lbem1 C1a1mLr 1AeygRb17asys@

K ReLe1a1Le4 Lbem1ess1bRaC1(<)1esklblys1RygReL1bRaC1bRe1f wW2bRys1n ar 17e1mke1b 14Lyn aLr 1san 4le1exbLaDb/mygesbabe1mykby C1aCm/ L1yCskoyeCbsan 4le1b L1aCalr sys@

K ReLe1bRe1f wW1 ofa1Le4 Lbem1Lesklb1myoeLs1bL n 1sbaCmaLm1f wW2bRys1n ar 17e1mke1b 1RygR1n ysbkLe1D CbeCb2yCskoyDyeCbsan 4le1(LemkDem1AeygRb1en 4I r em)1 L1n abLyx1yCbeLoeLeCDe@

K ReC1mabe(s)1aCm/ L1byn e(s)1aLe1sR AC17LaDpebem2bReseRai e17eeC1asskn em17r 1bRe1a7 Lab Lr 1b L14L DessyCg14kL4 ses@bbRe1san 4lyCg1byn e1ys1mys4lar em1as1 0:001bRe1yCo Ln aby C1Aas1C b14L i yrem17r 1DyeCb@

c er 1t t I S1J kn 7eL1=1t Ren ysbLr 1 7sbLaDb1SeLi yDes1Ckn 7eL
f wW1=1f yn yb1 oLe4 LbyCg
^1=1URys1Lesklblys1D n 4kbem1bL n 1yCmi ymkal1aCalr be1mebeDby Cs1ab1 L1a7 i e1bRe1ei el1 oLe4 LbyCg

- **LCS recovery for Cadmium falls outside ALS Dynamic Control Limit. However, it is within the acceptance criteria based on ALS DQO. No further action is required.**

Analytical Results

Sk7Hd aHJx: SOIL

Compound	CAS Number	LOR	Unit	120508-216-KW	120508-230-KW	120508-260-KW	HHHH	HHHH
			Client sampling date / time	3- Hd I MH 0081З+:00	3- Hd I MH 0081З+:00	3- Hd I MH 0081З+:00	HHHH	HHHH
				ES0806641-001	ES0806641-002	ES0806641-003	----	----
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	HHHH	3@	%	16.4	22.1	15.2	HHHH	HHHH
EG005T: Total Metals by ICP-AES								
Arsenic	6990HT8H	+	n g/pg	<+	<+	22	HHHH	HHHH
Cadmium	6990H9THB	3	n g/pg	<3	<3	<3	HHHH	HHHH
Chromium	6990H96HT	-	n g/pg	2	<-	2	HHHH	HHHH
Copper	6990H0H8	+	n g/pg	<+	<+	<+	HHHH	HHHH
Lead	69TBHB- H3	+	n g/pg	<+	<+	<+	HHHH	HHHH
Nickel	6990H0- H0	-	n g/pg	<-	<-	<-	HHHH	HHHH
Zinc	6990H55H5	+	n g/pg	<+	<+	<+	HHHH	HHHH
EG035T: Total Recoverable Mercury by FIMS								
Mercury	69TBHB6H5	0@	n g/pg	<0@	<0@	<0@	HHHH	HHHH
EP075(SIM)A: Phenolic Compounds								
Phenol	308HB+H	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
2-Chlorophenol	B+H6H8	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
2-Methylphenol	B+H98H6	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
3- & 4-Methylphenol	3T3BH66HT	3@	n g/pg	HHHH	HHHH	<3@	HHHH	HHHH
2-Nitrophenol	88H6+H	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
2.4-Dimethylphenol	30+H56HB	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
2.4-Dichlorophenol	3- 0H8TH	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
2.6-Dichlorophenol	86H5+H0	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
4-Chloro-3-Methylphenol	+BH0H6	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
2.4.6-Trichlorophenol	88H05H	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
2.4.5-Trichlorophenol	B+HB+H9	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Pentachlorophenol	86H85H+	- @	n g/pg	HHHH	HHHH	<- @	HHHH	HHHH
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	B3H 0HT	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Acenaphthylene	- 08HB5H8	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Acenaphthene	8THT- HB	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Fluorene	85H6TH6	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Phenanthrene	8+H03H8	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Anthracene	3- 0H3- H6	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Fluoranthene	- 05H99H0	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Pyrene	3- BH00H0	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Benz(a)anthracene	+5H++HT	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Chrysene	- 38H03HB	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Benzo(b)fluoranthene	- 0+HBBH	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Benzo(k)fluoranthene	- 06H08HB	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH
Benzo(a)pyrene	+0HT- H8	0@	n g/pg	HHHH	HHHH	<0@	HHHH	HHHH

Analytical Results

Sk7Hd aLlyx: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID: 120508-216-KW	120508-230-KW	120508-260-KW	####	####
			Client sampling date / time	3- Hd I MH 0081 3+:00	3- Hd I MH 0081 3+:00	3- Hd I MH 0081 3+:00	####	####
				ES0806641-001	ES0806641-002	ES0806641-003	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Indeno(1.2.3.cd)pyrene	3BTHTBH+	0@	n g/pg	####	####	<0@	####	####
Dibenz(a.h)anthracene	+TH60HT	0@	n g/pg	####	####	<0@	####	####
Benzo(g.h.i)perylene	3B3H 9H	0@	n g/pg	####	####	<0@	####	####
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	####	30	n g/pg	####	####	<30	####	####
C10 - C14 Fraction	####	+0	n g/pg	####	####	<+0	####	####
C15 - C28 Fraction	####	300	n g/pg	####	####	<300	####	####
C29 - C36 Fraction	####	300	n g/pg	####	####	<300	####	####
EP080: BTEX								
Benzene	63H9TH	0@	n g/pg	####	####	<0@	####	####
Toluene	308H88HT	0@	n g/pg	####	####	<0@	####	####
Ethylbenzene	300H93H9	0@	n g/pg	####	####	<0@	####	####
meta- & para-Xylene	308HT8HT1305H9- HT	0@	n g/pg	####	####	<0@	####	####
ortho-Xylene	B+H96H5	0@	n g/pg	####	####	<0@	####	####
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	3T3- 6H88HT	0@	%	####	####	**95.3**	####	####
2-Chlorophenol-D4	BTB+3H6TH5	0@	%	####	####	**83.4**	####	####
2.4.6-Tribromophenol	338H6BH5	0@	%	####	####	**68.6**	####	####
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	T- 3H50H8	0@	%	####	####	**84.9**	####	####
Anthracene-d10	363BH05H8	0@	%	####	####	**88.0**	####	####
4-Terphenyl-d14	3638H3H0	0@	%	####	####	**80.9**	####	####
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	36050H06H0	0@	%	####	####	**101**	####	####
Toluene-D8	- 0T6H 5H+	0@	%	####	####	**99.6**	####	####
4-Bromofluorobenzene	950H00H9	0@	%	####	####	**84.3**	####	####

Surrogate Control Limits

Sk7Hl atLyx: SOIL

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	3T3-6H88HT	-9	33T
2-Chlorophenol-D4	BTB+3H6TH5	-T	3T9
2.4.6-Tribromophenol	338H6BH5	3B	3--
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	T-3H50H8	T0	33+
Anthracene-d10	363BH05H8	-6	3TT
4-Terphenyl-d14	3638H3H0	38	3T6
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	36050H06H0	80	3-0
Toluene-D8	-0T6H5H	83	336
4-Bromofluorobenzene	950H00H9	69	3-3

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES0806723**	gl : P	1 ďLo4
i sPvy	1 **CONSULTING EARTH SCIENTISTS**	bl r f tl yf tC	1 Evmtf vDPvyl sod mmefi voSCcvPC
i f vyl My	1 K SoYEbbWd EPA	i f vyl My	1 hewJ rvmSwl tDI
hcctPee	1 ONBESoHhWd 9hAao - 23 ,dNI EAodEi Y,dSURTEo 3 , 362F3ogRAAhKhoANhd gWAKNBTdBSI ,dhUSTAhbRo3070	hcctPee	1 344238-d f f cpl tkoAf l coSDrywLrPscdBSI dhueytl sh o3 67
E2DI rs	1 kJ Pnt@Mveusyrv: Pl tyw.MD.l u	E2DI rs	1 hewJ rvnSwl tDI @l sePvmtf .MD
TPsPpwf vP	1 +6 d856- 3300	TPsPpwf vP	1 +6 2328487d8555
al MenDrsP	1 +6 d03o 5537F- -	al MenDrsP	1 +6 2328487d8500
gtf jPMy	1 i ES0504062Hi i	Qi dbPmPs	1 BEgKo - - - dSMwPcusPdH(F)d vcdhbSdQi SFdPqurtPDPvy
NtcPtovuDr Pt	1 2222		
i 2N2 ovuDr Pt	1 F0373	dl yPdSI DpsPeoAPMPmPc	1 72Kh W23008
SI DpsPt	1 b.OEBYRBS/Y.I EPA	ReuPodl yP	1 3F2Kh W23008
SnyP	1 hAEhdh		
		Bf .ďLoel DpsPedPMPmPc	13
Qufy PovuDr Pt	1 SW0- 6/08	Bf .ďLoel DpsPed vl sOePc	1

Twreo tPpf tyo eupPtePcPeo l vCo ptPmfi ueo tPpf ty(e)o J rywo ywreo tPLPtPvMP.o APeusyeo l ppsCo yf o ywPo el DpsP(e)o l eo eur DryPc.o hsso pl : Peo f Lo ywreo tPpf tyo wl mPo r PPvo MwPMkPco l vco l pptf mPco Lf t tPsPl eP.o

Twreo PtyruMl yPo Lohvl sOereoMl vyl rveowPdLf sf J rv: ovLf tDI yfi v1

- GPvPtl so f DDPvye
- hvl sOyMl sAPeuye
- Suttf : l yPo f vytf sobDnye

NATA
WORLD RECOGNISED ACCREDITATION

BhThdhMMPcnyPcdbl r f tl yf tCo835
o
TwreocfMuDPvyoeoreuPcovo
l MMtcl vMPoJ rywBhTho
l MMPcnJ yfi vdPqurtPDPvye.

hMMPcnyPcdLf tdMDpsh vMPoJ rywo
RSN/REi o 4035.

Signatories

Twreo cf MuDPvyo wl eo r PPvo PsPMytf vrMl ssCo en vPco r Co ywPo l uywf trzPco en vl yf trPeo rvcrMl yPco r Psf J .o EsPMytf vrMo en vrv: o wl eo r PPv MttrPcof uyovoMl DpsrhvMPoJ rywoptf MPcutPeoepPMuLrPcovo3 ďi aAogl tyo .

Signatories	*Position*	*Accreditation Category*
hewJ rvmSwl tDI	bl r f tl yf tOKl vl : Pt	Rf t: l vrMe
EcJ l vcOal cjl t	SPvrf tONt: l vrMi wPDrey	Rf t: l vrMe
EcJ l vcOal cjl t	SPvrf tONt: l vrMi wPDrey	Nt: l vrMe
9f l dB: uOPv		Rf t: l vrMe

gl : P	1	Fof Lo4
I f tkoNtcPt	1	ES080643F
i snPvy	1	i NBSUbTRBGoEhAT9oSi REBTRSTS
gtf jPMy	1	i ES0504062Hi i

General Comments

TwPo I vl sCynMI so ptf MPcutPeo uePco r Co ywPo Evmtf vD Pvyl so dmmenf vo wl mPo r PPvo cPmPsf pPco Ltf D o Peyl r smewPco nvyPtvl ynf vl ssCo tPMf : vnzPco ptf MPcutPeo euMwo I eo ywf ePo pur smewPco r Co ywPo USEgh ,o hg 9 h ,o hSo I vco BEgK .o Rvo wf uePo cPmPsf pPcoptf MPcutPeol tPoPD psf CPconvoywPol r ePvMPof Locf MuD PvyPcoeyl vcl tceof tor CoMsnPvydPquPey.

I wPtPoD f meyutPocPyPtD nvl ynf vowl eor PPvoptPLf tD Pc,dPeusyeol tPodPpf tyPcof vol octCoJ Pn wyor I eme.

I wPtPol odPpf tyPcosPeeoywl vo(<)odPeusyoreown wPtoywl voywPobNA,oywreoD I Cor PocuPoyf optnD I tCoel D psPoPxytl M/cn Peyl yPocnsuynf vol vc/f tonveuLLnPvyoel D psPolf tol vl sCeme.

I wPtPoywPobNAof Lol odPpf tyPcodPeusyocnLLPtedLtf D oeyl vcl tcobNA,oywreoD I Cor PocuPoyf own wo D f meyutPoMf vyPvy,onveuLLnMnPvyoel D psPo(tPcuMPcoJ Pn wyoPD psf CPc)of toD I ytnxonvyPtLPtPvMP.

I wPvocl yP(e)ol vc/f toynD P(e)ol tPoewf J vor tl MkPyPc,oywPePowl mPor PPvol eeuD Pcor CoywPos r f tl yf tColf toptf MPeenv: oputpf ePe.oRoywPoel D psnv: oynD Poreocneps CPcol eo0100oywPonvLf tD I ynf voJ I eo/f yoptf mncPcor CoMsnPvy.

YPCo1 i hSoBuD r Pto=oi wPD meytCoh r eytl MyoSPtmnMPeovuD r Pt

bNAo=obnD nyof LotPpf tynv:

^o=oTwreotPeusyoreoMf D puyPcoLtf D onvcmmcul sol vl sCyPocPyPMynf veol yof tol r f mPoywPosPmPsof LotPpf tynv:

Analytical Results

Sur 2K I ytrx: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID: 130508-288-KW	2222	2222	2222	2222
			Client sampling date / time	F2K h W23008o 5100	2222	2222	2222	2222
				ES0806723-001	----	----	----	----
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	2222	.0	%	12.3	2222	2222	2222	2222
EG005T: Total Metals by ICP-AES								
Arsenic	47702F823	5	D: /k:	<5	2222	2222	2222	2222
Cadmium	47702?F2		D: /k:	<	2222	2222	2222	2222
Chromium	4770274?F	3	D: /k:	<3	2222	2222	2222	2222
Copper	47702502?	5	D: /k:	<5	2222	2222	2222	2222
Lead	47F- 2 32	5	D: /k:	<5	2222	2222	2222	2222
Nickel	47702032?	3	D: /k:	<3	2222	2222	2222	2222
Zinc	4770266?6	5	D: /k:	<5	2222	2222	2222	2222
EG035T: Total Recoverable Mercury by FIMS								
Mercury	47F- 2 4?6	0.	D: /k:	<0.	2222	2222	2222	2222
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	4 27F23	0.3	D: /k:	<0.3	2222	2222	2222	2222
Toluene	08288?F	0.5	D: /k:	<0.5	2222	2222	2222	2222
Ethylbenzene	0027 27	0.5	D: /k:	<0.5	2222	2222	2222	2222
meta- & para-Xylene	082F82Fo 06273?F	0.5	D: /k:	<0.5	2222	2222	2222	2222
Styrene	0027325	0.5	D: /k:	<0.5	2222	2222	2222	2222
ortho-Xylene	- 5274?6	0.5	D: /k:	<0.5	2222	2222	2222	2222
Isopropylbenzene	- 82832?	0.5	D: /k:	<0.5	2222	2222	2222	2222
n-Propylbenzene	0F2652	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.3.5-Trimethylbenzene	082642?	0.5	D: /k:	<0.5	2222	2222	2222	2222
sec-Butylbenzene	F52 82?	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.2.4-Trimethylbenzene	- 526F26	0.5	D: /k:	<0.5	2222	2222	2222	2222
tert-Butylbenzene	- 82062?	0.5	D: /k:	<0.5	2222	2222	2222	2222
p-Isopropyltoluene	- - 2842?	0.5	D: /k:	<0.5	2222	2222	2222	2222
n-Butylbenzene	0725 2?	0.5	D: /k:	<0.5	2222	2222	2222	2222
EP074B: Oxygenated Compounds								
Vinyl Acetate	082052?	5	D: /k:	<5	2222	2222	2222	2222
2-Butanone (MEK)	482 F2F	5	D: /k:	<5	2222	2222	2222	2222
4-Methyl-2-pentanone (MIBK)	082 02	5	D: /k:	<5	2222	2222	2222	2222
2-Hexanone (MBK)	5- 2482?	5	D: /k:	<5	2222	2222	2222	2222
EP074C: Sulfonated Compounds								
Carbon disulfide	452 52?	0.5	D: /k:	<0.5	2222	2222	2222	2222
EP074D: Fumigants								
2.2-Dichloropropane	5- 72302?	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.2-Dichloropropane	48284?5	0.5	D: /k:	<0.5	2222	2222	2222	2222
cis-1.3-Dichloropropylene	006 20 25	0.5	D: /k:	<0.5	2222	2222	2222	2222

Analytical Results

Sur 2K I ytrx: SOIL

Compound	CAS Number	LOR	Unit	Client sample ID: 130508-288-KW	2222	2222	2222	2222
			Client sampling date / time	F2K h W23008o 5100	2222	2222	2222	2222
				ES0806723-001	----	----	----	----
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	006 2032б	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.2-Dibromoethane (EDB)	062 F27	0.5	D: /k:	<0.5	2222	2222	2222	2222
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	4524 28	5	D: /k:	<5	2222	2222	2222	2222
Chloromethane	472842F	5	D: /k:	<5	2222	2222	2222	2222
Vinyl chloride	4520 27	5	D: /k:	<5	2222	2222	2222	2222
Bromomethane	4728F2	5	D: /k:	<5	2222	2222	2222	2222
Chloroethane	45200F	5	D: /k:	<5	2222	2222	2222	2222
Trichlorofluoromethane	4526-27	5	D: /k:	<5	2222	2222	2222	2222
1.1-Dichloroethene	452F527	0.5	D: /k:	<0.5	2222	2222	2222	2222
Iodomethane	472882 7	0.5	D: /k:	<0.5	2222	2222	2222	2222
trans-1.2-Dichloroethene	562602 5	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.1-Dichloroethane	452F72F	0.5	D: /k:	<0.5	2222	2222	2222	2222
cis-1.2-Dichloroethene	5625-23	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.1.1-Trichloroethane	4 2552б	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.1-Dichloropropylene	56F258 2б	0.5	D: /k:	<0.5	2222	2222	2222	2222
Carbon Tetrachloride	5623F25	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.2-Dichloroethane	042062 3	0.5	D: /k:	<0.5	2222	2222	2222	2222
Trichloroethene	4-20 2б	0.5	D: /k:	<0.5	2222	2222	2222	2222
Dibromomethane	472 52F	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.1.2-Trichloroethane	4-2002 5	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.3-Dichloropropane	732382	0.5	D: /k:	<0.5	2222	2222	2222	2222
Tetrachloroethene	342 827	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.1.1.2-Tetrachloroethane	6F02302б	0.5	D: /k:	<0.5	2222	2222	2222	2222
trans-1.4-Dichloro-2-butene	02542б	0.5	D: /k:	<0.5	2222	2222	2222	2222
cis-1.4-Dichloro-2-butene	7462 25	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.1.2.2-Tetrachloroethane	4-2F725	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.2.3-Trichloropropane	-62 827	0.5	D: /k:	<0.5	2222	2222	2222	2222
Pentachloroethane	4620 24	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.2-Dibromo-3-chloropropane	-62 328	0.5	D: /k:	<0.5	2222	2222	2222	2222
Hexachlorobutadiene	842682F	0.5	D: /k:	<0.5	2222	2222	2222	2222
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	082 024	0.5	D: /k:	<0.5	2222	2222	2222	2222
Bromobenzene	082862	0.5	D: /k:	<0.5	2222	2222	2222	2222
2-Chlorotoluene	-527-28	0.5	D: /k:	<0.5	2222	2222	2222	2222
4-Chlorotoluene	0627F27	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.3-Dichlorobenzene	57 24F2	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.4-Dichlorobenzene	062762 4	0.5	D: /k:	<0.5	2222	2222	2222	2222

Analytical Results

Sur 2K l ytrx: SOIL			Client sample ID	130508-288-KW	2222	2222	2222	2222
			Client sampling date / time	F2K h W23008o 5100	2222	2222	2222	2222
Compound	CAS Number	LOR	Unit	ES0806723-001	----	----	----	----
EP074F: Halogenated Aromatic Compounds - Continued								
1.2-Dichlorobenzene	- 52502	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.2.4-Trichlorobenzene	302832	0.5	D: /k:	<0.5	2222	2222	2222	2222
1.2.3-Trichlorobenzene	8426 26	0.5	D: /k:	<0.5	2222	2222	2222	2222
EP074G: Trihalomethanes								
Chloroform	642662F	0.5	D: /k:	<0.5	2222	2222	2222	2222
Bromodichloromethane	4523427	0.5	D: /k:	<0.5	2222	2222	2222	2222
Dibromochloromethane	372782	0.5	D: /k:	<0.5	2222	2222	2222	2222
Bromoform	4523523	0.5	D: /k:	<0.5	2222	2222	2222	2222
EP074H: Naphthalene								
Naphthalene	- 2302F	5	D: /k:	<5	2222	2222	2222	2222
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	406020420	0.	%	**93.1**	2222	2222	2222	2222
Toluene-D8	30F423625	0.	%	**102**	2222	2222	2222	2222
4-Bromofluorobenzene	7602027	0.	%	**94.3**	2222	2222	2222	2222

Surrogate Control Limits

Sur 2K I ytrx: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	Recovery Limits (%) High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	40602042D	80	30
Toluene-D8	30F423625	8	4
4-Bromofluorobenzene	7602002Z	47	3

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES0806438**	Page	: 1 of 5
y l@i r	: **CONSULTING EARTH SCIENTISTS**	7aLobarott	: Ei n@oi v ei ral m@G@i St Di et
y oi radr	: c S ME77K Y EW	y oi radr	: RsAh CCSAabv a
RDDbess	: wJ OES NRK Y BRI F 19H31- 7J Y EI mEy M- S2 WE 131- 35HU3 PWI Rc R I J Rm PKI c J O, OSY - R2 S, I R7WR 30T0	RDDbess	: 366H389 Y ooD4atp I oaD Sv @AfGIDOSY Rksrbal@ 315T
EH aC	: ph e@u doi sklrCgeabrA@ov @k	EH aC	: RsAh C@SAabv au alsei n@o@ov
, ele4Aoi e	: . 51 8+593300	, ele4Aoi e	: . 51H3H868T 8+++
FadsQ @e	: . 51 03 9++3TU99	FadsQ @e	: . 51H3H868T 8+00
Pbojedr	: y ES0+0605HNy y	Qy 7enel	: OEPc 1999 SdAeDkle N(U) ai D R7S Qy SU beqk@ev ei r
J bDebi kv Leb	: HHHH		
y HJ Hy i kv Leb	: 1385+9	mare Sav 4les I ede@eD	: 15Hc RKH3008
Sav 4leb	: M@ EW/7@EOMM@S	Wske mare	: 38Hc RKH3008
S@e	: RI ER		
		Oo@f sav 4les bede@eD	: 3
Qkore i kv Leb	: SK/095/08	Oo@f sav 4les ai alt seD	: 3

, AG be4obr sk4ebseDes ai t 4ben@ks be4obr(s) h @A rAG befebei de@I esklrs a44It ro rAe sav 4le(s) as skLv @eD@RII 4ages of rAG be4obr Aane Leei dAedpeD ai D a44boneD fot belease@

, AG y ebr@@are of Ri alt sG doi ra@s rAe folloh @g @fobv ar@i :

- Gei ebal y ov v ei rs
- Ri alt r@al I esklrs
- Skbbogare y oi rbol 7@ @s

NATA
WORLD RECOGNISED ACCREDITATION

OR, R RddbeD@eD 7aLobarott 83+

, AG Dodkv ei r G GskeD C addobDai de h @A OR, R addbeD@ar@i beqk@ev ei rs@

RddbeD@eD fobdov 4l@i de h @A WSJ /WEy 1603+@

Signatories

, AG Dodkv ei r Aas Leei eledrbi @allt s@i eD Lt rAe akrAob@eD s@i arob@s @DD@areD Leloh @ Eledrbi @ s@i @g Aas Leei dabb@eD okr @ dov 4l@i de h @A 4bodeDkbes s4ed@@eD C 31 y FI Pabr 11@

Signatories	*Position*	*Accreditation Category*
EDh ai Dt FaDjab	Sei @bJ bgai @ y Aev @r	Wobgai @s
EDh ai Dt FaDjab	Sei @bJ bgai @ y Aev @r	J bgai @s
Boa Ogkt ei		Wobgai @s
SabaA c @C groi	Sei @bWobgai @ y Aev @r	Wobgai @s
V@robMeD@@glk	NksCess c ai agebHOSY	Wobgai @s

General Comments

, Ae ai alt rGal 4bodeDkbes kseD Lt rAe Ei nGoi v ei ral mGSGi Aane Leei Denelo4eD fbov esraLlGAeD Crebi arGi allt bedogi GeD 4bodeDkbes skdA as rAose 4kLlGAeD Lt rAe 2 SEPR- RPBR- RS ai D OEPc @W Aokse Denelo4eD 4bodeDkbes abe ev 4lot eD C rAe aLsei de of Dodkv ei reD srai DabDs obLt dlGi r beqkesr@

Y Aebe v oGrkbe Derebv CarGi Aas Leei 4befobv eD- besklrs abe be4obreD oi a Dbt h eGAr LasG@

Y Aebe a be4obreD less rAai (<) besklr G AGAebrAai rAe 7J I - rAG v at Le Dke ro 4bG abt sav 4le exrbadr/DGesrare DGkrGi ai D/obCskffGi r sav 4le fobai alt sG@

Y Aebe rAe 7J I of a be4obreD besklr Dffebs fbov srai DabD 7J I - rAG v at Le Dke ro AGA v oGrkbe doi rei r- CskffGGi r sav 4le (beDkdeD h eGAr ev 4lot eD) obv arbG Crebfebei de@

Y Aei Dare(s) ai D/obrG e(s) abe sAoh i LbadpereD- rAese Aane Leei asskv eD Lt rAe laLobarobt fob 4bodessCg 4kb4oses@WrAe sav 4lCg rG e G DG4lat eD as 0:00 rAe Cfobv arGi h as i or 4bonCeD Lt dlGi r@

Met : y RS Okv Leb= y Aev Grbt RLsrbadr SebnGes i kv Leb
7J I = 7G Cof be4obCg
^ = , AG besklr G dov 4kreD fbov CDGCkal ai alt re DeredrGi s ar obaLone rAe lenel of be4obCg

Analytical Results

SkLHt artQ: SOIL

Compound	CAS Number	LOR	Unit	150508-K57-MW	150508-K82-MW	HHHH	HHHH	HHHH
			Client sampling date / time	1+Ht RKH3008 1+:00	1+Ht RKH3008 1+:00	HHHH	HHHH	HHHH
				ES0806438-001	ES0806438-003	----	----	----
EA055: i otsnre Co9te9u								
^ i otsnre Co9te9u(drted @ 10K°C)	HHHH	1@	%	7.1	1K6	HHHH	HHHH	HHHH
EG005T: Toual i euals by ICP-AES								
Arse9tc	6TT0HU8H3	+	v g/pg	<+	<+	HHHH	HHHH	HHHH
Cadmtnm	6TT0HTUH9	1	v g/pg	<1	<1	HHHH	HHHH	HHHH
Chromtnm	6TT0HT6HU	3	v g/pg	<3	7	HHHH	HHHH	HHHH
Copper	6TT0H+0H8	+	v g/pg	<+	6	HHHH	HHHH	HHHH
Lead	6TU9H93H	+	v g/pg	76	4	HHHH	HHHH	HHHH
Ntckel	6TT0H03H0	3	v g/pg	<3	8	HHHH	HHHH	HHHH
Zt9c	6TT0H55H5	+	v g/pg	1K	36	HHHH	HHHH	HHHH
EG0K5T: Toual Recoverable i ercnry by Fli S								
i ercnry	6TU9H96H5	0@	v g/pg	<0@	<0@	HHHH	HHHH	HHHH
EP025(Sli)B: Poly9nclear Aromatc Hydrocarbo9s								
Naphuhale9e	91H30HU	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Ace9aphuhyle9e	308H95H8	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Ace9aphuhe9e	8UHU3H9	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Flnore9e	85H6UH6	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Phe9a9uhre9e	8+H01H8	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
A9uhrace9e	130H13H6	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Flnora9uhe9e	305HTTH0	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Pyre9e	139H00H0	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Be9z(a)a9uhrace9e	+5H++HU	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Chryse9e	318H01H9	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Be9zo(b)flnora9uhe9e	30+H99H3	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Be9zo(k)flnora9uhe9e	306H08H9	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Be9zo(a)pyre9e	+0HU3H8	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
I9de9o(1.3.Kcd)pyre9e	19UHU9H+	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Dtbe9z(a.h)a9uhrace9e	+UH60HU	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Be9zo(g.h.t)peryle9e	191H3TH3	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
EP080/021: Toual Peurolenm Hydrocarbo9s								
C6 - C4 Fracuto9	HHHH	10	v g/pg	<10	HHHH	HHHH	HHHH	HHHH
C10 - C17 Fracuto9	HHHH	+0	v g/pg	<+0	HHHH	HHHH	HHHH	HHHH
C15 - C38 Fracuto9	HHHH	100	v g/pg	<100	HHHH	HHHH	HHHH	HHHH
C34 - CK6 Fracuto9	HHHH	100	v g/pg	<100	HHHH	HHHH	HHHH	HHHH
EP080: BTEX								
Be9ze9e	61HTUH3	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Tolne9e	108H88HU	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
Euhylbe9ze9e	100HT1HT	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH

Analytical Results

SkLHc arb@: SOIL			Client sample ID	150508-K57-MW	150508-K82-MW	HHHH	HHHH	HHHH
			Client sampling date / time	1+Hc RKH3008 1+:00	1+Hc RKH3008 1+:00	HHHH	HHHH	HHHH
Compound	CAS Number	LOR	Unit	ES0806438-001	ES0806438-003	----	----	----
EP080: BTEX - Co9u9ned								
meua- & para-Xyle9e	108HU8HU 105HT3HU	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
oruho-Xyle9e	9+HT6H5	0@	v g/pg	<0@	HHHH	HHHH	HHHH	HHHH
EP025(Sli)S: Phe9oltc Compon9d Snrrogaues								
Phe9ol-d6	1U136H88HU	0@	%	**105**	HHHH	HHHH	HHHH	HHHH
3-Chlorophe9ol-D7	9U9+1H6UH5	0@	%	**20.4**	HHHH	HHHH	HHHH	HHHH
3.7.6-Trtbromophe9ol	118H69H5	0@	%	**20.7**	HHHH	HHHH	HHHH	HHHH
EP025(Sli)T: PAH Snrrogaues								
3-Flnorobtphe9yl	U31H50H8	0@	%	**8K8**	HHHH	HHHH	HHHH	HHHH
A9uhrace9e-d10	1619H05H8	0@	%	**26.6**	HHHH	HHHH	HHHH	HHHH
7-Terphe9yl-d17	1618H1H0	0@	%	**8K4**	HHHH	HHHH	HHHH	HHHH
EP080S: TPH(V)/BTEX Snrrogaues								
1.3-Dtchloroeuha9e-D7	16050H06H0	0@	%	**40.1**	HHHH	HHHH	HHHH	HHHH
Tolne9e-D8	30U6H35H	0@	%	**84.K**	HHHH	HHHH	HHHH	HHHH
7-Bromoflnorobe9ze9e	T50H00HT	0@	%	**24.5**	HHHH	HHHH	HHHH	HHHH

Surrogate Control Limits

SkLHt arbG: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP025(Sli)S: Phe9oltc Compon9d Snrrogaues			
Phe9ol-d6	1U136H88HU	3T	11U
3-Chlorophe9ol-D7	9U9+1H6UH5	3U	1UT
3.7.6-Trtbromophe9ol	118H69H5	19	133
EP025(Sli)T: PAH Snrrogaues			
3-Flnorobtphe9yl	U31H50H8	U0	11+
A9uhrace9e-d10	1619H05H8	36	1UU
7-Terphe9yl-d17	1618H+1H0	18	1U6
EP080S: TPH(V)/BTEX Snrrogaues			
1.3-Dtchloroeuha9e-D7	16050H06H0	80	130
Tolne9e-D8	30U6H35H+	81	116
7-Bromoflnorobe9ze9e	T50H00HT	6T	131

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES0807086**	eFPs	q: 1 of
yaGi r	q **CONSULTING EARTH SCIENTISTS**	7FL bFr bt	q Ei nG i v si rFalmGCCi 1St Di st
y i rFdr	q c S1ME77K1Y EW	y i rFdr	q RI Ah CCSAFbv F
RDDbsl I	q wJ OES1NRK1Y BRI 3 1 H-2: , 1TJ Y EI 1mEy M, 1SUWE 1 2: , 29-621e WI Rc R1 J Rm eKI c J OT1OSY , 1RUSTI R7WR12040	RDDbsl I	q 255-28H1Y DpFbk1 FD1Sv CAGsaD1OSY 1Rul rbFaGF12: 94
E-v FG	q kh sG@d i l uaCPsFbrA.d v .Fu	E-v FG	q RI Ah CCSAFbv F@Fal si nG .d v
TsaspA i s	q +9: 18f 9H2200	TsaspA i s	q +9: -2-8584 18f f f
3Fdl G Gs	q +9: 1021Hf f 246HH	3Fdl G Gs	q +9: -2-8584 18f 00
eb jsdr	q y ES0f 0509-Ny y	Qy 17snsa	q OEec 1 HHH1SdAsDuas1N(6)1Fi D1R7S1Qy S61bsquGsv si r
J bDsbl uv Lsb	q ----		
y -J -y 1 uv Lsb	q ----	mFrs 1SFv pal 1 sdsGsD	g 2: -c RK-2008
SFv pasb	q ----	WI us 1mFrs	q 28-c RK-2008
SGs	q ----		
		O .1 of Fv pal 1bsdsGsD	g:
Qu rs 1 uv Lsb	q SK/0H9/08	O .1 of Fv pal 1Fi Fal sD	g:

TAC1 bsp br1 l upsbl sDsl 1 Fi t 1 pbsnCul 1 bsp br(l)1 h CA1 rAC1 bsosbsi ds.1 l sl ual 1 Fppal 1 r 1 rAs1 l Fv pas(l)1 Fl 1 l uLv GrsD.1 Ral pFPsl 1 of rAC1 bsp br1 AFns1 Lssi 1 dAsdksD1 Fi D1 Fppb nsD1 o t bsasFl s.1

TAC1y sbGGFrs1 ofRi Fal C1d i rFCl 1rAs1b aa h CP1Co bv FrCi g

- Gsi sbFaly v v si rl
- Ri Fal rGFal sl ual
- Subb PFrs1y i rb al7G Gl

ORTR1RddbsDGsD17FL bFr bt 182f
1
TAC1D duv si r1C1Cl usD1C1
Fdd bDFi ds 1h CA1ORTR1
FddbsDGFrCi 1bsquGsv si rl .

RddbsDGsD1b btd v paGi ds 1h CA1
WSJ /WEy 1 502f .

Signatories

TAC1 D duv si r1 AFl 1 Lssi 1 sasdrb i GFal 1 l Gi sD1 Lt 1 rAs1 FurA b2sD1 l Gi Fr bSl 1 CDGFrsD1 Lsa h .1 Easdrb i Gl 1 l Gi CP1 AFl 1 Lssi dFbbsD1 ur1C1d v paGi ds 1h CA1pb dsDubsl 1 psdGGSD1C12: 1y 3 l 1e Fbr1 : .

Signatories	*Position*	*Accreditation Category*
B F1OPut si		W bPFi Gl
eFLGSuLLF	Ssi Cb1U bPFi Gl1y Asv Cr1(V aFrGs)	W bPFi Gl
eFLGSuLLF	Ssi Cb1U bPFi Gl1y Asv Cr1(V aFrGs)	J bPFi Gl

General Comments

TAs1 Fi Fa1 rCFa1 pb dsDubsl 1 ul sD1 Lt 1 rAs1 Ei nC i v si rFa1 mCCCi 1 AFns1 Lssi 1 Dsnsa psD1 db v 1 sl rFLaCAsD1 Crsti FrCi Fa1 1 bsd Pi C2sD1 pb dsDubsl 1 l udA1 Fl 1 rA l s1 puLaCAsD1 Lt 1 rAs1 USEeR,1 ReBR,1 RS1 Fi D1 OEec .1 W1 A ul s1 Dsnsa psD1pb dsDubsl 1Fbs1sv pa t sD1C 1rAs1FLl si ds1 oD duv si rsD1 rFi DFbD1 1 b1Lt 1daSi r1bsqusl r.

Y Asbs1v Crubs1Dsrsbv CFrCi 1AFl 1Lssi 1pbso bv sD,1bsl ual 1Fbs1bsp brsD1 i 1F1Dt 1h sCPAr1LFl C.

Y Asbs1F1bsp brsD1bsl l 1rAFi 1(<)1bsl ua1C1ACPAsb1rAFi 1rAs17J l ,1rAC1v Ft 1Ls1Dus1r 1pbC Ft 1 Fv pas1sxrbFdr/DCPsl rFrs1DCaurCi 1Fi D/ b1Cl uoCSi r1 Fv pas1o b1Fi Fa1l C.

Y Asbs1As17J l 1 oF1bsp brsD1bsl ua1DCosb1 1b v 1 rFi DFbD17J l ,1rAC1v Ft 1Ls1Dus1r 1ACPA1v Crubs1d i rsi r,1Cl uoCCSi r1 Fv pas1(bsDudsD1h sCPAr1sv pa t sD)1 b1v Frb2s1Crsbsbsi ds.

Y Asi 1DFrs(l)1Fi D/ b1rC s(l)1Fbs1 A h i 1LbFdksrsD,1rAsl s1AFns1Lssi 1Fl l uv sD1Lt 1rAs1sFL bFr bt 1b b1pb dsl l CP1pubp l sl .1MrAs1 Fv paCP1rC s1C1DCpaFt sD1Fl 1Dg001rAs1Co bv FrCi 1h Fl 1 r1pb nCDsD1Lt 1daSi r.

Mst 1g y RS1Ouv Lsb1=1y Asv Crbt 1RLl rbFdr1SsbnCdsl 1 uv Lsb
7J l 1=17C C1 obsp brCP
^1=1TAC1bsl ua1C1d v pursD1bb v 1CDCCDuFaFi Fa rs1DsrsdrCi l 1Fr1 b1FL ns1rAs1asnsal obsp brCP

- **EP080:The trip spike and its control have been analysed for volatile TPH and BTEX only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.**

Analytical Results

SuL-c Frb0: SOIL			Client sample ID	TRIP SPIKE CONTROL	----	----	----	----
			Client sampling date / time	0f -c RK-20081 f g00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES0807086-001	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	: .0	%	6.1	----	----	----	----
EP080: BTEX								
Benzene	5: -46-2	0.2	v P/kP	0.7	----	----	----	----
Toluene	: 08-88-6	0.f	v P/kP	11.6	----	----	----	----
Ethylbenzene	: 00-4: -4	0.f	v P/kP	1.6	----	----	----	----
meta- & para-Xylene	: 08-68-61 09-42-6	0.f	v P/kP	8.3	----	----	----	----
ortho-Xylene	Hf -45-9	0.f	v P/kP	3.1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	: 5090-05-0	0.:	%	97.4	----	----	----	----
Toluene-D8	2065-29-f	0.:	%	113	----	----	----	----
4-Bromofluorobenzene	490-00-4	0.:	%	106	----	----	----	----

Surrogate Control Limits

SuL-c Frb3: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	Recovery Limits (%) High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	: 5090-05-0	80	: 20
Toluene-D8	2065-29-f	8:	: : 5
4-Bromofluorobenzene	490-00-4	54	: 2:

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES0807714**	[illegible]	[illegible]
[illegible]	: **CONSULTING EARTH SCIENTISTS**	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]		
		[illegible]	[illegible]
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Signatories

[illegible]

Signatories	Position	Accreditation Category
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[illegible]	[illegible]	[illegible]

Environmental Division Sydney
Part of the ALS Laboratory Group
K66,K8- :H D7Ftp:M FD.Sv Ono:Sa:D:RSH :Ykl rbFaE:K1T3
Tel. +61-2-8784 8555 :2Fx.:+T1,K,8683:8500::www.alsglobal.com
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General Comments

l hs: Fi FalrOFa 7b dsDkbsl : kl sD: Lt : rhs: Ei nO i v si rFa mOCCi : hFns: Lssi : Dsnsa 7sD: ob v : sl rFLaChsD: Crsbi FrCi Fal : bsd Pi OsD: 7b dsDkbsl : l kdh: Fl : rh l s: 7kLaChsD: Lt : rhs: ASEeYU Ye9YU YS: Fi D: REec .: O: h kl s: Dsnsa 7sD:7b dsDkbsl :Fbs:sv 7a t sD:C:rhs:FLl si ds: oD dkv si rsD:l rFi DFbDl : bLt :daSi r:bs) ksl r.

H hsbs:v Crkbs:Dsrsbv CFrCi :hFl :Lssi :7bso bv sDUbsl kal :Fbs:bs7 brsD: i :F:Dbt :wsOhr:LFl C.

H hsbs:F:bs7 brsD:asl l :rhFi :Gs(:bsl ka:C:hOhsbrhFi :rhs:f J MUrhC:v Ft :Ls:Dks:r :7bO Fbt :l Fv 7as:sxrbFdr/DOPsl rFrs:DOkrCi :Fi D/ bCl koSi r:l Fv 7as:o bFi Fal l C.

H hsbs:rhs:f J M: oF:bs7 brsD:bsl ka:DOosbl :ob v :l rFi DFbD:f J MUrhC:v Ft :Ls:Dks:r :hOh:v Crkbs:d i rsi rUCl koOSi r:l Fv 7as:OsDkdsD:wsOhr:sv 7a t sD(: bv FrbO:Crsbsbsi ds.

H hsi :DFrsO(:Fi D/ brO sO(:Fbs:l h wi :LbFdpsrsDUrhsl s:hFns:Lssi :Fl l kv sD:Lt :rhs:aFL bFr bt :o b7b dsl l CP:7kb7 l sl .:Orhs:l Fv 7aCP:rO s:C:DC7aFt sD:Fl :0g0:rhs:Co bv FrCi :wFl :i r:7b nOsD:Lt :daSi r.

Nst :g y YS:Rkv Lsb=:y hsv Crbt :YLl rbFdr:SsbnOsl :i kv Lsb
f J M:=:f O C: obs7 brCP
^:=:l hC:bsl ka:C:d v 7krsD:ob v :CDOCkFaFi Fal rs:DsrsdrCi l :Fr: bFL ns:rhs:asnsa obs7 brCP

- **EP080: Level of Reporting raised for toluene due to ambient background levels in the laboratory.**

Analytical Results

SkL,c FrbQ: **WATER**

Compound	CAS Number	LOR	Unit	290508-07-LJ	,,,,	,,,,	,,,,	,,,,
			Client sampling date / time	K- ,c YW,K008:15g00	,,,,	,,,,	,,,,	,,,,
				ES0807714-001	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	,,,,	1	µS/dv	**1240**	,,,,	,,,,	,,,,	,,,,
EA015: Total Dissolved Solids								
^ Total Dissolved Solids @180°C	z OS,K10,010	1	v P/f	**726**	,,,,	,,,,	,,,,	,,,,
EA020EC: Salinity								
Salinity	,,,,	0.01	P/pP	**0.62**	,,,,	,,,,	,,,,	,,,,
EA080: Resistivity								
^ Resistivity at 25°C	,,,,	1	hv :dv	**806**	,,,,	,,,,	,,,,	,,,,
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	mc J ,K10,001	1	v P/f	<1	,,,,	,,,,	,,,,	,,,,
Carbonate Alkalinity as CaCO3	481K,4K,T	1	v P/f	<1	,,,,	,,,,	,,,,	,,,,
Bicarbonate Alkalinity as CaCO3	61,5K,4	1	v P/f	**153**	,,,,	,,,,	,,,,	,,,,
Total Alkalinity as CaCO3	,,,,	1	v P/f	**153**	,,,,	,,,,	,,,,	,,,,
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	13808,6- ,8	1	v P/f	**129**	,,,,	,,,,	,,,,	,,,,
ED045G: Chloride Discrete analyser								
Chloride	1T886,00,T	1.0	v P/f	**234**	,,,,	,,,,	,,,,	,,,,
ED093F: Dissolved Major Cations								
Calcium	6330,60,K	1	v P/f	**76**	,,,,	,,,,	,,,,	,,,,
Magnesium	634- ,- 5,3	1	v P/f	**24**	,,,,	,,,,	,,,,	,,,,
Sodium	6330,K4,5	1	v P/f	**122**	,,,,	,,,,	,,,,	,,,,
Potassium	6330,0- ,6	1	v P/f	**20**	,,,,	,,,,	,,,,	,,,,
EG020F: Dissolved Metals by ICP-MS								
Arsenic	6330,48,K	0.001	v P/f	**0.010**	,,,,	,,,,	,,,,	,,,,
Cadmium	6330,34,-	0.0001	v P/f	<0.0001	,,,,	,,,,	,,,,	,,,,
Chromium	6330,36,4	0.001	v P/f	<0.001	,,,,	,,,,	,,,,	,,,,
Copper	6330,50,8	0.001	v P/f	<0.001	,,,,	,,,,	,,,,	,,,,
Lead	634- ,- K,1	0.001	v P/f	<0.001	,,,,	,,,,	,,,,	,,,,
Nickel	6330,0K,0	0.001	v P/f	<0.001	,,,,	,,,,	,,,,	,,,,
Zinc	6330,TT,T	0.005	v P/f	<0.005	,,,,	,,,,	,,,,	,,,,
EG035F: Dissolved Mercury by FIMS								
Mercury	634- ,- 6,T	0.0001	v P/f	<0.0001	,,,,	,,,,	,,,,	,,,,
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	6TT3,31,6	0.010	v P/f	**0.971**	,,,,	,,,,	,,,,	,,,,
EK059G: NOX as N by Discrete Analyser								
Nitrite + Nitrate as N	,,,,	0.010	v P/f	**0.022**	,,,,	,,,,	,,,,	,,,,
EK061: Total Kjeldahl Nitrogen (TKN)								

Analytical Results

SkL,c FrbQ: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: **290508-07-LJ**	,,,,	,,,,	,,,,	,,,,
			Client sampling date / time	K- ,c YW,K008:15g00	,,,,	,,,,	,,,,	,,,,
				ES0807714-001	----	----	----	----
EK061: Total Kjeldahl Nitrogen (TKN) - Continued								
Total Kjeldahl Nitrogen as N	,,,,	0.1	v P/f	**2.7**	,,,,	,,,,	,,,,	,,,,
EK062: Total Nitrogen as N								
^ Total Nitrogen as N	,,,,	0.1	v P/f	**2.7**	,,,,	,,,,	,,,,	,,,,
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	,,,,	0.01	v P/f	**1.11**	,,,,	,,,,	,,,,	,,,,
EN055: Ionic Balance								
^ Total Anions	,,,,	0.01	v s) /f	**12.4**	,,,,	,,,,	,,,,	,,,,
^ Total Cations	,,,,	0.01	v s) /f	**11.6**	,,,,	,,,,	,,,,	,,,,
^ Ionic Balance	,,,,	0.01	%	**3.22**	,,,,	,,,,	,,,,	,,,,
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	,,,,	1	µP/f	<1	,,,,	,,,,	,,,,	,,,,
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	41- ,83,T	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Hexachlorobenzene (HCB)	118,63,1	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
beta-BHC	41- ,85,6	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
gamma-BHC	58,8- ,-	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
delta-BHC	41- ,8T,8	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Heptachlor	6T,33,8	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Aldrin	40- ,00,K	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Heptachlor epoxide	10K3,56,4	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
trans-Chlordane	5104,63,K	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
alpha-Endosulfan	- 5- ,- 8,8	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
cis-Chlordane	5104,61,-	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Dieldrin	T0,56,1	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
4.4`-DDE	6K,55,-	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Endrin	6K,K0,8	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
beta-Endosulfan	44K14,T5,-	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
4.4`-DDD	6K,53,8	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Endrin aldehyde	63K1,- 4,3	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Endosulfan sulfate	1041,06,8	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
4.4`-DDT	50,K- ,4	K	µP/f	<K	,,,,	,,,,	,,,,	,,,,
Endrin ketone	543- 3,60,5	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Methoxychlor	6K,34,5	K	µP/f	<K	,,,,	,,,,	,,,,	,,,,
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	TK,64,6	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Demeton-S-methyl	- 1- ,8T,8	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Monocrotophos	T- K4,KK,3	K	µP/f	<K	,,,,	,,,,	,,,,	,,,,

Analytical Results

SkL,c FrbQ: **WATER**

Compound	CAS Number	LOR	Unit	290508-07-LJ	,,,,	,,,,	,,,,	,,,,
			Client sampling date / time	K- ,c YW,K008:15g00	,,,,	,,,,	,,,,	,,,,
				ES0807714-001	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Dimethoate	T0,51,5	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Diazinon	444,31,5	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Chlorpyrifos-methyl	55- 8,14,0	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Parathion-methyl	K- 8,00,0	K	µP/f	<K	,,,,	,,,,	,,,,	,,,,
Malathion	1K1,65,5	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Fenthion	55,48,-	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Chlorpyrifos	K- K1,88,K	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Parathion	5T,48,K	K	µP/f	<K	,,,,	,,,,	,,,,	,,,,
Pirimphos-ethyl	K4505,31,1	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Chlorfenvinphos	360,- 0,T	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Bromophos-ethyl	38K3,68,T	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Fenamiphos	KKKK3,- K,T	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Prothiofos	43T34,3T,3	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Ethion	5T4,1K,K	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Carbophenothion	68T,1- ,T	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Azinphos Methyl	8T,50,0	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
EP074A: Monocyclic Aromatic Hydrocarbons								
Benzene	61,34,K	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Toluene	108,88,4	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Ethylbenzene	100,31,3	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
meta- & para-Xylene	108,48,4:10T,3K,4	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Styrene	100,3K,5	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
ortho-Xylene	- 5,36,T	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Isopropylbenzene	- 8,8K,8	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
n-Propylbenzene	104,T5,1	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.3.5-Trimethylbenzene	108,T6,8	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
sec-Butylbenzene	145,- 8,8	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.2.4-Trimethylbenzene	- 5,T4,T	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
tert-Butylbenzene	- 8,0T,T	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
p-Isopropyltoluene	- - ,86,T	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
n-Butylbenzene	103,51,8	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
EP074B: Oxygenated Compounds								
Vinyl Acetate	108,05,3	50	µP/f	<50	,,,,	,,,,	,,,,	,,,,
2-Butanone (MEK)	68,- 4,4	50	µP/f	<50	,,,,	,,,,	,,,,	,,,,
4-Methyl-2-pentanone (MIBK)	108,10,1	50	µP/f	<50	,,,,	,,,,	,,,,	,,,,
2-Hexanone (MBK)	5- 1,68,T	50	µP/f	<50	,,,,	,,,,	,,,,	,,,,
EP074C: Sulfonated Compounds								
Carbon disulfide	65,15,0	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,

Analytical Results

SkL,c Frb2: **WATER**

Compound	CAS Number	LOR	Unit	290508-07-LJ	,,,,	,,,,	,,,,	,,,,
			Client sampling date / time	K- ,c YW,K008:15g00	,,,,	,,,,	,,,,	,,,,
				ES0807714-001	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	5- 3,K0,6	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.2-Dichloropropane	68,86,5	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
cis-1.3-Dichloropropylene	100T1,01,5	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
trans-1.3-Dichloropropylene	100T1,0K,T	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.2-Dibromoethane (EDB)	10T,- 4,3	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	65,61,8	50	µP/f	<50	,,,,	,,,,	,,,,	,,,,
Chloromethane	63,86,4	50	µP/f	<50	,,,,	,,,,	,,,,	,,,,
Vinyl chloride	65,01,3	50	µP/f	<50	,,,,	,,,,	,,,,	,,,,
Bromomethane	63,84,-	50	µP/f	<50	,,,,	,,,,	,,,,	,,,,
Chloroethane	65,00,4	50	µP/f	<50	,,,,	,,,,	,,,,	,,,,
Trichlorofluoromethane	65,T- ,3	50	µP/f	<50	,,,,	,,,,	,,,,	,,,,
1.1-Dichloroethene	65,45,3	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Iodomethane	63,88,3	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
trans-1.2-Dichloroethene	15T,T0,5	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.1-Dichloroethane	65,43,4	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
cis-1.2-Dichloroethene	15T,5- ,K	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.1.1-Trichloroethane	61,55,T	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.1-Dichloropropylene	5T4,58,T	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Carbon Tetrachloride	5T,K4,5	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.2-Dichloroethane	106,0T,K	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Trichloroethene	6- ,01,T	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Dibromomethane	63,- 5,4	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.1.2-Trichloroethane	6- ,00,5	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.3-Dichloropropane	13K,K8,-	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Tetrachloroethene	1K6,18,3	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.1.1.2-Tetrachloroethane	T40,K0,T	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
trans-1.4-Dichloro-2-butene	110,56,T	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
cis-1.4-Dichloro-2-butene	136T,11,5	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.1.2.2-Tetrachloroethane	6- ,43,5	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.2.3-Trichloropropane	- T,18,3	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Pentachloroethane	6T,01,6	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.2-Dibromo-3-chloropropane	- T,1K,8	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Hexachlorobutadiene	86,T8,4	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108,- 0,6	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Bromobenzene	108,8T,1	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
2-Chlorotoluene	- 5,3- ,8	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,

Analytical Results

SkL,c FrbQ: **WATER**

Compound	CAS Number	LOR	Unit	290508-07-LJ	,,,,	,,,,	,,,,	,,,,
			Client sampling date / time	K- ,c YW,K008:15g00	,,,,	,,,,	,,,,	,,,,
				ES0807714-001	----	----	----	----
EP074F: Halogenated Aromatic Compounds - Continued								
4-Chlorotoluene	10T,34,3	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.3-Dichlorobenzene	531,64,1	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.4-Dichlorobenzene	10T,3T,6	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.2-Dichlorobenzene	- 5,50,1	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.2.4-Trichlorobenzene	1K0,8K,1	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
1.2.3-Trichlorobenzene	86,T1,T	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
EP074G: Trihalomethanes								
Chloroform	T6,TT,4	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Bromodichloromethane	65,K6,3	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Dibromochloromethane	1K3,38,1	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Bromoform	65,K5,K	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
EP074H: Naphthalene								
Naphthalene	- 1,K0,4	5	µP/f	<5	,,,,	,,,,	,,,,	,,,,
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	- 1,K0,4	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Acenaphthylene	K08,- T,8	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Acenaphthene	84,4K,-	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Fluorene	8T,64,6	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Phenanthrene	85,01,8	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Anthracene	1K0,1K,6	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Fluoranthene	K0T,33,0	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Pyrene	1K- ,00,0	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Benz(a)anthracene	5T,55,4	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Chrysene	K18,01,-	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Benzo(b)fluoranthene	K05,- - ,K	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Benzo(k)fluoranthene	K06,08,-	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Benzo(a)pyrene	50,4K,8	0.5	µP/f	<0.5	,,,,	,,,,	,,,,	,,,,
Indeno(1.2.3.cd)pyrene	1- 4,4- ,5	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Dibenz(a.h)anthracene	54,60,4	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
Benzo(g.h.i)perylene	1- 1,K3,K	1.0	µP/f	<1.0	,,,,	,,,,	,,,,	,,,,
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	,,,,	K0	µP/f	<K0	,,,,	,,,,	,,,,	,,,,
C10 - C14 Fraction	,,,,	50	µP/f	<50	,,,,	,,,,	,,,,	,,,,
C15 - C28 Fraction	,,,,	100	µP/f	<100	,,,,	,,,,	,,,,	,,,,
C29 - C36 Fraction	,,,,	50	µP/f	<50	,,,,	,,,,	,,,,	,,,,
EP080: BTEX								
Benzene	61,34,K	1	µP/f	<1	,,,,	,,,,	,,,,	,,,,

Analytical Results

SkL,c Frb Q: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: 290508-07-LJ	,,,,	,,,,	,,,,	,,,,
			Client sampling date / time	K- ,c YW,K008:15g00	,,,,	,,,,	,,,,	,,,,
				ES0807714-001	----	----	----	----
EP080: BTEX - Continued								
Toluene	108,88,4	K	µP/f	<5	,,,,	,,,,	,,,,	,,,,
Ethylbenzene	100,31,3	K	µP/f	<K	,,,,	,,,,	,,,,	,,,,
meta- & para-Xylene	108,48,4:10T,3K,4	K	µP/f	<K	,,,,	,,,,	,,,,	,,,,
ortho-Xylene	- 5,36,T	K	µP/f	<K	,,,,	,,,,	,,,,	,,,,
EP066S: PCB Surrogate								
Decachlorobiphenyl	K051,K3,4	0.1	%	**60.0**	,,,,	,,,,	,,,,	,,,,
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	K1T55,64,K	0.1	%	**123**	,,,,	,,,,	,,,,	,,,,
EP068T: Organophosphorus Pesticide Surrogate								
DEF	68,38,8	0.1	%	**70.0**	,,,,	,,,,	,,,,	,,,,
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	160T0,06,0	0.1	%	**91.8**	,,,,	,,,,	,,,,	,,,,
Toluene-D8	K046,KT,5	0.1	%	**104**	,,,,	,,,,	,,,,	,,,,
4-Bromofluorobenzene	3T0,00,3	0.1	%	**107**	,,,,	,,,,	,,,,	,,,,
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	141K6,88,4	0.1	%	**26.0**	,,,,	,,,,	,,,,	,,,,
2-Chlorophenol-D4	- 4- 51,64,T	0.1	%	**67.9**	,,,,	,,,,	,,,,	,,,,
2.4.6-Tribromophenol	118,6- ,T	0.1	%	**82.7**	,,,,	,,,,	,,,,	,,,,
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	4K1,T0,8	0.1	%	**93.0**	,,,,	,,,,	,,,,	,,,,
Anthracene-d10	161- ,0T,8	0.1	%	**106**	,,,,	,,,,	,,,,	,,,,
4-Terphenyl-d14	1618,51,0	0.1	%	**107**	,,,,	,,,,	,,,,	,,,,
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	160T0,06,0	0.1	%	**91.6**	,,,,	,,,,	,,,,	,,,,
Toluene-D8	K046,KT,5	0.1	%	**103**	,,,,	,,,,	,,,,	,,,,
4-Bromofluorobenzene	3T0,00,3	0.1	%	**107**	,,,,	,,,,	,,,,	,,,,

Surrogate Control Limits

SkL,c FrbQ: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	K051,K3,4	10	1T3
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	K1T55,64,K	10	14T
EP068T: Organophosphorus Pesticide Surrogate			
DEF	68,38,8	10	14T
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	160T0,06,0	80	1K0
Toluene-D8	K046,KT,5	88	110
4-Bromofluorobenzene	3T0,00,3	8T	115
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	141K6,88,4	10	- 3
2-Chlorophenol-D4	- 4- 51,64,T	K4	143
2.4.6-Tribromophenol	118,6- ,T	10	1K4
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	4K1,T0,8	34	11T
Anthracene-d10	161- ,0T,8	K6	144
4-Terphenyl-d14	1618,51,0	44	131
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	160T0,06,0	80	1K0
Toluene-D8	K046,KT,5	88	110
4-Bromofluorobenzene	3T0,00,3	8T	115

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **ES0808708**	I 3sa	e Pg gPP
t 2aCb	e **1 O4 SCNUL4 T EI GUA S1 IE4 UISUS**	o3f : L3b Lr	e ECi yL: On aC32gy yi yFy CgSr mCar
t : Cb3Db	e d Sgc EooMgA ENG	t : Cb3Db	e RyDb Lgc amyDy s2D
YmmlaFF	e hwJ ESgBYMgA WYG1gPH9-P,gowA EGgy Et c ,gSKNUEgP-P, -I 9T-g NGGYd YgGwYv I MGd wJ UgJ SA ,gYKSUGYoNYg-040	YmmlaFF	e -669-8HgA : : m73LpgG: 3mgSn yk ya2mgJ SA gYCFL3233g-PI 4
E9n 3y2	e pu ayL@D: CFC2byCsa3Lk.D: n .3O	E9n 3y2	e YFku yCySk3Ln 3@32FaCi yL: .D: n
Ua2a7k: Ca	e +I Pg85I H--00	Ua2a7k: Ca	e +I P9-98684g8555
13DFyn y2a	e +I Pg0-gH55-4THH	13DFyn y2a	e +I P9-98684g8500
I L: jaDb	e t ES05060I 9Bt t	Qt gpai a2	e J EI d gPHHHgSDkamO2agB(T)g3OmgYoSgQt STgLaqOyLan aCb
wLmaLgCOn f aL	e 9999		
t 9w9 gCOn f aL	e P-86PP	v 3bagS3n 72aFgGaDayi am	e PH9nKJ 9-008
S3n 72aL	e hEJ c NJ S	NFFOagy 3ba	e -I 9nKJ 9-008
Syba	e c/ t g9gYGEYg4		
		J : .g gF3n 72aFgLaDayi am	e P
QO: bagCOn f aL	e SM20HI z08	J : .g gF3n 72aFg3C32 Fam	e P

UkyFg La7: Lbg FO7aLFamaFg 3Org 7Lai y OFg La7: Lb(F)g u ybkg bkyFg La aLaCDa.g GaFO2bFg 3772g b g bkag F3n 72a(F)g 3Fg FOf n yba mg Y2g 73saFg : g bkyFg La7: Lbg k3i ag f aaCg DkaDpamg 3Omg 377L: i amg : L La2a3Fa.g

UkyFg aLbyyD3bag gYC32 FyFgD: Ob3yCFgbkag: 2 u yCsgC : Ln 3by Ce

- / aCaL32gt : n n aCbF
- YC32 byD32gGaFO2bF
- SOLL: s3bagt : Ob: 2gyn ybF

J YUYgYDDLamybamgo3f : L3b Lrg8-5 g
UkyFgm DOn aCbgFgFFOamgCg 3DD: Lm3ODagu ybkgJ YUYg 3DDLamyb3by CgLaqOyLan aCbF.

YDDLamybamg: LgD: n 72g3ODagu ybkg NbwzNEt gP60-5.

Signatories

UkyFg m DOn aCbg k3Fg f aaCg a2aDb: OyD32 g FysCamg f r g bkag 3Obk: LyWamg FysC3b LyaFg yOmyD3bamg f a2 u .g E2aDb: OyDg FysOyCsg k3Fg f aaC D3LLyamg OngCgD: n 723ODagu ybkg7L: DamOLaFgF7aDyyamgCg Pgt 1Gg 3LbgPP.

Signatories	Position	Accreditation Category
YCpybgh: Fky	NC: Ls3OyDgt kan yFb	NC: Ls3OyDF
t a2yCagt : ODayD3:	S7aDb: FD: 7yFb	NC: Ls3OyDF
/ 3Fb CgY2a Oma		wLs3OyDF
W. 3gJ sOraC		NC: Ls3OyDF
I 3f ygSOf f 3	SaOy LgwLs3OyDgt kan yFbg(R: 2bya)	wLs3OyDF

I 3sa e Tg gPP
A : LpgvLmaL e ES0808608
t 2aCb e t wJ SKoUNI / gEYGUWgSt NEJ UNSUS
I L:jaDb e t ES05060I 9Bt t

General Comments

Ukag 3C32 bD32g 7L: DamOLaFg OFamg f r g bkag EOi yL: On aOb32g v yi yFy. Cg k3i ag f aaCg mai a2 7amg L: n g aFb3f 2Fkamg yCbaLC3by. C322g LaD. sOyVamg 7L: DamOLaFg FODkg 3Fg bk: Fag 7Of 2Fkamg f r g bkag KSEI Y,g YI WY,g YSg 3Omg J EI d .g NOg k: OFag mai a2 7amg 7L: DamOLaFg3Lagan 72 r amgCgbkag3f FaODag gm DOn aObamgFb3Om3LmFg Lgf r gD2aCbgLaqOaFb

A kaLagn : yFbOLagmabaLn yC3by. Cgk3Fgf aaCg7La : Ln amgLaFO2bFg3LagLa7: Lbamg Cg3gmLr gu ayskbgf 3FyF.

A kaLag3gLa7: Lbamg2aFFgbk3Cg(<)gLaFO2bgFgkyskaLgbk3Cgbkag owG,gbkyFgn 3r gf agmOagb g7Lyn 3Lr gF3n 72agaxb3Dbmy saFb3bagm2Oby. Cg3Omz LgCFO yaObgF3n 72ag: Lg3C32r FyF.

A kaLagbkag owGg g3gLa7: LbamgLaFO2bgmy aLFgL: n gFb3Om3Lmg owG,gbkyFgn 3r gf agmOagb gkyskgn : yFbOLagD. ObaOb,gCFO yDyaObgF3n 72ag(LamODamgu ayskbgan 72 r am)g Lgn 3bLyxgObaLaLaODa.

A kaCgm3ba(F)g3Omz Lgbyn a(F)g3LagFk: u Ogf L3DpababamgbkaFagk3i agf aaCg3FFOn amgf r gbkag3f : L3b Lr g: Lg7L: DaFFyCsg7OL7: FaF.gNgbkagF3n 72Csgbyn agFgmyF723r amg3Fg0e00gbkagC: Ln 3by. Cgu 3FgC: bg7L: i ymamgf r gD2aCb

c ar ge t YSgI On f aLg=g kan yFbLr gYf Fb3DbgSaLi yDaFgOOn f aL
owGg=goyn ybg gLa7: LbyCs
^g=gUkyFgLaFO2bgFgD: n 7ObamgL: n gOmyi ymO32g3C32r bagmabaDby. CFg3bg Lg3f : i agbkag2ai a2g gLa7: LbyCs

- **EP080: NeveRof Geporting raised for toRuene due to ambient background Reve s in the RaboratoryH**

Analytical Results

SOf 9d 3Lyx: WI UEG			Client sample ID	+70. 08602GN9	9999	9999	9999	9999
			Client sampling date / time	P69hKJ 9- 008gPPe00	9999	9999	9999	9999
Compound	CAS Number	LOR	Unit	ES080870800+	6666	6666	6666	6666
EI 005P: pA by P1 Uitrator								
pA JaRe	9999	0.0P	7WgKOyb	7H27	9999	9999	9999	9999
EI 0+0P: 1 onductivity by P1 Uitrator								
ERctricaR1 onductivity @ - 5°1	9999	P	µSzDn	+. 000	9999	9999	9999	9999
EI 0+5: UotaRDissoRed SoRds								
^ UotaRDissoRed SoRds @+80°1	/ NS9- P090P0	P	n szD	++000	9999	9999	9999	9999
EI 0- 0E1 : SaRnity								
SaRnity	9999	0.0P	szps	3H5	9999	9999	9999	9999
EI 070: pAs EpA of SaturationF								
pAS	9999	0.0P	7WgKOyb	. H8.	9999	9999	9999	9999
EI 07+: NangeRers IndeM								
NangeRer IndeM	9999	0.P0	9	0H+	9999	9999	9999	9999
EI 080: Gesistivity								
^ Gesistivity at - 5°1	9999	P	: kn gDn	. -	9999	9999	9999	9999
ED0x7P: I RaRnity by P1 Uitrator								
AydroMde I RaRnity as 1 a1 Ox	v d w9- P0900P	P	n szD	<P	9999	9999	9999	9999
1 arbonate I RaRnity as 1 a1 Ox	T8P- 9T- 9	P	n szD	<P	9999	9999	9999	9999
j icarbonate I RaRnity as 1 a1 Ox	6P95- 9T	P	n szD	- 7-	9999	9999	9999	9999
UotaRI RaRnity as 1 a1 Ox	9999	P	n szD	- 7-	9999	9999	9999	9999
ED02+: SuRate BUurbidimetricFas SO2 - 6								
SuRate as SO2 6Uurbidimetric	P480896H98	P	n szD	. 3.	9999	9999	9999	9999
ED025T : 1 hRoride Discrete anaRyser								
1 hRoride	PI 8869009	P.0	n szD	. +20	9999	9999	9999	9999
ED03xZ: DissoRed KaXor 1 ations								
1 aRium	64409609-	P	n szD	+. x	9999	9999	9999	9999
Kagnesium	64TH9H594	P	n szD	xx.	9999	9999	9999	9999
Sodium	64409- T95	P	n szD	x+. 0	9999	9999	9999	9999
Potassium	644090H96	P	n szD	+x0	9999	9999	9999	9999
ET 0- 0Z: DissoRed KetaRs by LI PCKS								
I rsenic	644099T89-	0.00P	n szD	<0.00P	9999	9999	9999	9999
1 admium	6440994T9H	0.000P	n szD	<0.000P	9999	9999	9999	9999
1 hromium	64409469T	0.00P	n szD	0H0- 2	9999	9999	9999	9999
1 opper	64409509B	0.00P	n szD	0H00-	9999	9999	9999	9999
Nead	64TH9H- 9P	0.00P	n szD	<0.00P	9999	9999	9999	9999
4 ickeR	644090- 90	0.00P	n szD	0H002	9999	9999	9999	9999
(inc	64409 I 9	0.005	n szD	0H00.	9999	9999	9999	9999
ET 0x5Z: DissoRed Kercury by ZIKS								

Analytical Results

SCf 9d 3tLyx: WI UEG			Client sample ID	+70. 086026N9	9999	9999	9999	9999
			Client sampling date / time	P69hKJ 9-008gPPe00	9999	9999	9999	9999
Compound	CAS Number	LOR	Unit	ES0808708600+	6666	6666	6666	6666
ET0x5Z: DissoRed Kercury by ZLKS 61 ontinued								
Kercury	64TH9H69	0.000P	n sa	<0.000P	9999	9999	9999	9999
E) 055T : l mmonia as 4 by Discrete l naRyser								
l mmonia as 4	6l l 494P96	0.0P0	n sa	**2H3**	9999	9999	9999	9999
E) 053T : 4Oz as 4 by Discrete l naRyser								
4itrite l 4itrate as 4	9999	0.0P0	n sa	**0H57-**	9999	9999	9999	9999
E) 0. +: UotaR) XeRdahR4itrogen BJ) 4F								
UotaR) XeRdahR4itrogen as 4	9999	0.P	n sa	**. H2**	9999	9999	9999	9999
E) 0. - : UotaR4itrogen as 4								
^ UotaR4itrogen as 4	9999	0.P	n sa	**7H0**	9999	9999	9999	9999
E) 0. 7T : UotaRPhosphorus as P by Discrete l naRyser								
UotaRPhosphorus as P	9999	0.0P	n sa	**0H7.**	9999	9999	9999	9999
E4055: lonic j aRnce								
^ UotaRl nions	9999	0.0P	n aqa	**+3x**	9999	9999	9999	9999
UotaRl ations	9999	0.0P	n aqa	**+77**	9999	9999	9999	9999
lonic j aRnce	9999	0.0P	%	**2Hk3**	9999	9999	9999	9999
EP0. . : PoRychRorinated j iphenyRs BP1j F								
UotaRPoRychRorinated biphenyRs	9999	P	μsa	<P	9999	9999	9999	9999
EP0. 8l : OrganochRorine Pesticides B01F								
aRpha6j A1	TPH9849	0.5	μsa	<0.5	9999	9999	9999	9999
AeMachRoroben`ene BA1j F	PP89649P	0.5	μsa	<0.5	9999	9999	9999	9999
gamma6j A1	5898H9H	0.5	μsa	<0.5	9999	9999	9999	9999
deRta6j A1	TPH98l 98	0.5	μsa	<0.5	9999	9999	9999	9999
AeptachRor	6l 94498	0.5	μsa	<0.5	9999	9999	9999	9999
l Rdrin	T0H9009	0.5	μsa	<0.5	9999	9999	9999	9999
AeptachRor epoMde	P0-49569T	0.5	μsa	<0.5	9999	9999	9999	9999
trans6l hRordane	5P0T9649	0.5	μsa	<0.5	9999	9999	9999	9999
aRpha6EndosuRan	H5H9H898	0.5	μsa	<0.5	9999	9999	9999	9999
cis6l hRordane	5P0T96P9H	0.5	μsa	<0.5	9999	9999	9999	9999
DieRdrin	l 09569P	0.5	μsa	<0.5	9999	9999	9999	9999
2H286DDE	6-9559H	0.5	μsa	<0.5	9999	9999	9999	9999
Endrin	6-9-098	0.5	μsa	<0.5	9999	9999	9999	9999
beta6EndosuRan	TT-PT9 59H	0.5	μsa	<0.5	9999	9999	9999	9999
2H286DDD	6-95498	0.5	μsa	<0.5	9999	9999	9999	9999
Endrin aRdehyde	64-P9HT94	0.5	μsa	<0.5	9999	9999	9999	9999
EndosuRan suRate	P0TP90698	0.5	μsa	<0.5	9999	9999	9999	9999
2H286DDU	509-H9T	-	μsa	<-	9999	9999	9999	9999
Endrin ketone	5T4H496095	0.5	μsa	<0.5	9999	9999	9999	9999

Analytical Results

SCf 9d 3tLyx: WI UEG			Client sample ID	+70. 086026N9	9999	9999	9999	9999
			Client sampling date / time	P69hKJ 9-008gPPa00	9999	9999	9999	9999
Compound	CAS Number	LOR	Unit	ES080870800+	6666	6666	6666	6666
EP0. 8I : OrganochRorine Pesticides BD1 F61 ontinued								
KethoMychRor	6-94T95	-	µsɒ	<-	9999	9999	9999	9999
EP0. 8j : Organophosphorus Pesticides BOPF								
DichRorvos	I-96T96	0.5	µsɒ	<0.5	9999	9999	9999	9999
Demeton6S6methyR	HPH98I 98	0.5	µsɒ	<0.5	9999	9999	9999	9999
Konocrotophos	I H-T9-94	-	µsɒ	<-	9999	9999	9999	9999
Dimethoate	I 095P95	0.5	µsɒ	<0.5	9999	9999	9999	9999
Dia`inon	TTT94P95	0.5	µsɒ	<0.5	9999	9999	9999	9999
1 hRorpyrifos6methyR	55H89PT90	0.5	µsɒ	<0.5	9999	9999	9999	9999
Parathion6methyR	-H89009	-	µsɒ	<-	9999	9999	9999	9999
KaRathion	P-P96595	0.5	µsɒ	<0.5	9999	9999	9999	9999
Zenthion	559T89H	0.5	µsɒ	<0.5	9999	9999	9999	9999
1 hRorpyrifos	-H-P9889	0.5	µsɒ	<0.5	9999	9999	9999	9999
Parathion	5I 9T89	-	µsɒ	<-	9999	9999	9999	9999
Pirimphos6ethyR	-T50594P9P	0.5	µsɒ	<0.5	9999	9999	9999	9999
j romophos6ethyR	48-49689	0.5	µsɒ	<0.5	9999	9999	9999	9999
Zenamiphos	----49H-9	0.5	µsɒ	<0.5	9999	9999	9999	9999
Prothiofos	T4I 4T94I 94	0.5	µsɒ	<0.5	9999	9999	9999	9999
Ethion	5I T9P-9	0.5	µsɒ	<0.5	9999	9999	9999	9999
1 arbophenothion	68I 9PH9	0.5	µsɒ	<0.5	9999	9999	9999	9999
I `inphos KethyR	8I 95090	0.5	µsɒ	<0.5	9999	9999	9999	9999
EP072I : KonocycRc I romatic Aydrocarbons								
j en`ene	6P94T9	5	µsɒ	<5	9999	9999	9999	9999
UoRuene	P08988 9T	5	µsɒ	<5	9999	9999	9999	9999
EthyRben`ene	P0094P94	5	µsɒ	<5	9999	9999	9999	9999
meta6V para6z yRene	P089T89TgP0I 94-9T	5	µsɒ	<5	9999	9999	9999	9999
Styrene	P0094-95	5	µsɒ	<5	9999	9999	9999	9999
ortho6z yRene	H5946 9	5	µsɒ	<5	9999	9999	9999	9999
IsopropyRben`ene	H898-98	5	µsɒ	<5	9999	9999	9999	9999
n6PropyRben`ene	P0T9 59P	5	µsɒ	<5	9999	9999	9999	9999
+H1H56UrimethyRben`ene	P089 698	5	µsɒ	<5	9999	9999	9999	9999
sec6j utyRben`ene	PT59H898	5	µsɒ	<5	9999	9999	9999	9999
+H H26UrimethyRben`ene	H59 T9	5	µsɒ	<5	9999	9999	9999	9999
tert6j utyRben`ene	H890I 9	5	µsɒ	<5	9999	9999	9999	9999
p6IsopropyRtoRuene	HH9869	5	µsɒ	<5	9999	9999	9999	9999
n6j utyRben`ene	P0495P98	5	µsɒ	<5	9999	9999	9999	9999
EP072j : OMygenated 1 ompounds								
-6Propanone B cetoneF	I 69 49P	50	µsɒ	<50	9999	9999	9999	9999
JinyRI cetate	P089059 4	50	µsɒ	<50	9999	9999	9999	9999

Analytical Results

SOf 9d 3Lkx: WI UEG			Client sample ID	+70. 08602 6N9	9999	9999	9999	9999
			Client sampling date / time	P69hKJ 9 008gPPe00	9999	9999	9999	9999
Compound	CAS Number	LOR	Unit	ES08087086 00+	6666	6666	6666	6666
EP072j : OMygenated 1 ompounds 61 ontinued								
-6j utanone BKE) F	689HT9T	50	µszb	<50	9999	9999	9999	9999
26KethylR6pentanone BKLj) F	P089P09P	50	µszb	<50	9999	9999	9999	9999
-6AeMnone BKj) F	5HP9689	50	µszb	<50	9999	9999	9999	9999
KethyRt6butyRether	PI T49 0494	5	µszb	<5	9999	9999	9999	9999
EP0721 : SuRonated 1 ompounds								
1 arbon disuRide	659P590	5	µszb	<5	9999	9999	9999	9999
EP072D: Zumigants								
-H6DichRropropane	5H49 096	5	µszb	<5	9999	9999	9999	9999
+H6DichRropropane	689 8695	5	µszb	<5	9999	9999	9999	9999
cis6+Ht6DichRropropyRene	P00I P90P95	5	µszb	<5	9999	9999	9999	9999
trans6+Ht6DichRropropyRene	P00I P90-9	5	µszb	<5	9999	9999	9999	9999
+H6Dibromoethane BEDj F	P0I 9HT94	5	µszb	<5	9999	9999	9999	9999
EP072E: AaRogenated I Rphatic 1 ompounds								
DichRrodifRuoromethane	6596P98	50	µszb	<50	9999	9999	9999	9999
1 hRromethane	649869T	50	µszb	<50	9999	9999	9999	9999
JinyRchRride	6590P94	50	µszb	<50	9999	9999	9999	9999
j romomethane	6498T9H	50	µszb	<50	9999	9999	9999	9999
1 hRroethane	659009T	50	µszb	<50	9999	9999	9999	9999
UrichRrofRuoromethane	659 H94	50	µszb	<50	9999	9999	9999	9999
+H6DichRroethene	659T594	5	µszb	<5	9999	9999	9999	9999
Lodomethane	6498894	5	µszb	<5	9999	9999	9999	9999
KethyRene chRride	6590H9-	5	µszb	<5	9999	9999	9999	9999
trans6+H6DichRroethene	P5I 9 095	5	µszb	<5	9999	9999	9999	9999
+H6DichRroethane	659T49T	5	µszb	<5	9999	9999	9999	9999
cis6+H6DichRroethene	P5I 95H9-	5	µszb	<5	9999	9999	9999	9999
+H+H6UrichRroethane	6P9559	5	µszb	<5	9999	9999	9999	9999
+H6DichRropropyRene	5I T9589	5	µszb	<5	9999	9999	9999	9999
1 arbon UetrachRride	5I 9-T95	5	µszb	<5	9999	9999	9999	9999
+H6DichRroethane	P0690I 9-	5	µszb	<5	9999	9999	9999	9999
UrichRroethene	6H90P9	5	µszb	<5	9999	9999	9999	9999
Dibromomethane	649H59T	5	µszb	<5	9999	9999	9999	9999
+H+H6UrichRroethane	6H9009 5	5	µszb	<5	9999	9999	9999	9999
+Ht6DichRropropane	P4-9 89H	5	µszb	<5	9999	9999	9999	9999
UetrachRroethene	P-6P894	5	µszb	<5	9999	9999	9999	9999
+H+H+H6UetrachRroethane	I T09-09	5	µszb	<5	9999	9999	9999	9999
trans6+H26DichRro6-6butene	PP09569	5	µszb	<5	9999	9999	9999	9999
cis6+H26DichRro6-6butene	P46I 9PP95	5	µszb	<5	9999	9999	9999	9999
+H+H H6UetrachRroethane	6H9T495	5	µszb	<5	9999	9999	9999	9999

Analytical Results

SOf 9d 3Lyx: WI UEG			Client sample ID	+70. 08602GN9	9999	9999	9999	9999
			Client sampling date / time	P69hKJ 9- 008gPPa00	9999	9999	9999	9999
Compound	CAS Number	LOR	Unit	ES0808708600+	6666	6666	6666	6666
EP072E: AaRogenated I Rphatic 1 ompounds 61 ontinued								
+H Hz6UrichRropropane	HI 9P894	5	µsaD	<5	9999	9999	9999	9999
PentachRroethane	6I 90P96	5	µsaD	<5	9999	9999	9999	9999
+H 6Dibromo6x6chRropropane	HI 9P- 98	5	µsaD	<5	9999	9999	9999	9999
AeMachRrobutadiene	869 89T	5	µsaD	<5	9999	9999	9999	9999
j romochRromethane	649H695	5	µsaD	<5	9999	9999	9999	9999
+6I hRro6 6propene B RyR chRrideF	P069059P	5	µsaD	<5	9999	9999	9999	9999
EP072Z: AaRogenated I romatic 1 ompounds								
1 hRroben`ene	P089H096	5	µsaD	<5	9999	9999	9999	9999
j romoben`ene	P08981 9P	5	µsaD	<5	9999	9999	9999	9999
- 6I hRrotoRuene	H594H98	5	µsaD	<5	9999	9999	9999	9999
26I hRrotoRuene	P0I 94T94	5	µsaD	<5	9999	9999	9999	9999
+Hz6DichRroben`ene	54P96T9P	5	µsaD	<5	9999	9999	9999	9999
+H26DichRroben`ene	P0I 94I 96	5	µsaD	<5	9999	9999	9999	9999
+H 6DichRroben`ene	H59509P	5	µsaD	<5	9999	9999	9999	9999
+H H26UrichRroben`ene	P- 098- 9P	5	µsaD	<5	9999	9999	9999	9999
+H Hz6UrichRroben`ene	869 P9I	5	µsaD	<5	9999	9999	9999	9999
EP072T: UrihaRomethanes								
1 hRroform	I 69 I 9T	5	µsaD	<5	9999	9999	9999	9999
j romodichRromethane	659 694	5	µsaD	<5	9999	9999	9999	9999
DibromochRromethane	P- 49489P	5	µsaD	<5	9999	9999	9999	9999
j romoform	659 59-	5	µsaD	<5	9999	9999	9999	9999
^ UotaRUrihaRomethanes	9999	5	µsaD	<5	9999	9999	9999	9999
EP072A: 4 aphthaRene								
4 aphthaRene	HP9- 09T	6	µsaD	<6	9999	9999	9999	9999
EP072) : KisceRaneous 1 ompounds								
I cryRamide	6H90I 9P	5	µsaD	<5	9999	9999	9999	9999
EP075BSLKFj : PoRynucRear I romatic Aydrocarbons								
4 aphthaRene	HP9- 09T	P.0	µsaD	<P.0	9999	9999	9999	9999
I cenaphthyRene	- 089HI 98	P.0	µsaD	<P.0	9999	9999	9999	9999
I cenaphthene	8T9T- 9H	P.0	µsaD	<P.0	9999	9999	9999	9999
ZRuorene	8I 96T96	P.0	µsaD	<P.0	9999	9999	9999	9999
Phenanthrene	8590P98	P.0	µsaD	<P.0	9999	9999	9999	9999
I nthracene	P- 09P- 96	P.0	µsaD	<P.0	9999	9999	9999	9999
ZRuoranthene	- 0I 94490	P.0	µsaD	<P.0	9999	9999	9999	9999
Pyrene	P- H9009D	P.0	µsaD	<P.0	9999	9999	9999	9999
j en`BaFanthracene	5I 9559T	P.0	µsaD	<P.0	9999	9999	9999	9999

Analytical Results

SOf 9d 3Ly: WI UEG

Compound	CAS Number	LOR	Unit	+70. 08602 6N9	9999	9999	9999	9999
			Client sampling date / time	P69hKJ 9-008gPPa00	9999	9999	9999	9999
				ES0808708600+	6666	6666	6666	6666
EP075EBSIKFj : PoRynucRear I romatic Aydrocarbons 61 ontinued								
1 hrysene	-P890P9H	P.0	µsa	<P.0	9999	9999	9999	9999
j en` oBbFRuoranthene	-059HH9	P.0	µsa	<P.0	9999	9999	9999	9999
j en` oBkFRuoranthene	-069089H	P.0	µsa	<P.0	9999	9999	9999	9999
j en` oBaFpyrene	509T-98	0.5	µsa	<0.5	9999	9999	9999	9999
IndenoB-H H-cdFpyrene	PHT9TH95	P.0	µsa	<P.0	9999	9999	9999	9999
Diben` BaHhFanthracene	5T9609T	P.0	µsa	<P.0	9999	9999	9999	9999
j en` oBgHhHiFperyRene	PHP9-49	P.0	µsa	<P.0	9999	9999	9999	9999
EP080/07+: UotaRPetroReum Aydrocarbons								
1. 61 3 Zraction	9999	-0	µsa	<-0	9999	9999	9999	9999
1+0 61+2 Zraction	9999	50	µsa	<50	9999	9999	9999	9999
1+5 61-8 Zraction	9999	P00	µsa	<P00	9999	9999	9999	9999
1-3 61x. Zraction	9999	50	µsa	<50	9999	9999	9999	9999
EP080: j UEz								
j en` ene	6P94T9	P	µsa	<P	9999	9999	9999	9999
UoRuene	P089889T	-	µsa	<5	9999	9999	9999	9999
EthyRben` ene	P0094P94	-	µsa	<-	9999	9999	9999	9999
meta6V para6z yRene	P089T89TgP0I 94-9T	-	µsa	<-	9999	9999	9999	9999
ortho6z yRene	H59469	-	µsa	<-	9999	9999	9999	9999
EP0. . S: P1 j Surrogate								
DecachRorobiphenyR	-05P9-49T	0.P	%	++0	9999	9999	9999	9999
EP0. 8S: OrganochRorine Pesticide Surrogate								
Dibromo6DDE	-PI 5596T9	0.P	%	+02	9999	9999	9999	9999
EP0. 8U: Organophosphorus Pesticide Surrogate								
DEZ	6894898	0.P	%	. x H	9999	9999	9999	9999
EP072S: J O1 Surrogates								
+H6DichRoroethane6D2	P60I 09069	0.P	%	85H	9999	9999	9999	9999
UoRuene6D8	-0T69 I 95	0.P	%	+0+	9999	9999	9999	9999
26j romofRuoroben` ene	4I 09009	0.P	%	82Hx	9999	9999	9999	9999
EP075EBSIKFS: PhenoRic 1 ompound Surrogates								
PhenoR6d.	PTP-69889T	0.P	%	x0H2	9999	9999	9999	9999
-61 hRorophenoR6D2	HTH5P96T9	0.P	%	85H8	9999	9999	9999	9999
-H2H6UribromophenoR	PP8956H9	0.P	%	82H	9999	9999	9999	9999
EP075EBSIKFU: PI A Surrogates								
-6ZRuorobiphenyR	T-P9 098	0.P	%	37H7	9999	9999	9999	9999
I nthracene6d+0	P6PH90I 98	0.P	%	8+H	9999	9999	9999	9999
26UerphenyR6d+2	P6P895P90	0.P	%	80H	9999	9999	9999	9999
EP080S: UPAB I Fj UEz Surrogates								

I 3sa	e P0g gPP
A : Lpgv LmaL	e ES0808608
t 2jaCb	e t wJ SKoUN / gEYGUWgSt NEJ UNSUS
I L: jaDb	e t ES05060I 9Bt t

Analytical Results

SOf 9d 3tLyx: **WI UEG**			Client sample ID	**+70. 086026N9**	9999	9999	9999	9999
			Client sampling date / time	P69hKJ 9-008gPPe00	9999	9999	9999	9999
Compound	*CAS Number*	*LOR*	*Unit*	**ES0808708600+**	6666	6666	6666	6666
EP080S: UPABJ Fj UEz Surrogates 61 ontinued								
+H6DichRoroethane6D2	P60I 09069	0.P	%	**++x**	9999	9999	9999	9999
UoRuene6D8	- 0T69-I 95	0.P	%	**+0.**	9999	9999	9999	9999
26 romofRuoroben`ene	4I 090094	0.P	%	**++-**	9999	9999	9999	9999

Surrogate Control Limits

SOf 9d 3tLyx: **WI UEG**

Compound	CAS Number	Recovery Limits (%) Low	High
EP0. . S: P1 j Surrogate			
DecachRorobiphenyR	- 05P9- 49T	P0	PI 4
EP0. 8S: OrganochRorine Pesticide Surrogate			
Dibromo6DDE	- PI 5596T9-	P0	PTI
EP0. 8U: Organophosphorus Pesticide Surrogate			
DEZ	6894898	P0	PTI
EP072S: J O1 Surrogates			
+H 6DichRoroethane6D2	P60I 09069 0	80	P- 0
UoRuene6D8	- 0T69- I 95	88	PP0
26j romofRuoroben` ene	4I 090094	8I	PP5
EP075BSLK FS: PhenoRc 1 ompound Surrogates			
PhenoRd.	PTP- 69889T	P0	H4
- 6I hRorophenoR6D2	HTH5P96T9I	- T	PT4
- H2H 6UribromophenoR	PP89 6H9	P0	P- T
EP075BSLK FU: PI A Surrogates			
- 6ZRuorobiphenyR	T- P9I 098	4T	PPI
I nthracene6d+0	P6PH90I 98	- 6	PTT
26UerphenyR6d+2	P6P895P90	TT	P4P
EP080S: UPAB J Fj UEz Surrogates			
+H 6DichRoroethane6D2	P60I 09069 0	80	P- 0
UoRuene6D8	- 0T69- I 95	88	PP0
26j romofRuoroben` ene	4I 090094	8I	PP5

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1703949**	Page	: 1 of 10
Amendment	: **1**		
Client	: **CONSULTING EARTH SCIENTISTS**	Laboratory	: Environmental Division Sydney
Contact	: Mr Mitchell Read	Contact	: Customer Services ES
Address	: Suite 3, Level 1 55-65 Grandview Street PYMBLE NSW, AUSTRALIA 2073	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8569 2200	Telephone	: +61-2-8784 8555
Project	: CES130608-BP	Date Samples Received	: 20-Feb-2017 15:00
Order number	: ----	Date Analysis Commenced	: 21-Feb-2017
C-O-C number	: ----	Issue Date	: 27-Feb-2017 09:58
Sampler	: TRISTAN GOODBODY		
Site	: ----		
Quote number	: SY/488/14		
No. of samples received	: 1		
No. of samples analysed	: 1		

NATA

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ashesh Patel	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Dian Dao		Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Amendment (27/02/2017): This report has been amended to alter the project reference code. All analysis results are as per the previous report.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

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

Compound	CAS Number	LOR	Unit	QAQC2	----	----	----	----
Client sampling date / time				17-Feb-2017 00:00	----	----	----	----
				ES1703949-001	--------	--------	--------	--------
				Result	----	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**323**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**323**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**1110**	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**9440**	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**437**	----	----	----	----
Magnesium	7439-95-4	1	mg/L	**622**	----	----	----	----
Sodium	7440-23-5	1	mg/L	**5580**	----	----	----	----
Potassium	7440-09-7	1	mg/L	**205**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.022**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.96**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.5**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**1.5**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.62**	----	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Client sample ID	**QAQC2**	----	----	----	----
			Client sampling date / time	17-Feb-2017 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES1703949-001**	--------	--------	--------	--------
				Result	----	----	----	----
EN055: Ionic Balance								
Total Anions	----	0.01	meq/L	**296**	----	----	----	----
Total Cations	----	0.01	meq/L	**321**	----	----	----	----
Ionic Balance	----	0.01	%	**4.07**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	1	µg/L	<1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	----	----	----	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	----	----	----	----
gamma-BHC	58-89-9	0.5	µg/L	<0.5	----	----	----	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	----	----	----	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	----	----	----	----
Aldrin	309-00-2	0.5	µg/L	<0.5	----	----	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	----	----	----	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	----	----	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	----	----	----	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	----	----	----	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	----	----	----	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	----	----	----	----
Endrin	72-20-8	0.5	µg/L	<0.5	----	----	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	----	----	----	----
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	----	----	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	----	----	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	----	----	----	----
4.4`-DDT	50-29-3	2	µg/L	<2.0	----	----	----	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	----	----	----	----
Methoxychlor	72-43-5	2	µg/L	<2.0	----	----	----	----
^ **Total Chlordane (sum)**	----	0.5	µg/L	<0.5	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L	<0.5	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	----	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	QAQC2	----	----	----	----
			Client sampling date / time	17-Feb-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1703949-001	--------	--------	--------	--------
				Result	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Monocrotophos	6923-22-4	2	µg/L	<2.0	----	----	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	----	----	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	----	----	----	----
Parathion-methyl	298-00-0	2	µg/L	<2.0	----	----	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	----	----	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	----	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	----	----	----	----
Parathion	56-38-2	2	µg/L	<2.0	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	----	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	----	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	----	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	----	----	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	----	----	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	----	----	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	----	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	----	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	----	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	----	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	----	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	----	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	----	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	<5	----	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	----	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	----	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	----	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	----	----	----	----

Analytical Results

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

Compound	CAS Number	LOR	Unit	QAQC2	----	----	----	----
			Client sampling date / time	17-Feb-2017 00:00	----	----	----	----
				ES1703949-001	--------	--------	--------	--------
				Result	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	----	----	----	----
Chloromethane	74-87-3	50	µg/L	<50	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L	<50	----	----	----	----
Bromomethane	74-83-9	50	µg/L	<50	----	----	----	----
Chloroethane	75-00-3	50	µg/L	<50	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	----	----	----	----
Iodomethane	74-88-4	5	µg/L	<5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	----	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	----	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	----	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	----	----	----	----
Trichloroethene	79-01-6	5	µg/L	<5	----	----	----	----
Dibromomethane	74-95-3	5	µg/L	<5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	----	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	<5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L	<5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	----	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Client sample ID	**QAQC2**	----	----	----	----
			Client sampling date / time	17-Feb-2017 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES1703949-001**	--------	--------	--------	--------
				Result	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L	<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	<5	----	----	----	----
Bromoform	75-25-2	5	µg/L	<5	----	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1	µg/L	<1.0	----	----	----	----
Acenaphthylene	208-96-8	1	µg/L	<1.0	----	----	----	----
Acenaphthene	83-32-9	1	µg/L	<1.0	----	----	----	----
Fluorene	86-73-7	1	µg/L	<1.0	----	----	----	----
Phenanthrene	85-01-8	1	µg/L	<1.0	----	----	----	----
Anthracene	120-12-7	1	µg/L	<1.0	----	----	----	----
Fluoranthene	206-44-0	1	µg/L	<1.0	----	----	----	----
Pyrene	129-00-0	1	µg/L	<1.0	----	----	----	----
Benz(a)anthracene	56-55-3	1	µg/L	<1.0	----	----	----	----
Chrysene	218-01-9	1	µg/L	<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	----	----	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)			Client sample ID	**QAQC2**	----	----	----	----
			Client sampling date / time	17-Feb-2017 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES1703949-001**	--------	--------	--------	--------
				Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L	<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	<100	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ **Total Xylenes**	1330-20-7	2	µg/L	<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**93.6**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**112**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**62.8**	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**110**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	QAQC2	----	----	----	----
			Client sampling date / time	17-Feb-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1703949-001	--------	--------	--------	--------
				Result	----	----	----	----
EP074S: VOC Surrogates - Continued								
Toluene-D8	2037-26-5	5	%	122	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%	104	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1	%	21.5	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1	%	55.1	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1	%	60.3	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1	%	76.4	----	----	----	----
Anthracene-d10	1719-06-8	1	%	71.9	----	----	----	----
4-Terphenyl-d14	1718-51-0	1	%	92.2	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	117	----	----	----	----
Toluene-D8	2037-26-5	2	%	111	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	118	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	Recovery Limits (%) High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	29	129
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	30	120
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	27	129
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

Appendix 4
Field Data Sheets

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:	**CES Project Code:**
Project:	**Location:**
Sampler (s): **Signature(s):** MR	**Project Manager:**
BH ID: AMW203	**Sample ID:**
Purging Date: 16/02/17 10:30	**Sampling Date:**

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO 45	Weather Conditions		
Standing Water Level (SWL):	1.47 (mBTOC) 2.~~65~~	Temperature:	30	°C
Well volume:	6.2 (L)			
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)			
Volume of water purged:	20 (L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain

Purging Details

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L^{-1})	EC (uS.cm^{-1})	pH -	Eh mV	Temp. (°C)	Comments
		1	0.54	28538	7.45	-227.5	25.9	grey, turbid, strong organic odour
		8	0.67	29174	7.35	-237.1	25.6	~~Roots~~ grey, s. turbid organic odour
		15	0.67	29672	7.30	-239.3	25.3	Grey, s. turbid organic odour
		20	0.70	29908	7.27	-239.1	25.3	grey, s. turbid organic odour.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

* Hit blockage? at 1.68 mBTOC, Roots + sand came up on dip meter (has buzzing at bottom)

Top of casing ≈ ~~[illegible]~~ 80 mm bgl

1

* Roots at bottom maybe or just at block?

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:	**CES Project Code:**
Project:	**Location:**
Sampler (s): **Signature(s):** MR	**Project Manager:**
BH ID: ABH2100	**Sample ID:**
Purging Date: 16/02/17 11:00 AM	**Sampling Date:**

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO 60L	Weather Conditions		
Standing Water Level (SWL):	1.57 (mBTOC) 6.48 mBTOC	Temperature:	30	°C
Well volume:	20 (L)			
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)			
Volume of water purged:	N/A (L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain

Purging Details

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L^{-1})	EC (uS.cm^{-1})	pH -	Eh mV	Temp. (°C)	Comments
		2	0.98	5526	7.28	-168.1	23.5	Pale gray / brown / milky, turbid, ~~[illegible]~~ odorless
		8	0.77	5354	6.84	-162.5	24.6	Brown / cream, turbid, odorless
		15	0.82	5311	6.71	-157.7	24.C	light brown / cream, turbid, odorless
		20	0.85	5254	6.68	-115.6	24.5	"
		Dry @ 20L						

Groundwater field parameters at the end of purging to be marked "Field Measurements".

* Slow recovery 1cm = 1-2 secs.

2

$4.91

* Top of casing = 110 mm bgl

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:		**CES Project Code:**
Project:		**Location:**
Sampler (s):	**Signature(s):** [illegible]	**Project Manager:**
BH ID: ABH2110		**Sample ID:**
Purging Date: 16/02/17	12:00 PM	**Sampling Date:**

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions			
Standing Water Level (SWL):	1.39 (mBTOC) 1.95	Temperature:	30	°C	
Well volume:	2 (L)				
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast	
Water level at time of sampling:	(mBTOC)				
Volume of water purged:	0.5 (L)	Calm	Slight breeze	Moderate Breeze	
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy			
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain	

Purging Details

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO ($mg.L^{-1}$)	EC ($uS.cm^{-1}$)	pH -	Eh mV	Temp. (^oC)	Comments
		0.5	2.08	3050	7.08	-109.5	26.7	orange, turbid, odourless

Groundwater field parameters at the end of purging to be marked "Field Measurements".

& bot @ 1.86 mBTOC ?

3

& very little recharge, bad recovery,
only 500 mL brought up and put in cup

1 cm = 20-30 seconds

& Top of casing = 60 mm bgl

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:	CES Project Code:
Project:	Location:
Sampler (s): Signature(s):	Project Manager:
BH ID: ABH202	Sample ID:
Purging Date: 16/02/17 12:30 pm	Sampling Date:

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry? YES/NO

Standing Water Level (SWL): 1.315 (mBTOC) 4.03

Well volume: 12 (L)

Water level after purging: (mBTOC)

Water level at time of sampling: (mBTOC)

Volume of water purged: 20 (L)

Purging equipment: Pump / micro-Purging / Bailer / Foot Valve

Sampling equipment: Pump / Bailer

Weather Conditions

Temperature: 30 °C

Clear Partly Cloudy Overcast

Calm Slight breeze Moderate Breeze Windy

Fine Showers Rain

Purging Details

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO ($mg.L^{-1}$)	EC ($uS.cm^{-1}$)	pH -	Eh mV	Temp. (^{o}C)	Comments
		2	0.30	1709	6.96	-135	24.8	Brown, V. Turbid, odourless
		10	1.30	1685	6.78	-108.2	24.9	Pale brown, S turbid, odourless
		15	3.16	1644	6.71	-80.1	24.4	"
		20	~~1.4~~ 2.06	1607	6.71	-87.7	23.9	"

Groundwater field parameters at the end of purging to be marked "Field Measurements".

4

Recharge waits = ~~1111~~

* & Moderate recovery.

2.715

*Top of casing = 70 mm bgl

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:	CES Project Code:
Project:	Location:
Sampler (s): Signature(s): MP	Project Manager:
BH ID: ABH 2105	Sample ID:
Purging Date: 16/02/17 1:00 PM	Sampling Date:

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions		
Standing Water Level (SWL):	1.44 (mBTOC) bot 3.87	Temperature: 30	°C	
Well volume:	10 (L)			
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)			
Volume of water purged:	30 (L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain

Purging Details

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO ($mg.L^{-1}$)	EC ($uS.cm^{-1}$)	pH -	Eh mV	Temp. (°C)	Comments
		2	0.04	875	6.69	-79.2	24.1	Black/dark grey v. Turbid, Strong HC odour.
		10	0.68	845	6.59	-89.2	23.8	Dark grey, turbid, HC odour
		15	0.98	853	6.57	-127.1	23.3	Grey, s. turbid, HC odour
		20	0.70	8.33	6.55	-147.1	22.9	Pale grey, s. turbid ~~Sl~~ odour
		25	1.15	837	6.55	-146.2	23.0	〃
		30	0.81	824	6.46	-144.2	22.8	〃

Groundwater field parameters at the end of purging to be marked "Field Measurements".

S

* Strong HC odour on dip meter
* Top of casing ≈ 40mm bgl
* Good recovery

2.43

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:		**CES Project Code:**
Project:		**Location:**
Sampler (s):	**Signature(s):** MR	**Project Manager:**
BH ID: AMW205		**Sample ID:**
Purging Date: 16/02/17 1:50 PM		**Sampling Date:**

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions		
Standing Water Level (SWL):	0.40 (mBTOC) 2.04	Temperature: 25		°C
Well volume:	7 (L)			
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)			
Volume of water purged:	(L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain

Purging Details

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L^{-1})	EC (uS.cm^{-1})	pH -	Eh mV	Temp. (°C)	Comments
		1	0.50	3540	6.86	-244.9	23.0	Pale grey, S. turbid organic odour.
		7	2.23	3572	7.02	-238.8	22.7	Pale grey, S. turbid organic odour
		10L	1.31	3632	6.96	-236.7	22.7	" / green, S. turbid organic odour.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

6

* Top of casing = 60 mm bgl

1.6X

Purged to dry = 1st Recovered to ~~40~~ 0.45 mBTOC
2nd " " 0.47 "
3rd 0.45 mBTOC (impatient)

* Moderate recovery 10cm = 8 secs

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:		**CES Project Code:**
Project:		**Location:**
Sampler (s):	**Signature(s):** MR	**Project Manager:**
BH ID: BMW404		**Sample ID:**
Purging Date: 16/02/17 2:30 PM		**Sampling Date:**

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?		YES/NO	Weather Conditions		
Standing Water Level (SWL):	2.16	(mBTOC) 3.64	Temperature: 25		°C
Well volume:	6.5	(L)			
Water level after purging:		(mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:		(mBTOC)			
Volume of water purged:	20	(L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:		Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:		Pump / Bailer	Fine	Showers	Rain

Purging Details

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO ($mg.L^{-1}$)	EC ($uS.cm^{-1}$)	pH -	Eh mV	Temp. (°C)	Comments
		2	0.74	7946	7.19	-262.7	22.6	V. Pale grey, S. turbid, organic odour
		10	0.78	11388	7.07	-277.3	21.7	~~A~~ V.V pale grey/green, V.S turbid, organic odour
		20	0.50	11157	7.08	-282.1	21.6	V.V. Pale green, V.S turbid, organic odour.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

7

* ~~Well~~ Inside gate overgrown with weeds
* logger inside well. (cable off logger) 1.48
* Top of casing ≈ 60mm bgl
* Good recovery

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:		**CES Project Code:**
Project:		**Location:**
Sampler (s):	**Signature(s):** MR	**Project Manager:**
BH ID: BMW403		**Sample ID:**
Purging Date: 16/02/17	3:00 PM	**Sampling Date:**

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions			
Standing Water Level (SWL):	3.50 (mBTOC) 4.66	Temperature:	25	°C	
Well volume:	5 (L)				
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast	
Water level at time of sampling:	(mBTOC)				
Volume of water purged:	(L)	Calm	Slight breeze	Moderate Breeze	
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy			
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain	

Purging Details

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L^{-1})	EC (uS.cm^{-1})	pH -	Eh mV	Temp. (°C)	Comments
		1	~~3~~ 0.07	3450	6.91	-188.7	23.7	Dark grey, turbid slight organic odour
		3	3.82	2802	6.97	-143.5	22.9	grey, turbid, slight organic odour.
		5	2.70	2907	6.94	-175.8	22.2	~~grey~~ "

Groundwater field parameters at the end of purging to be marked "Field Measurements".

8

Full recovery takes about 1-2 mins
* Moderate recovery.

* logger installed (cable attached)

* Top of casing = 50 mm bgl

* Purged to dry = 1st - Recovered to 3.5 / @ 1-1.5 litres
2nd - Recovered to 3.5 / @ 1.5-2 litres
3rd - Recovered to 3.5 / @ 1.5-2 litres

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:		**CES Project Code:**
Project:		**Location:**
Sampler (s):	**Signature(s):** MR	**Project Manager:**
BH ID: BMW401		**Sample ID:**
Purging Date: 16/02/17 3:40 PM		**Sampling Date:**

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions		
Standing Water Level (SWL):	4.12 (mBTOC) 4.66	Temperature:	25	°C
Well volume:	(L)			
Water level after purging:	2.5 (mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)			
Volume of water purged:	~2 (L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain

Purging Details

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L^{-1})	EC (uS.cm^{-1})	pH -	Eh mV	Temp. (°C)	Comments
		0.5	2.45	941	6.85	-104.8	25.6	Brown, slightly turbid, odourless Dry
		1	2.09	859	6.28	-78.8	24.3	" Dry
		1.5	2.10	829	6.65	-101.7	23.5	" Dry
								Recovered to
								4.13 mBTOC
								each time
								in about 3 min

Groundwater field parameters at the end of purging to be marked "Field Measurements".

0.54

* Top of casing = 90 mm bgl

1 cms 4 secs

* Slow recovery. * logger installed (attached to itself)

9

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:	**CES Project Code:**
Project:	**Location:**
Sampler (s): MR **Signature(s):** MR	**Project Manager:**
BH ID: AMW203	**Sample ID:** AMW203, QAQC1, QAQC2
Purging Date: 17/02/17	**Sampling Date:** 17/02/17

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions		
Standing Water Level (SWL):	1.48 (mBTOC)	Temperature: 30		°C
Well volume:	(L)			
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)			
Volume of water purged:	(L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain

Purging Details

	Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO $(mg.L^{-1})$	EC $(uS.cm^{-1})$	pH -	Eh mV	Temp. (°C)	Comments
9:52	0		0	0.64	9290	4.47	-59.4	25.6	Pale grey, s-turbid organic odour
	2		0.5	0.16	15261	4.52	-96.7	25.7	
	4		1	0.11	20082	4.61	-117.5	25.6	
	6		1.5	0.09	22120	4.67	-122.3	25.6	
	8		2	0.08	24024	4.74	-133.7	25.5	
	10		2.5	0.08	25134	4.78	-131.7	25.5	
									Small Roots in water

Groundwater field parameters at the end of purging to be marked "Field Measurements".

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:	**CES Project Code:**
Project:	**Location:**
Sampler (s): MK **Signature(s):** MK	**Project Manager:**
BH ID: ABH2100	**Sample ID:** ABH2100
Purging Date: 17/02/17	**Sampling Date:** 17/02/17

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions			
Standing Water Level (SWL): 1.64	(mBTOC)	Temperature:	30	°C	
Well volume:	(L)				
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast	
Water level at time of sampling:	(mBTOC)				
Volume of water purged:	(L)	Calm	Slight breeze	Moderate Breeze	
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy			
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain	

Purging Details

	Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L^{-1})	EC (uS.cm^{-1})	pH -	Eh mV	Temp. (°C)	light brown Comments
10:45	0		0	1.56	6041	4.04	72.6	25.5	Milky, s. turbid, odourless
	2		0.5	0.93	5461	6.69	-104.6	25.6	
	4		1	0.81	5354	6.60	-105.3	25.4	
	6		1.5	0.83	5307	6.53	-105.2	25.3	
	8		2	0.76	5263	6.51	-105.3	25.3	

Groundwater field parameters at the end of purging to be marked "Field Measurements".

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:		**CES Project Code:**
Project:		**Location:**
Sampler (s): MK	**Signature(s):** MK	**Project Manager:**
BH ID: ABH2110		**Sample ID:**
Purging Date: 17/02/17		**Sampling Date:**

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions		
Standing Water Level (SWL):	1.69 (mBTOC) 1.86	Temperature: 30	°C	
Well volume:	(L)			
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)			
Volume of water purged:	(L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain

Purging Details

	Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L^{-1})	EC (uS.cm^{-1})	pH -	Eh mV	Temp. (^{o}C)	Comments
11:30	0		0	2.77	4189	6.82	-85.2	27.1	
			NO SAMPLE		WENT DRY.				

Groundwater field parameters at the end of purging to be marked "Field Measurements".

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:		**CES Project Code:**
Project:		**Location:**
Sampler (s): MR	**Signature(s):** MR	**Project Manager:**
BH ID: ABH202		**Sample ID:** ABH202
Purging Date: 17/02/17		**Sampling Date:** 17/02/17

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?		YES/NO	Weather Conditions		
Standing Water Level (SWL):	1.48	(mBTOC)	Temperature: 30		°C
Well volume:		(L)			
Water level after purging:		(mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:		(mBTOC)			
Volume of water purged:		(L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:		Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:		Pump / Bailer	Fine	Showers	Rain

Purging Details

	Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO ($mg.L^{-1}$)	EC ($uS.cm^{-1}$)	pH -	Eh mV	Temp. (°C)	Comments
11:25	0		0	1.22	1833	7.23	-96.8	26.9	brown, turbid odourless
	2		0.5	0.34	1706	6.73	-102.4	26.4	
	4		1	0.26	1679	6.64	-105.7	25.9	
	6		1.5	0.18	1660	6.59	-109.9	25.5	
	8		2	0.16	1658	6.57	-113.3	25.3	

Groundwater field parameters at the end of purging to be marked "Field Measurements".

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:	**CES Project Code:**
Project:	**Location:**
Sampler (s): MR **Signature(s):** MR	**Project Manager:**
BH ID: ABH2105	**Sample ID:** ABH2105
Purging Date: 17/02/17	**Sampling Date:** 17/02/17

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/~~NO~~
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions		
Standing Water Level (SWL):	1.50 (mBTOC)	Temperature: 30		°C
Well volume:	(L)			
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)			
Volume of water purged:	(L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain

Purging Details

	Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L^{-1})	EC (uS.cm^{-1})	pH -	Eh mV	Temp. (°C)	yellow Comments
11:56	0		0	1.15	1119	5.72	-120.1	26.1	0 V. Pale ~~black/grey~~ yellow; clearish strong HC odour
	2		0.5	0.30	1039	5.39	-125.0	24.9	
	4		1	0.18	1025	5.27	-121.7	24.7	
	6		1.5	0.14	1018	5.17	-118.2	24.7	
	8		2	0.13	1015	5.07	-113.8	24.7	
	10		2.5	0.14	1013	5.02	-110.2	24.7	

Groundwater field parameters at the end of purging to be marked "Field Measurements".

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:		**CES Project Code:**
Project:		**Location:**
Sampler (s): MR	**Signature(s):** MR	**Project Manager:**
BH ID: AMW205		**Sample ID:** AMW205
Purging Date: 17/02/17		**Sampling Date:** 17/02/17

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions		
Standing Water Level (SWL): 0.41	(mBTOC)	Temperature: 30	°C	
Well volume:	(L)			
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)			
Volume of water purged:	(L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain

Purging Details

12:33

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L^{-1})	EC (uS.cm^{-1})	pH -	Eh mV	Temp. (°C)	Comments
0		0	1.50	3837	6.54	-202	23.3	Colourless / clear
2		0.5	0.20	3761	5.97	-211.8	23.2	Strong organic odour
4		1	0.11	3774	5.79	-214.7	23.3	
6		1.5	0.12	3787	5.68	-215.5	23.3	
8		2	0.13	3790	5.72	-222.5	23.3	
10		2.5	0.12	3791	5.67	-220.1	23.3	

Groundwater field parameters at the end of purging to be marked "Field Measurements".

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GROUNDWATER FIELD DATA SHEET

Client:	**CES Project Code:**
Project:	**Location:**
Sampler (s): MR **Signature(s):** MR	**Project Manager:**
BH ID: BMW404	**Sample ID:** BMW404
Purging Date: 17/02/17	**Sampling Date:** 17/02/17

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions			
Standing Water Level (SWL): 2.24	(mBTOC)	Temperature: 30	°C		
Well volume:	(L)				
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast	
Water level at time of sampling:	(mBTOC)				
Volume of water purged:	(L)	Calm	Slight breeze	Moderate Breeze	
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy			
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain	

Purging Details

1:07

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L^{-1})	EC (uS.cm^{-1})	pH -	Eh mV	Temp. (°C)	Comments
0		0	0.68	12361	6.79	-296.8	22.7	v. pale grey, s. turbid, organic odour
2		0.5	0.18	14019	6.95	-309.4	22.5	
4		1	0.15	14820	6.93	-311.7	22.5	
6		1.5	0.14	14142	6.92	-313.9	22.4	

Groundwater field parameters at the end of purging to be marked "Field Measurements".

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GROUNDWATER FIELD DATA SHEET

Client:	**CES Project Code:**
Project:	**Location:**
Sampler (s): MR **Signature(s):** MR	**Project Manager:**
BH ID: BMW403	**Sample ID:** BMW403
Purging Date: 17/02/17	**Sampling Date:** 17/02/17

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions		
Standing Water Level (SWL):	3.50 (mBTOC)	Temperature: 30		°C
Well volume:	(L)			
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)			
Volume of water purged:	(L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain

Purging Details

	Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L^{-1})	EC (uS.cm^{-1})	pH -	Eh mV	Temp. (^{o}C)	Comments
1:35	0		0	1.00	3077	7.02	-135.0	23.8	V. Pale brown, S. turbid,
	2		0.5	0.53	1939	6.64	-164.3	22.9	S. organic odour
	4		1	0.52	1817	6.54	-192.8	22.9	
	6		1.5	0.39	1768	6.49	-200.0	22.9	
	8		2	0.37	1716	6.32	-190.3	22.9	
	10		2.5	0.35	1721	6.28	-185.2	22.9	

Groundwater field parameters at the end of purging to be marked "Field Measurements".

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:	**CES Project Code:**
Project:	**Location:**
Sampler (s): MK **Signature(s):** MK	**Project Manager:**
BH ID: BMW401	**Sample ID:** BMW401
Purging Date: 17/02/17	**Sampling Date:** 17/02/17

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO

Well purged to dry?	YES/NO	Weather Conditions			
Standing Water Level (SWL):	4.14 (mBTOC)	Temperature:	30	°C	
Well volume:	(L)				
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast	
Water level at time of sampling:	(mBTOC)				
Volume of water purged:	(L)	Calm	Slight breeze	Moderate Breeze	
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy			
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain	

Purging Details

	Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO ($mg.L^{-1}$)	EC ($uS.cm^{-1}$)	pH -	Eh mV	Temp. (°C)	Comments
2:05	0		0	1.03	888	7.09	-130	23.4	v. pale brown/ yellow, v.s. turbid
	2		0.5	0.43	827	6.58	-135.9	22.7	odourless
	4		1	0.37	814	6.45	-141.5	22.6	
	6		1.5	0.32	806	6.55	-155.7	22.6	
	8		2	0.30	804	6.54	-150.2	22.5	

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Rob barnes.

0418664775

10/02/2017

Oil / Water Interface Meter

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

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	8.8
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: 10/02/2017

Next calibration due: 11/04/2017

15/02/2017

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 12D100012

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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

Certificate of Calibration

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

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 10.00		pH 10.00		291176	pH 9.72
2. pH 7.00		pH 7.00		288773	pH 6.84
3. pH 4.00		pH 4.00		288994	pH 4.20
4. mV		229.6mV		OB1388/OB1390	229.5mV
5. EC		2.76mS		290786	2.76mS
6. D.O		0.00ppm		4347	0.00ppm
7. Temp		22.0°C		MultiTherm	21.8°C

Calibrated by: Joanna Wong

Calibration date: **15/02/2017**

Next calibration due: **14/08/2017**

CONSULTING EARTH SCIENTISTS

MONITORING WELL DEVELOPMENT FIELD DATA SHEET

Client:	CES Project Code:
Project:	Location:
Sampler (s): Signature(s):	Project Manager:

Well Development Record

Date	Well ID	Development Method (s)	Standing Water Level (before/after)	Depth to Bottom of Well (before/after)	Water Volume Removed (L)	Description and comments (eg. Turbidity, odours, free-phase product, changes through development process)
21.5.08	BMW401	FV	4.04/4.26	4.57/4.57	5	Pale brown v. turbid becoming almost clear. odourless purged to dry every ½ L.
21.5.08	BMW403	FV	3.57/4.40	4.49/4.49	10	Dark brown v. turbid. organic odour. purged to dry every 2L
21.5.08	BMW404	FV	2.45/2.47	3.56/3.57	75	Dark brown to pale brown V. turbid to mod turbid good recovery H_2S odour
21.5.08	BMW ~~405~~ 402	FV	1.17/2.50	2.62/2.62	10	Brown, V. turbid to mod turbid odourless purged to dry every 2L.
12/06/09	BMW401	FV	3.92/4.09	4.57/4.57	8	Dark brown, very turbid. No odour. Purged to dry every 1 Litre.
12/06/08	BMW402	FV	0.96/2.21	2.53/2.58	7	Dark brown - Dark Grey, Very turbid, no odour. Purged to dry every 3-4 litres
12/06/08	BMW403	FV	3.49/4.46	4.57/4.57	10	Dark brown, v. turbid, no odour Getting lighter between 5-10 litres. Purged to dry every ½ litre.
12/06/08	BMW404	FV	2.52/2.54	3.56/3.56	100	Dark brown to pale brown, V- turbid to slightly turbid to brown tint. Excellent recovery, V. Strong H_2S odour

Note 1:
B = Bailer; SB = Surge Block; AIR = Air sparging/air lift; NLIFT = Nitrogen gas sparging/lift; PUMP = Pumping/over pumping

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:	Boyds Cooks Cove	CES Project Code:	CES050706-BCC
Project:	Kograh Golf Course	Location:	Area B
Sampler (s):	JA Signature(s): [signature]	Project Manager:	Petrozzi
BH ID:	BBH 304	Sample ID:	180608-06-LJ
Purging Date:	18/06/08	Sampling Date:	18/06/08

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO - grass covered	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwa	YES/NO

Comments: sand falling into well from no cap.

Standing Water Level (SWL): 0·43 (mBTOC)
Well volume: (L)
Water level after purging: 0·47 (mBTOC)
Water level at time of sampling: 0·47 (mBTOC)
Volume of water purged: 28 (L)
Well purged to dry?: YES/NO
Purging equipment: Pump / micro-Purging / Bailer / Foot valve
Sampling equipment: Pump / Bailer / Foot valve peristaltic

Weather Conditions

Temperature	15-20	20-25
	25-30	>30
Clear	Partly cloudy	Overcast
Calm	Slight breeze	Moderate Breeze
Windy		
Fine	Showers	Rain

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1}) mS	pH -	Eh (mV)	Temp. (°C)	Comments
10:17	0·47	4	-0·01	6·39mS	6·95	-99	19·0	slight turbid, some partial. matter, black green / H_2S odour
10:23	0·47	8	-0·08	6·96mS	6·96	-137	18·4	
10:34	0·47	12	-0·14	6·21	6·99	-162	18·2	clear dark brown, some p. matter, H_2S odour
10:42	0·47	16	-0·04	6·25	7·02	-184	18·1	clear light brown; some p. matter, H_2S odour
10:47	0·47	20	-0·07	6·32	7·03	-190	18·1	"
10:56	0·47	24	-0·16	6·41	7·04	-196	18·1	"
11·03	0·47	28	-0·23	6·44	7·05	-211	18·0	clear, brown, H_2S odour

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Purging Details

SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (°C)	Comments

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client: Boyds Cooks Cove		CES Project Code:	CES050706-BCC
Project: Kograh Golf Course		Location:	Area 8
Sampler (s): JChris	Signature(s):	Project Manager:	Petrozzi
BH ID: BMW ~~4BB~~ 401		Sample ID:	170608-01-05
Purging Date: 17.6.08		Sampling Date:	17.06.08

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwa	YES/NO

Comments:

			Weather Conditions		
Standing Water Level (SWL):	3.96	(mBTOC)	Temperature	15-20	20-25
Well volume:		(L)		25-30	>30
Water level after purging:	4.0	(mBTOC)	Clear	Partly cloudy	Overcast
Water level at time of sampling:	4.0	(mBTOC)	Calm	Slight breeze	Moderate Breeze
Volume of water purged:	20	(L)	Windy		
Well purged to dry?:	YES/NO		Fine	Showers	Rain
Purging equipment:	Pump / micro-Purging / Bailer / Foot valve				
Sampling equipment:	Pump / Bailer / Foot valve Peristaltic				

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^oC)	Comments
10:42	4.00	4	0.16	938	6.32	102	21.1	Clear, brown tint (slight) odourless.
10:55	4.00	8	0.06	937	6.33	100	21.1	c/c/odourless
11:09	4.0	12	-0.01	939	6.32	99	21.1	" "
11:26	4.0	16	-0.07	942	6.31	87	21.1	c/c/odourless
11:42	4.0	20	-0.16	944	6.30	85	21.1	Clear & colourless odourless
								Field measurements.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Development ~~Purging~~ Details 21.5.08 1:pm Insufficient sample volume.

SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^oC)	Comments

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client: Boyds Cooks Cove		CES Project Code:	CES050706-BCC
Project: Kograh Golf Course		Location:	Area A
Sampler (s): Jenkins	Signature(s):	Project Manager:	Petrozzi
BH ID: BMW 402		Sample ID:	170608-05-L5
Purging Date: 17·6·08		Sampling Date:	~~17/6/08~~ 17·6·08

Well Status

Well damaged: YES/NO (NO circled)
Cement footing damaged: YES/NO (NO circled)
Internal obstructions in casing: YES/NO (NO circled)
Standing water, vegetation around monument: YES/NO (NO circled)
Water between PVC and protective casing: YES/NO (NO circled)
Comments:

Well locked: YES/NO (NO circled)
Cap on PVC casing: YES/NO (YES circled)
Well ID visible: YES/NO (NO circled)
Monument damaged: YES/NO (NO circled)
Odours from groundwa YES/NO

Standing Water Level (SWL): 2·13 (mBTOC)
Well volume: (L)
Water level after purging: 2·18 (mBTOC)
Water level at time of sampling: 2·18 (mBTOC)
Volume of water purged: 25 (L)
Well purged to dry?: YES/NO (NO circled)
Purging equipment: Pump / micro-Purging / Bailer / Foot valve (micro-Purging circled)
Sampling equipment: Pump / Bailer / Foot valve (Pump circled) peristaltic

Weather Conditions
Temperature 15-20 (circled) 20-25 25-30 >30
Clear Partly cloudy Overcast (circled)
Calm Slight breeze (circled) Moderate Breeze
Windy
Fine (circled) Showers Rain

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (°C)	Comments
15:19	2.18	5	0·13	2.32	6.76	-171	18.1	Pale brown tint odourless.
15:26	2.18	10	-0.18	2.60	6.80	-162	19.2	" "
15:34	2.18	15	-0.23	2.70	6.78	-168	19.2	Pale brown tint odourless
15:44	2.18	20	-0.24	2.75	6.78	-167	19.2	" "
15:52	2.18	25	-0.25	2.78	6.77	-167	19.3	Field measurement.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

~~Purging~~ Development Details 21·5·08 2:30pm

	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (°C)	Comments
Dry	2·50	5	2.15	2744	7.33	-197	19.1	Brown v. turbid odourless
Dry	2·50	10	2·60	3.07	7.28	-188	19.3	Brown. turbid odourless

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client: Boyds Cooks Cove	CES Project Code: CES050706-BCC
Project: Kograh Golf Course	Location: Area B
Sampler (s): JCh/ks Signature(s):	Project Manager: Petrozzi
BH ID: BMW 403	Sample ID: 170608-02-L5
Purging Date: 17.6.08	Sampling Date: 17.6.08

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwa	YES/NO

Comments:

Standing Water Level (SWL): 3.48 (mBTOC)
Well volume: (L)
Water level after purging: 3.59 (mBTOC)
Water level at time of sampling: 3.59 (mBTOC)
Volume of water purged: 25 (L)
Well purged to dry?: YES/NO
Purging equipment: Pump / micro-Purging / Bailer / Foot valve
Sampling equipment: Pump / Bailer / Foot valve Peristaltic

Weather Conditions
Temperature 15-20 20-25 25-30 >30
Clear Partly cloudy Overcast
Calm Slight breeze Moderate Breeze
Windy
Fine Showers Rain

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^oC)	Comments
12:32	3.~~48~~59	5	-0.01	2.94	6.77	-96	20.6	Pale brown / yellow tint S. turbid odourless
12:44	3.59	10	-0.01	2.59	6.78	-94	20.6	" "
12:59	3.59	15	-0.03	2.50	6.78	-94	20.6	" "
13:17	3.59	20	-0.01	2.46	6.77	-87	20.6	"
13:32	3.59	25	0.01	2.46	6.77	-93	20.5	Pale brown / yellow S. turbid odourless

Groundwater field parameters at the end of purging to be marked "Field Measurements".

~~Purging~~ Development Details 21.5.08 1:30pm

	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^oC)	Comments
Dry	4.40	5	2.90	2360	7.10	-2	20.5	Dark brown V. turbid organic odour
Dry	4.46	10	2.68	2202	7.09	-11	20.4	Dark brown turbid organic odour

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:	Boyds Cooks Cove	CES Project Code:	CES050706-BCC
Project:	Kograh Golf Course	Location:	Area A
Sampler (s):	Jenkins	Project Manager:	Petrozzi
Signature(s):		Sample ID:	170608-03/04 LO
BH ID:	BMW 404	Sampling Date:	17.6.08
Purging Date:	17.6.08		

Well Status

Well damaged:	YES/NO (NO circled)	Well locked:	YES/NO (NO circled)
Cement footing damaged:	YES/NO (NO circled)	Cap on PVC casing:	YES/NO (YES circled)
Internal obstructions in casing:	YES/NO (NO circled)	Well ID visible:	YES/NO (NO circled)
Standing water, vegetation around monument:	YES/NO (NO circled)	Monument damaged:	YES/NO (NO circled)
Water between PVC and protective casing:	YES/NO (NO circled)	Odours from groundwa	YES/NO (YES circled) organic

Comments:

Standing Water Level (SWL):	2.38	(mBTOC)
Well volume:		(L)
Water level after purging:	2.45	(mBTOC)
Water level at time of sampling:	2.45	(mBTOC)
Volume of water purged:	25	(L)
Well purged to dry?:	YES/NO (NO circled)	
Purging equipment:	Pump / micro-Purging / Bailer / Foot valve (micro-Purging circled)	
Sampling equipment:	Pump / Bailer / Foot valve (Pump circled) Peristaltic	

Weather Conditions

Temperature	15-20 (circled)	20-25	
	25-30	>30	
Clear	Partly cloudy	Overcast (circled)	
Calm	Slight breeze (circled)	Moderate Breeze (circled)	
Windy			
Fine (circled)	Showers	Rain	

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO ($mg\ L^{-1}$)	EC ($uS\ cm^{-1}$)	pH -	Eh (mV)	Temp. (^oC)	Comments
14:01	2.44	5	-0.33	15.02	6.89	-290	19.7	Black. V turbid rich organic odour.
14:08	2.45	10	-0.33	15.30	6.90	-292	19.7	" "
14:17	2.45	15	-0.33	15.53	6.88	-291	19.7	" "
14:28	2.45	20	-0.31 ~~-0.31~~	15.74	6.87	-298	19.7	" "
14:35	2.45	25	-0.33	15.80	6.83	-299	19.7	Black V, turbid
								rich organic odour.
								Field measurements.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

~~Purging~~ Developing Details 21.5.08 2:00pm

SWL m BTOC	Cumulative volume (L)	DO ($mg\ L^{-1}$)	EC ($uS\ cm^{-1}$)	pH -	Eh (mV)	Temp. (^oC)	Comments
2.45	25	0.11	16.39	6.98	-311	19.7	Dark brown V. turbid H_2S odour.
2.50	50	0.29	14.44	6.98	-307	19.8	Pale brown Mod turbid H_2S odour.
2.50	75	0.21	14.74	6.95	-307	19.7	Pale brown Mod turbid. H_2S odour.

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client: Boyds Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: Kograh Golf Course		**Location:**	Area A
Sampler (s): K.Weir / L.Jenkins	**Signature(s):**	**Project Manager:**	Petrozzi
BH ID: AMW203		**Sample ID:**	290508-01-LJ
Purging Date: 29.5.08		**Sampling Date:**	29.05.08

Well Status

Well damaged:	YES/NO (NO circled)	Well locked:	YES/NO (NO circled)
Cement footing damaged:	YES/NO (NO circled)	Cap on PVC casing:	YES/NO (YES circled)
Internal obstructions in casing:	YES/NO (NO circled)	Well ID visible:	YES/NO (NO circled)
Standing water, vegetation around monument:	YES/NO (NO circled)	Monument damaged:	YES/NO (NO circled)
Water between PVC and protective casing:	YES/NO (NO circled)	Odours from groundwa	YES/NO (YES circled) H_2S

Comments:

Standing Water Level (SWL):	1.59	(mBTOC)	Weather Conditions			
Well volume:		(L)	Temperature	15-20	20-25 (circled)	
Water level after purging:	1.64	(mBTOC)		25-30	>30	
Water level at time of sampling:	1.64	(mBTOC)	Clear	Partly cloudy (circled)	Overcast	
Volume of water purged:	25	(L)	Calm (circled)	Slight breeze	Moderate Breeze	
Well purged to dry?:	YES/NO (NO circled)		Windy			
Purging equipment:	Pump / micro-Purging (circled) / Bailer / Foot valve		Fine (circled)	Showers	Rain	
Sampling equipment:	Pump (circled) / Bailer / Foot valve Peristaltic pump.					

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^oC)	Comments
9:48	1.63	5	0.39	12.84	7.07	-131	20.1	Almost c/c grey/brown tint.
9:53	1.64	10	0.27	10.39	7.09	-152	20.1	" "
9:59	1.64	15	0.22	10.15	7.10	-167	20.1	brown tint H_2S odour
10:05	1.64	20	0.18	9.72	7.11	~~168~~ -178	20.1	" "
10:10	1.64	25	0.18	9.64	7.12	-180	20.1	brown tint H_2S odour Field sample.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Development
Purging Details 21.5.08 8:00am

SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^oC)	Comments
1.54	2	2.78	10110	7.10	-33	18.6	Grey, turbid, H_2S odour.
1.67	15	5.03	10660	7.14	-98	19.3	Grey tint, slightly turbid, H_2S odour.
1.55	25	1.08	10560	7.11	-134	19.7	Grey tint, slightly turbid H_2S odour
1.55	50	0.82	10060	7.15	-154	19.7	Grey tint, slightly turbid, H_2S odour
1.55	75	0.94	10440	7.21	-171	19.7	light grey tint - almost c/c H_2S odour
1.55	100	0.81	10740	7.18	-189	19.7	light grey tint almost clear H_2S odour

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client: Boyds Cooks Cove		CES Project Code:	CES050706-BCC
Project: Kograh Golf Course		Location:	Area A
Sampler (s): Jenkins	Signature(s):	Project Manager:	Petrozzi
BH ID: AB2105		Sample ID:	290508-02-L5
Purging Date: 29.5.08		Sampling Date:	29.5.08

Well Status

Well damaged:	YES/NO (NO)	Well locked:	YES/NO (NO)
Cement footing damaged:	YES/NO (NO)	Cap on PVC casing:	YES/NO (YES)
Internal obstructions in casing:	YES/NO (NO)	Well ID visible:	YES/NO (NO)
Standing water, vegetation around monument:	YES/NO (NO)	Monument damaged:	YES/NO (NO)
Water between PVC and protective casing:	YES/NO (NO)	Odours from groundwa	YES/NO (YES) HC odour.

Comments:

			Weather Conditions		
Standing Water Level (SWL):	1.59	(mBTOC)	Temperature 15-20 (circled)	20-25	
Well volume:		(L)		25-30	>30
Water level after purging:	1.66	(mBTOC)	Clear	Partly cloudy	Overcast (circled)
Water level at time of sampling:	1.66	(mBTOC)	Calm (circled)	Slight breeze	Moderate Breeze
Volume of water purged:	14	(L)	Windy		
Well purged to dry?:	YES/NO (NO)		Fine	Showers (circled)	Rain
Purging equipment:	Pump / micro-Purging (circled) / Bailer / Foot valve				
Sampling equipment:	Pump (circled) / Bailer / Foot valve Peristaltic				

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (°C)	Comments
11:35	1.66	2	0.31	1121	6.41	-126	18.9	Clear brown tint HC odour.
11:40	1.66	4	0.24	1073	6.42	-140	18.9	" "
11:44	1.66	6	0.24	1049	6.42	-146	18.9	" "
11:47	1.66	8	0.21	1041	6.43	-149	18.9	" "
11.50	1.66	10	0.21	1064	6.44	-153	18.9	
11:53	1.66	12	0.23	1022	6.44	-161	18.9	almost clear brown tint HC odour
11:56	1.66	14	0.23	1071	6.44	-162	19.0	Field sample

Groundwater field parameters at the end of purging to be marked "Field Measurements".

~~Purging~~ Development Details 21.5.08

SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (°C)	Comments
1.50	15	0.25	902	6.64	-81	19.1	Brown turbid HC odour.
1.50	30	0.47	920	6.61	-77	19.4	Brown turbid HC odour
1.50	45	0.37	927	6.60	-78	19.7	Brown turbid HC odour
1.50	60	0.43	963	6.61	-73	19.0	Brown turbid HC Odour

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:	Boyds Cooks Cove	CES Project Code:	CES050706-BCC
Project:	Kograh Golf Course	Location:	Area A
Sampler (s): LJenkins	Signature(s):	Project Manager:	Petrozzi
BH ID:	ABH 202	Sample ID:	290508-03-LJ
Purging Date:	29/05/08	Sampling Date:	29/05/08

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwa	YES/NO HC odour

Comments:

Standing Water Level (SWL): 1.40 (mBTOC)
Well volume: (L)
Water level after purging: 1.66 (mBTOC)
Water level at time of sampling: 1.66 (mBTOC)
Volume of water purged: 12 (L)
Well purged to dry?: YES/NO
Purging equipment: Pump / micro-Purging / Bailer / Foot valve
Sampling equipment: Pump / Bailer / Foot valve Peristaltic

Weather Conditions

Temperature 15-20	20-25	
	25-30	>30
Clear	Partly cloudy	Overcast
Calm	Slight breeze	Moderate Breeze
Windy		
Fine	Showers	Rain

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (°C)	Comments
12:37	1.65	2	0.29	1102	6.88	-12	21.0	Pale brown tint sheen with HC odour
12:42	1.66	4	0.27	1084	6.85	-9	21.0	" "
12:52	1.66	6	0.26	1117	6.84	-7	21.1	" "
13:00	1.66	8	0.25	1126	6.84	-6	21.1	" "
13:08	1.66	10	0.25	1064	6.84	-4	21.1	Pale brown tint sheen with HC odour.
13:15	1.66	12	0.25	1092	6.83	-5	21.1	Field sample

Groundwater field parameters at the end of purging to be marked "Field Measurements".

~~Purging~~ Developing Details 21.5.08 3:30pm

	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (°C)	Comments
Dry	3.90	10	1.20	1173	7.09	-67	19.6	Brown V.turbid slight HC odour
Dry	3.90	20	3.78	944	7.09	-31	19.9	Brown V.turbid Sl. HC odour
Dry	3.90	30	3.53	894	7.01	-15	20.0	Brown V.turbid Sl HC odour.
Dry	3.90	40	2.65	970	6.90	-7	20.1	Brown V.turbid Sl HC odour

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client: Boyds Cooks Cove	CES Project Code: CES050706-BCC
Project: Kograh Golf Course	Location: Area A
Sampler (s): Jenkins Signature(s):	Project Manager: Petrozzi
BH ID: AMW ~~2085~~ 205	Sample ID: 290508-04-LJ
Purging Date: 29.5.08	Sampling Date: 29.05.08

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwa	YES/NO

Comments:

Standing Water Level (SWL): 0.49 (mBTOC)
Well volume: (L)
Water level after purging: 0.69 (mBTOC)
Water level at time of sampling: 0.69 (mBTOC)
Volume of water purged: 14 (L)
Well purged to dry?: YES/NO
Purging equipment: Pump / micro-Purging / Bailer / Foot valve
Sampling equipment: Pump / Bailer / Foot valve Peristaltic

Weather Conditions
Temperature 15-20 20-25 25-30 >30
Clear Partly cloudy Overcast
Calm Slight breeze Moderate Breeze
Windy
Fine Showers Rain

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^oC)	Comments
13:58	0.67	4	0.28	3.83	7.08	-149	17.8	grey tint almost clear. organic odour
14:03	~~0.68~~ 0.68	6	0.19	3.96	7.09	-190	17.6	" "
14:10	0.68	8	0.17	4.00	7.08	-211	17.6	" "
14:18	0.68	10	0.17	4.23	7.06	-235	17.6	grey tint s.turbid. organic odour
14:~~22~~22	0.68	12	0.16	4.17	7.06	-240	17.6	" "
14:29	0.69	14	0.17	4.20	7.04	-249	17.6	grey tint s. turbid. organic odour
								Field sample

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Development ~~Purging~~ Details
21.5.08 9:30am Well was purged dry approximately every 5L.

	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^oC)	Comments
dry.	~~2.04~~ 2.04	10	4.11	5.72	7.38	-101	18.6	Darky brown V. turbid slight organic odour.
dry	2.04	20	1.00	4.90	7.16	-149	18.6	Brown ~~turbid~~ turbid slight organic odour.
dry	2.04	30	2.28	5.87	7.19	-136	19.1	Brown turbid organic odour.

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client: Boyds Cooks Cove		CES Project Code:	CES050706-BCC
Project: Kograh Golf Course		Location:	Area A
Sampler (s): Jenkins	Signature(s):	Project Manager:	Petrozzi
BH ID: AMW 201		Sample ID:	290508-05/06/07-LJ
Purging Date: 29.5.08		Sampling Date:	29.05.08

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwa	YES/NO

Comments:

Standing Water Level (SWL): 0.41 (mBTOC)
Well volume: (L)
Water level after purging: 0.55 (mBTOC)
Water level at time of sampling: 0.55 (mBTOC)
Volume of water purged: 25 (L)
Well purged to dry?: YES/NO
Purging equipment: Pump / micro-Purging / Bailer / Foot valve
Sampling equipment: Pump / Bailer / Foot valve Peristaltic

Weather Conditions

Temperature	15-20	20-25	
	25-30	>30	
Clear	Partly cloudy	Overcast	
Calm	Slight Breeze	Moderate Breeze	
Windy			
Fine	Showers	Rain	

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^{o}C)	Comments
15:00	0.51	2	0.35	1098	6.31	-46	18.2	Almost c/c odourless
15:04	0.51	4	0.27	1066	6.29	-49	18.2	" "
15:09	0.51	6	0.23	1060	6.29	-50	18.2	" "
15:15	0.51	8	0.21	1092	6.28	-63	18.3	" "
15:17	0.51	10	0.21	1086	6.28	-61	18.3	pale brown tint clear odourless
15:28	0.55	15	0.16	1089	6.25	-64	18.4	"
15:36	0.55	20	0.14	1080	6.22	-66	18.4	" "
15:44	0.55	25	0.16	1082	6.22	-69	18.4	Pale brown tint odourless Almost clear
								Field sample

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Purging Details

SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^{o}C)	Comments
0.40	25	1.37	1287	6.48	-25	18.4	Dark/pale brown V. turbid.
0.80	50	1.37	1183	6.57	-35	18.4	Pale brown mod turbid odourless
0.50	25	1.39	1159	6.55	-31	18.7	Brown turbid odourless

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client: Boyds Cooks Cove	CES Project Code: CES050706-BCC
Project: Kograh Golf Course	Location: Area A
Sampler (s): Jenkins Signature(s): [illegible]	Project Manager: Petrozzi
BH ID: AMW 204	Sample ID: 290508-08-CS
Purging Date: 29.5.08	Sampling Date: 29.5.08

Well Status

Well damaged:	YES/NO (NO)	Well locked:	YES/NO (NO)
Cement footing damaged:	YES/NO (NO)	Cap on PVC casing:	YES/NO (YES)
Internal obstructions in casing:	YES/NO (NO)	Well ID visible:	YES/NO (NO)
Standing water, vegetation around monument:	YES/NO (NO)	Monument damaged:	YES/NO (NO)
Water between PVC and protective casing:	YES/NO (NO)	Odours from groundwa	YES/NO (NO)

Comments:

Standing Water Level (SWL): 0.72 (mBTOC)
Well volume: (L)
Water level after purging: 0.86 (mBTOC)
Water level at time of sampling: 0.86 (mBTOC)
Volume of water purged: 25 (L)
Well purged to dry?: YES/NO (NO)
Purging equipment: Pump / micro-Purging / Bailer / Foot valve (micro-Purging)
Sampling equipment: Pump / Bailer / Foot valve (Pump) Peristaltic

Weather Conditions

Temperature: 15-20 (selected), 20-25, 25-30, >30
Clear (selected), Partly cloudy, Overcast
Calm (selected), Slight breeze, Moderate Breeze, Windy
Fine (selected), Showers, Rain

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^oC)	Comments
16:22	0.84	5	0.16	5.08	6.42	-95	18.6	orange/red turbid. odourless
16:26	0.84	10	0.15	4.91	6.41	-98	18.6	" "
16:34	0.84	15	0.14	4.54	6.40	-99	18.6	" "
16:42	0.85	20	0.13	4.13	6.41	-96	18.6	" "
16:50	0.85	25	0.12	4.15	6.41	-94	18.6	orange/red. turbid odourless
								Field sample.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

~~Purging~~ Development Details 21/5/08 11:00

SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^oC)	Comments
0.67	10	1.00	4.38	6.53	-44	18.5	Brown turbid odourless.
0.67	~~[illegible]~~ 25	0.66	3.71	6.53	-35	18.4	Brown turbid odourless
0.67	35	1.14	3.56	6.53	-20	18.5	~~[illegible]~~ pale brown turbid odourless
0.67	50	1.18	3.61	6.53	-18	18.8	Pale brown turbid odourless

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client: Boyds Cooks Cove		CES Project Code:	CES050706-BCC
Project: Kograh Golf Course		Location:	Area A
Sampler (s): [illegible]	Signature(s): [illegible]	Project Manager:	Petrozzi
BH ID: AMW 207		Sample ID:	300508-09-LS
Purging Date: 30.5.08		Sampling Date:	30-5-08

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwa	YES/NO

Comments:

Standing Water Level (SWL): 1.50 (mBTOC)
Well volume: (L)
Water level after purging: 2.28 (mBTOC)
Water level at time of sampling: 2.28 (mBTOC)
Volume of water purged: 12 (L)
Well purged to dry?: YES/NO
Purging equipment: Pump / micro-Purging / Bailer / Foot valve
Sampling equipment: Pump / Bailer / Foot valve Peristaltic

Weather Conditions

Temperature	15-20	20-25	
	25-30	>30	
Clear	Partly cloudy	Overcast	
Calm	Slight breeze	Moderate Breeze	
Windy			
Fine	Showers	Rain	

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^{0}C)	Comments
8:56	2.22	4	2.36	19.35	6.69	-32	18.0	Clear / colourless odourless.
9:14	2.24	6	2.33	18.89	6.64	-30	18.0	" "
9:24	2.26	8	2.88	17.89	6.64	-26	18.0	Pale brown tint
9:40	2.26	10	2.27	18.04	6.60	-28	18.1	" "
9:51	2.28	12	2.13	18.32	6.59	-31	18.1	Pale brown tint S. turbid odourless
								Field sample.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Development ~~Purging~~ Details 21.5.08 10:20am Purged to dry every 1-2 L.

	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^{0}C)	Comments
Dry	2.81	3	2.65	17.58	6.64	-6	18.3	Brown turbid odourless
Dry	2.81	6	5.41	17.79	6.75	-16	18.4	Brown turbid odourless

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client: Boyds Cooks Cove	CES Project Code: CES050706-BCC
Project: Kograh Golf Course	Location: Area A
Sampler (s): [illegible] Signature(s): [illegible]	Project Manager: Petrozzi
BH ID: AMW 206	Sample ID: 200508-10/11-L5
Purging Date: 30.5.08	Sampling Date: 30.5.08

Well Status

Well damaged: YES/NO
Cement footing damaged: YES/NO
Internal obstructions in casing: YES/NO
Standing water, vegetation around monument: YES/NO
Water between PVC and protective casing: YES/NO
Comments:

Well locked: YES/NO
Cap on PVC casing: YES/NO
Well ID visible: YES/NO
Monument damaged: YES/NO
Odours from groundwa YES/NO

Standing Water Level (SWL): 0.85 (mBTOC)
Well volume: (L)
Water level after purging: 1.08 (mBTOC)
Water level at time of sampling: 1.08 (mBTOC)
Volume of water purged: 16 (L)
Well purged to dry?: YES/NO
Purging equipment: Pump / micro-Purging / Bailer / Foot valve
Sampling equipment: Pump / Bailer / Foot valve Peristaltic

Weather Conditions
Temperature 15-20 20-25 25-30 >30
Clear Partly cloudy Overcast
Calm Slight breeze Moderate Breeze
Windy
Fine Showers Rain

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^oC)	Comments
10:57	1.09	4	0.40	8.70	6.75	-94	18.6	Pale brown, turbid, odourless.
11:07	1.10	6	0.44	8.44	6.75	-93	18.7	" "
11:13	1.07	8	0.49	8.38	6.75	-92	18.7	" "
11:20	1.07	10	0.49	8.06	6.75	-93	18.7	" "
11:28	1.07	12	0.49	~~[illegible]~~ 7.86	6.75	-94	18.7	" "
11:40	1.07	14	0.49	7.35	6.75	-96	18.7	" "
11:50	1.08	16	0.54	7.91	6.77	-100	18.7	Pale brown, Sl turbid odourless
								Field sample.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

~~Purging~~ Development Details 21.5.08 3:00pm

SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^oC)	Comments
2.30	5	0.69	9.21	6.98	-155	18.5	Dark grey. V turbid odourless
2.30	10	2.29	9.46	6.93	-120	18.5	Dark brown V turbid odourless

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client:	Boyds Cooks Cove	CES Project Code:	CES050706-BCC
Project:	Kograh Golf Course	Location:	Area A
Sampler (s): Jenkins	Signature(s):	Project Manager:	Petrozzi
BH ID:	AMW 202	Sample ID:	300508-12-LJ
Purging Date:	30-5-08	Sampling Date:	30.05.08

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwa	YES/NO

Comments:

Standing Water Level (SWL):	0.67	(mBTOC)
Well volume:		(L)
Water level after purging:	1.74	(mBTOC)
Water level at time of sampling:	1.74	(mBTOC)
Volume of water purged:	12	(L)
Well purged to dry?:	YES/NO	
Purging equipment:	Pump / micro-Purging / Bailer / Foot valve	
Sampling equipment:	Pump / Bailer / Foot valve Peristaltic	

Weather Conditions

Temperature	15-20	20-25	
	25-30	>30	
Clear	Partly cloudy	Overcast	
Calm	Slight breeze	Moderate Breeze	
Windy			
Fine	Showers	Rain	

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (°C)	Comments
~~12:~~ 12:57	1.72	4	0.26	7.85	6.32	9	18.9	Pale brown turbid odourless
13:01	1.72	6	0.26	8.10	6.32	11	18.9	" "
13:06	1.74	8	0.26	8.16	6.32	5	18.9	" "
~~13:0~~ 13:10	1.74	10	0.23	8.14	6.32	4	18.9	" "
13:14	1.74	12	0.22	8.14	6.33	2	18.9	Pale brown turbid odourless
								Field sample.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

~~Purging~~ Development Details 21/5/08 11:40

SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (°C)	Comments
0.67	10	0.62	8.33	6.45	21	18.9	Pale brown V.turbid.
0.67	25	0.86	8.74	6.36	22	18.9	Pale brown Vturbid.
0.67	50	0.22	8.81	6.32	13	18.8	Pale brown turbid.
0.67	~~100~~ 75	1.01	8.98	6.35	3	18.9	Pale brown turbid.

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client: Boyds Cooks Cove	CES Project Code: CES050706-BCC
Project: Kograh Golf Course	Location: Area A
Sampler (s): Jenkins Signature(s): [signature]	Project Manager: Petrozzi
BH ID: ABH 2110	Sample ID: 300508-13-LJ
Purging Date: 29.5.08	Sampling Date: 30/05/08 -

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwa	YES/NO

Comments:

Standing Water Level (SWL): 1.69 (mBTOC)
Well volume: (L)
Water level after purging: 1.86 (mBTOC)
Water level at time of sampling: 1.69 (mBTOC)
Volume of water purged: 1 (L)
Well purged to dry?: YES/NO
Purging equipment: Pump / micro-Purging / Bailer / Foot valve
Sampling equipment: Pump / Bailer / Foot valve Peristaltic

Weather Conditions

Temperature	15-20	20-25	
	25-30	>30	
Clear	Partly cloudy	Overcast	
Calm	Slight breeze	Moderate Breeze	
Windy			
Fine	Showers	Rain	

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^{o}C)	Comments
		Not enough volume for field measurements.						
		Only HCL vials were filled up.						Almost Clear pale brown tint
								odourless.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Purging Details 23.5.08 9:30

SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (^{o}C)	Comments
169	Not enough water to develop.						

CONSULTING EARTH SCIENTISTS

GROUNDWATER FIELD DATA SHEET

Client: Boyds Cooks Cove	**CES Project Code:** CES050706-BCC
Project: Kograh Golf Course	**Location:** Area 4
Sampler (s): Jenkins **Signature(s):**	**Project Manager:** Petrozzi
BH ID: ABH2100	**Sample ID:** 300508-14-CJ
Purging Date: 29.5.08	**Sampling Date:** 30/5/08

Well Status

Well damaged: YES/NO
Cement footing damaged: YES/NO
Internal obstructions in casing: YES/NO
Standing water, vegetation around monument: YES/NO
Water between PVC and protective casing: YES/NO
Comments:

Well locked: YES/NO
Cap on PVC casing: YES/NO
Well ID visible: YES/NO
Monument damaged: YES/NO
Odours from groundwa YES/NO

Standing Water Level (SWL): 1.59 (mBTOC)
Well volume: (L)
Water level after purging: 6.20 (mBTOC)
Water level at time of sampling: 1.59 (mBTOC)
Volume of water purged: 35 (L)
Well purged to dry?: YES/NO
Purging equipment: Pump / micro-Purging / Bailer / Foot valve
Sampling equipment: Pump / Bailer / Foot valve Peristaltic

Weather Conditions

Temperature 15-20 20-25 25-30 >30
Clear Partly cloudy Overcast
Calm Slight breeze Moderate Breeze
Windy
Fine Showers Rain

Purging Details

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (°C)	Comments
~~[illegible]~~	2.04	5	0.21	7.38	6.28	-40	22.8	Pale brown tint almost clear odourless

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Development ~~Purging~~ Details 23.5.08 7:30

	SWL m BTOC	Cumulative volume (L)	DO (mg L^{-1})	EC (uS cm^{-1})	pH -	Eh (mV)	Temp. (°C)	Comments
	2.34	10	1.58	5.32	6.46	49	21.0	Pale brown, turbid odourless
	3.78	20	0.99	5.76	6.46	52	22.0	Pale brown turbid.
Dry	6.20	30	5.00	5.66	6.64	55	21.4	Pale brown turbid

CONSULTING EARTH SCIENTISTS

Calibration Record Sheet

Meter: GA 45 Landfill Gas Analyser

Serial no: 06013

CALIBRATION			Gas Channel (tick)						Calibration check			Gas Channel (results check)						Comments
			CH4			O2		CO2				CH4			O2		CO2	
Date	Time	Calibrated by	0.0%	2.5%	50.0%	0.0%	17.0%	10.0%	Date	Time	Calibrated by	0.0%	2.5%	50.0%	0.0%	17.0%	10.0%	
09/06/08	15-30 pm	AG	✓	✓	✓	✓	✓	✓	10/06/08	07.50 pm	AG	✓	✓	✓	✓	✓	✓	
11/06/08	11:00	JA	✓	✓	✓	✓	✓	✓	11/6/08	4.30pm	KW	0.1	2.6	50	0.1	17.6	10	
12/06/08	15:30	AG	✓	✓	✓	✓	✓	✓	13/06/08	2.45pm	AG	✓	✓	✓	✓	✓	✓	
16/06/08	9.15am	AG	✓	✓	✓	✓	✓	✓	17/06/08	9.30 am	AG	✓	✓	✓	✓	✓	✓	
18/06/08	17.15 pm	AG	✓	✓	✓	✓	✓	✓	23/06/08	9.15am	AG	✓	✓	✓	✓	✓	✓	
23/06/08	14.30 pm	AG	✓	✓	✓	✓	✓	✓										Penrith monthly gen.

CONSULTING EARTH SCIENTISTS

Calibration Record Sheet

Meter: GA 45 Landfill Gas Analyser

Serial no: 06013

CALIBRATION			Gas Channel (tick)						Calibration check			Gas Channel (results check)						Comments
			CH4			O2		CO2				CH4			O2		CO2	
Date	Time	Calibrated by	0.0%	2.5%	50.0%	0.0%	17.0%	10.0%	Date	Time	Calibrated by	0.0%	2.5%	50.0%	0.0%	17.0%	10.0%	
09/06/08	15-30 pm	AG	✓	✓	✓	✓	✓	✓	10/06/08	07.30 pm	AG	✓	✓	✓	✓	✓	✓	
11/06/08	11:00	JA	✓	✓	✓	✓	✓	✓	11/6/08	4.30pm	KW	0.1	2.6	50	0.1	17.6	10	
12/06/08	15.30	AG	✓	✓	✓	✓	✓	✓	13/06/08	2.45pm	AG	✓	✓	✓	✓	✓	✓	
16/06/08	9.15am	AG	✓	✓	✓	✓	✓	✓	17/06/08	9.30 am	AG	✓	✓	✓	✓	✓	✓	
18/06/08	17-15 pm	AG	✓	✓	✓	✓	✓	✓	23/06/08	9.15am	AG	✓	✓	✓	✓	✓	✓	
23/06/08	14.30 pm	AG	✓	✓	✓	✓	✓	✓										Penrith monthly gas

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area A - BCC
Sampler (s): LS	**Signature(s):**	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	6/5/08	**Calibration check and date:**	920

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
6/05/08	43	–	HS	1	0.0	0.6	0.7	
	4.4	–		1	0.0	1.2	1.3	
	45	–		1	0.0	5.8	6.0	
	46	–		1	0.0	9.1	23.1	
	4.7	–		1	0.0	12.1	14.2	
	49	–		1	0.0	9.3	9.4	Cal Check: 86.6
	50	–		1	0.0	1.0	1.1	
	51	–		1	0.0	0.5	0.7	
	52	–		1	0.0	0.8	0.9	
	53	–		1	0.0	0.5	0.6	
	54	–		1	0.0	0.4	0.5	

Note 1: HS - Headspace method. SG - Ambient soil gas method.

PHOTOIONISATION DETECTOR (PID) DATA SHEET

CONSULTING EARTH SCIENTISTS

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area A - KGC
Sampler (s): LJ	**Signature(s):** [signature]	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	7/5/08	**Calibration check and date:**	97.3 7.5.08

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
7/5/08	55/56/57	-	HS	1	0	0.0	0.3	
	58				0	0.0	0.2	
	59				0	0.0	0.0	
	60				0	0.0	0.0	
	61				0	0.2	0.4	
	63				0	0.4	0.8	
	64				0	0.1	0.2	
	65				0	0.1	0.2	
	66				0	0.2	0.3	
	67				0	0.3	0.4	
	68				0	0.2	0.3	
	69				0	0.4	0.5	
	70				0	0.0	0.0	
	71				0	0.2	0.3	
	72				0	0.5	0.7	
	73				0	0.4	0.6	
	74				0	0.1	0.2	
	75				0	0.1	0.3	
	76				0	0.2	0.3	
	78				0	0.3	0.4	
	81/82				0	0.5	0.7	
	83				0	0.1	0.3	Check: 98.6 ppm
	84				0	0.0	0.2	
	85/86				0	0.0	0.1	
	88				0	1.1	1.2	
	89				0	0.2	0.4	
	90				0	0.0	0.3	
	91				0	0.0	0.3	
	92				0	0.1	0.2	
	93				0	1.3	1.4	
	94/95				0	2.2	2.6	
	96				0	3.0	3.2	
	97				0	1.5	2.0	
	98/99				0	1.7	1.9	

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove	**CES Project Code:** CES050706-BCC
Project: ESA	**Location:** Area A - KGW
Sampler (s): LS **Signature(s):**	**Project Manager:** M. Petrozzi
PID manufacturer and model: Minirae 2000	**Serial no:**

Calibration gas type and concentration: Isobutylene 97.5 ppm	**Lamp voltage:** 10.6 mV
Calibration date: 7/5/08	**Calibration check and date:** 97.3 7.5.08

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
7/5/08	100	-	HS	1	0.0	2.7	2.9	
7/5/08	101	-	HS	1	0.0	10.3	10.5	Check 97.8

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area A - KGC
Sampler (s): L. Jenkins	**Signature(s):**	**Project Manager:**	M. Petrozzi
PID manufacturer and model: Minirae 2000		**Serial no:**	- -

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	8/5/08	**Calibration check and date:**	8/5/08 - 98.4 ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
08/05/2008	102	-	HS	1	0.0	15.8	15.8	
	103				0	6.8	7.0	
	104				0	21.6	21.8	
	105				0	21.5	21.6	
	106/107				0	20.7	20.9	
	108				0	4.0	4.3	
	109				0	8.4	8.6	
	110				0	6.9	7.4	
	111				0	9.4	9.5	
	112				0	2.1	2.3	
	113				0	4.0	4.1	
	114				0	2.7	2.8	
	115				0	0.1	0.2	
	116				0	3.1	3.2	
	117				0	2.9	3.1	
	118				0	2.9	3.1	
	119				0	2.1	3.3	
	120				0	0.3	0.4	Check: 98.4 ppm
	121				0	3.0	3.1	
	122				0	2.4	2.5	
	123/124/125				0	2.7	2.9	
	126				0	1.1	1.3	
	127				0	2.1	2.2	
	128				0	3.6	3.7	
	129				0	4.0	3.9	
	130				0	1.0	1.1	
	131				0	1.2	1.3	
	132				0	2.4	2.5	
	133				0	1.9	2.0	
	134				0	1.3	1.4	
	135				0	2.8	2.9	
	136				0	3.0	3.2	
	137				0	1.7	1.8	
	138				0	1.8	2.1	

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	
Sampler (s): L Jenkins	**Signature(s):**	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	8/5/08	**Calibration check and date:**	8/5/08 98.4 ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
8/5/08	139	-	HS	1	0.0	1.8	1.9	Check 96.1 ppm
	140				0	1.6	1.8	
	141				0	1.4	1.5	
	142				0	1.2	1.4	
	143				0	1.4	1.5	
	145/146				0	2.2	2.4	
	144				0	1.2	1.3	
	147				0	2.2	2.3	
	148				0	1.9	2.1	
	149				0	2.6	2.7	
	150							
	151	-	HS	1	0	2.8	3.0	
	152/153				0	2.9	3.0	
	154				0	2.0	2.1	
	155				0	3.2	3.3	
	156				0	0.9	1.0	
	157				0	2.4	2.5	
	158				0	2.6	2.7	
	159				0	4.3	4.4	
	160				0	3.8	3.9	
	161				0	4.3	4.4	
	162				0	2.6	2.8	
	163				0	2.0	2.4	Check: 95.6 ppm

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove	CES Project Code: CES050706-BCC
Project: ESA	Location: Area A - KCC
Sampler (s): L Jenkins Signature(s):	Project Manager: Petrozzi
PID manufacturer and model: Minirae 2000	Serial no: -

Calibration gas type and concentration: Isobutylene 97.5ppm	Lamp voltage: 10.6mV
Calibration date: 9/5/08	Calibration check and date: 94.8 ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
9/5/08	164	-	HS	1	0	-	0.0	
	165	-			0	0.9	1.1	
	166	-			0	1.3	1.4	
	167	-			0	0.2	0.3	
	168	-			0	0.7	0.8	
	169	-			0	1.5	1.6	
	170	-			0	0.1	0.2	
	171	-			0	0.5	0.6	
	172	-			0	0.6	0.7	
	173	-			0	0.6	0.7	
	174	-			0	1.3	1.4	
	175	-			0	1.2	1.3	
	176	-			0	0.9	1.0	
	177	-			0	2.4	2.5	
	178	-			0	1.6	1.7	
	179	-			0	1.9	2.0	
	180	-			0	1.1	1.2	
	181	-			0	1.3	1.4	
	182	-			0	1.1	1.2	
	184	-			0	0.9	1.0	Check: 96.2 ppm.
	185	-			0	1.3	1.4	
	186	-			0	1.2	1.4	
	187	-			0	1.0	1.1	
	188	-			0	~~0.8~~ 1.0	1.1	
	189	-			0	1.4	1.5	
	190	-			0	2.6	2.8	
	191	-			0	3.3	3.8	
	192	-			0	2.7	2.8	
	193	-			0	3.7	3.8	
	194/195	-			0	4.6	4.7	
	196	-			0	4.5	4.8	
	197	-			0	2.1	2.5	
	198	-			0	3.3	3.6	
	199	-			0	2.8	3.0	

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove	CES Project Code: CES050706-BCC
Project: ESA	Location: Area A - KGC
Sampler (s): L Jenkins Signature(s):	Project Manager: Petrozzi
PID manufacturer and model: Minirae 2000	Serial no: -

Calibration gas type and concentration: Isobutylene 97.5ppm	Lamp voltage: 10.6 mV.
Calibration date: 9/5/08	Calibration check and date: 94.8 ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
9/8/08	200	-	HS	1	0	2.7	2.8	
	201	-			0	3.8	4.1	
	202	-			0	7.8	8.0	
	203	-			0	5.9	6.1	
	204	-			0	6.0	6.2	
	205	-			0	6.2	6.4	
	206	-			0	5.5	5.7	
	207	-			0	6.5	6.7	
	208	-			0	8.1	8.3	
	209	-			0	8.8	9.0	
	210	-			0	6.9	7.2	Check: 98.2 ppm

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area A - KGC
Sampler (s): L.Jenkins	**Signature(s):**	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	12.5.08	**Calibration check and date:**	94.6 ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
12.5.08	211	–	HS	1	0	4.2	5.7	
	212	–			0	3.0	3.5	
	213	–			0	4.0	4.6	
	214	–			0	3.4	3.5	
	215/216	–			0	2.8	3.0	
	217	–			0	3.5	3.8	
	218	–			0	1.0	1.2	
	219	–			0	1.7	1.9	
	220	–			0	3.4	4.0	
	221	–			0	3.5	3.7	
	222	–			0	12.9	13.0	
	224	–			0	4.3	4.5	
	225	–			0	4.1	4.2	
	226	–			0	2.9	3.0	
	227	–			0	3.1	3.4	
	228	–			0	12.5	12.8	
	230/229	–			0	7.1	7.7	check: 97.5 ppm
	231	–			0	2.7	2.9	
	232	–			0	6.2	6.3	
	233	–			0	4.6	4.8	
	234	–			0	8.6	9.0	
	235	–			0	6.4	6.4	
	236	–			0	10.8	10.9	
	237	–			0	7.3	7.7	
	238	–			0	6.1	6.4	
	241	–			0	3.4	3.5	
	242	–			0	7.7	8.1	
	245/246	–			0	11.1	12.8	
	247	–			0	5.1	5.3	
	248	–			0	10.2	10.6	
	249	–			0	2.9	13.1	
	250	–			0	6.5	6.8	
	252	–			0	8.6	8.8	
	253	–			0	7.8	7.9	

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area A - KGC
Sampler (s): L Jenkins	**Signature(s):**	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	12-5-08	**Calibration check and date:**	94.6 ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
12-5-08	254	–	HS	1	0	6.7	7.1	Check - 98.1 ppm
	255	–			0	6.9	7.1	
	256	–			0	3.4	4.1	
	257	–			0	6.1	7.3	
	251	–			0	8.3	8.4	
	260/258/259	–			0	1.8	2.1	
	261	–			0	7.0	7.2	
	262	–			0	3.0	3.3	
	263	–			0	10.8	11.4	
	264	–			0	5.5	6.3	
	265	–			0	5.3	5.7	
	266	–			0	10.8	11.2	
	267	–			0	5.3	5.5	
	268	–			0	10.8	11.2	
	269	–			0	6.5	6.5	
	270	–			0	9.0	9.4	
	271/272	–			0	4.4	4.8	
	273	–			0	2.4	2.8	Check:
	274	–			0	5.0	5.2	96.3 ppm

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area A - KGC
Sampler (s): L. Jenkins	**Signature(s):**	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	13.5.08	**Calibration check and date:**	96.7 ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
13.5.08	276	–	HS	1	0	11.6	12.4	
	277				0	13.4	17.0	
	280				0	5.4	6.2	
	281				0	4.5	4.8	
	282				0	3.1	4.2	
	283				0	2.7	2.9	
	284				0	4.4	5.6	
	285				0	2.6	2.8	
	286/287/288				0	7.9	8.5	
	289				0	3.5	4.2	
	290				0	2.7	2.9	
	291				0	2.5	2.7	
	292				0	3.0	3.9	
	293/294/295				0	2.2	2.4	
	296				0	3.2	3.4	
	297				0	5.4	6.0	
	298				0	1.3	1.5	
	299				0	3.1	3.3	Check 98.2 ppm
	300				0	5.8	6.5	
	301				0	9.4	10.2	
	302				0	3.4	3.8	
	303				0	3.3	3.4	
	304/305				0	3.6	3.9	
	306				0	8.4	8.5	
	307				0	4.9	5.8	
	308				0	5.1	5.8	
	309				0	6.0	6.3	
	310				0	7.9	8.1	
	311				0	5.1	5.3	
	312				0	5.9	6.0	
	313				0	9.1	9.8	
	314				0	6.7	6.9	
	315				0	6.8	7.2	
	316				0	6.6	7.2	Check 96.4 ppm

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area A - KCC
Sampler (s): L. Jenkins	**Signature(s):**	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	13-5-08	**Calibration check and date:**	96.7 ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
13.5.08	317	–	HS	1	0	7.8	8.3	
	318				0	7.9	8.2	
	319				0	2.4	2.6	
	320				0	0.4	0.5	
	321				0	11.0	12.0	
	322				0	6.5	6.9	
	323/324				0	4.0	4.2	
	325				0	4.7	5.1	
	327				0	7.3	7.4	
	328				0	0.8	1.0	
	329				0	3.7	3.8	
	331				0	4.6	6.0	Check 92.1 ppm

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area A - KLLC
Sampler (s): L Jenkins / K.Wei	**Signature(s):**	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	15-5-08	**Calibration check and date:**	92.5 ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
15/5/08	332	–	HS	1	0	184	191	
	390	–			0	4.4	4.5	
	393/394	–			0	7.8	8.2	
	395	–			0	2.1	2.2	
	392	–			0	7.0	7.1	
	391	–			0	~~2.2~~ 2.1	2.4	
	380	–			0	4.1	5.3	
	381	–			0	9.6	10.3	
	382	–			0	4.8	4.9	
	383	–			0	6.6	6.8	
	384	–			0	5.2	5.3	
	385/386/387	–			0	2.6	3.4	
	388	–			0	3.9	4.0	
	~~370/371~~ 389	–			0	5.5	6.0	
	370/371	–			0	9.8	10.3	
	372	–			0	5.8	6.0	
	373	–			0	6.4	6.6	
	374	–			0	2.8	3.4	
	375	–			0	3.9	4.2	Check: 96.1 ppm
	376	–			0	3.6	4.0	
	377	–			0	3.1	3.6	
	378/379	–			0	3.1	6.9	
	360/361	–			0	4.4	12.9	
	362	–			0	5.2	10.7	
	363	–			0	2.5	10.2	
	364	–			0	6.9	15.9	
	365	–			0	1.5	13.3	
	366	–			0	2.3	10.5	
	367	–			0	7.5	14.9	
	368	–			0	1.9	11.1	
	369	–			0	2.0	11.5	
	351	–			0	4.0	17.0	
	352/353/354	–			0	1.8	13.8	
	355	–			0	10.4	14.2	

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		CES Project Code:	CES050706-BCC
Project: ESA		Location:	Area A - KGC.
Sampler (s): KWe	Signature(s):	Project Manager:	M. Petrozzi
PID manufacturer and model: Minirae 2000		Serial no:	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV
Calibration date:	15-5-08	Calibration check and date:	92.5ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
15/5/08	356	–	HS		0	5.1	14.6	
	357	–			0	2.3	15.3	
	358	–			0	1.8	15.2	
	359	–			0	4.3	14.4	
	340	–			0	104	204	
	341	–			0	538	2927	
	342	–			0	1664	1670	
	343	–			0	139	471	
	344	–			0	296	388	
	345	–			0	1126	1432	
	346	–			0	108	126	
	347	–			0	49.2	55.4	
	348	–			0	62.8	80.6	
	349	–			0	58.0	60.8	
	350	–			0	26.0	35.9	Check: 92.1 ppm
	339	–			0	50.8	53.7	
	338	–			0	19.1	19.3	
	337	–			0	23.0	23.6	
	336	–			0	24.6	26.8	
	335	–			0	11.7	12.7	
	334	–			0	58.2	59.2	
	333	–			0	901	920	
	~~332~~							
	600	–			0	98.1	102	
✓	601	–	✓	✓	0	0.4	0.6	Check = 92.5 ppm.

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area B – KGC
Sampler (s): K. Weir / L. Jenkins	**Signature(s):**	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	–

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	29/4/08	**Calibration check and date:**	29/4/08 97.5ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
29/04/2008	29	–	HS	1	0.0	0.0	0.0	
	30	–	HS	1	0.0	4.8	5.0	
	31	–	HS	1	0.0	2.8	3.0	
	32/33	–	HS	1	0.0	0.0	0.0	
	34	–	HS	1	0.0	0.5	1.1	
	35	–	HS	1	0.0	0.9	1.0	
	36	–	HS	1	0.0	1.5	9.6	
	37	–	HS	1	0.0	2.0	2.2	
	38	–	HS	1	0.0	0.0	0.0	
	39/40/41	–	HS	1	0.0	16.0	16.7	
	42	–	HS	1	0.0	3.4	3.7	
	43	–	HS	1	0.0	0.4	0.4	
	44	–	HS	1	0.0	0.0	0.0	
	45	–	HS	1	0.0	1.1	1.2	
	46	–	HS	1	0.0	1.6	1.8	
	47	–	HS	1	0.0	0.0	0.0	
	48	–	HS	1	0.0	1.6	1.9	
	49	–	HS	1	0.0	65	6.6	
	50	–	HS	1	0.0	4.4	4.9	
	51/52	–	HS	1	0.0	9.8	9.9	Check 97.5
	53	–	HS	1	0.0	5.8	6.2	
	54	–	HS	1	0.0	10.1	10.2	
	55	–	HS	1	0.0	13.6	13.8	
	56	–	HS	1	0.0	6.6	7.2	
	57	–	HS	1	0.0	11.7	11.8	
	58	–	HS	1	0.0	7.4	7.5	
	59	–	HS	1	0.0	1.3	4.2	
	60	–	HS	1	0.0	1.1	8.0	
	61	–	HS	1	0.0	3.4	10.4	
	62	–	HS	1	0.0	8.1	8.5	
	63	–	HS	1	0.0	0.0	0.0	
	64	–	HS	1	0.0	1.6	2.4	
	65	–	HS	1	0.0	2.1	2.2	
	67	–	HS	1	0.0	5.6	6.0	

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area B – KGC
Sampler (s): K.Wei & L Jenkins	**Signature(s):**	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	–

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10-6 mV 10.6 mV
Calibration date:	29/4/08	**Calibration check and date:**	29/4/08 97.5ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
29/4/2008	68	–	HS	1	0.0	9.1	9.3	
	70	–	HS	1	0.0	7.4	7.7	
	71	–	HS	1	0.0	0.7	1.0	
	72	–	HS	1	0.0	3.7	4.1	
	73	–	HS	1	0.0	3.0	3.3	
	74	–	HS	1	0.0	4.9	5.1	Check. 97.5ppm
	75	–	HS	1	0.0	6.8	7.0	
	76	–	HS	1	0.0	7.8	7.9.	Check 97.5ppm

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	AreaB-KGC.
Sampler (s): L. Jenkin	**Signature(s):**	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	Isobutylene	**Calibration check and date:**	30.4.08 94.6ppm.

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
30.4.08	300408-76-KW	-	HS	1	0.0	4.5	4.7	
	78-KW					4.4	4.7	
	79					3.3	4.3	
	80					7.5	7.6	
	81					1.8	1.9	
	82					1.2	1.4	
	83					0.5	0.5	
	84					1.1	1.6	
	85					4.4	4.5	
	86					11.3	11.3	
	87					3.5	3.6	
	88					1.2	1.4	
	91					1.6	1.9	
	92					1.5	1.5	
	93					1.9	2.1	
	94					2.1	2.2	
	95					0.6	0.9	
	96					1.5	1.7	
	97					2.0	2.1	
	98					1.6	1.8	Check: 94.6ppm
	99					1.6	1.7	
	100					3.3	3.6	
	101/102					1.8	2.0	
	103					0.9	1.0	
	104					6.7	7.3	
	106					2.2	2.4	
	107					2.7	3.2	
	109					3.4	3.5	
	110					4.3	4.4	
	111					4.4	5.2	
	112					1.4	2.4	
	113					2.2	2.3	Check: 94.6ppm

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area B KGC
Sampler (s): L. Jenkins	**Signature(s):** [signature]	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	–

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	1.5.08	**Calibration check and date:**	1.5.08 95.0 ppm

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
1/5/08	115	–	HS	1	0.0	1.2	1.6	
	116	–		1	0.0	8.7	9.2	
	117	–		1	0.0	3.3	3.6	
	118	–		1	0.0	10.1	10.2	
	119	–		1	0.0	8.3	9.1	
	120	–		1	0.0	8.7	9.0	
	122/123/124	–		1	0.0	7.2	7.4	
	121	–		1	0.0	1.8	1.9	
	125	–		1	0.0	5.1	6.0	
	126	–		1	0.0	8.4	8.5	
	128	–		1	0.0	15.3	15.1	
	129	–		1	0.0	7.4	7.2	
	130	–		1	0.0	5.5	7.0	
	131	–		1	0.0	13.7	14.1	
	132	–		1	0.0	10.6	9.9	
	133	–		1	0.0	5.7	6.3	
	134	–		1	0.0	7.9	8.1	
	136/137/138	–		1	0.0	2.8	3.5	
	139	–		1	0.0	10.8	11.4	
	140	–		1	0.0	2.7	3.0	Check 95.0ppm
	141	–		1	0.0	1.5	1.9	
	143	–		1	0.0	2.4	3.2	
	144	–		1	0.0	2.7	3.0	
	145	–		1	0.0	1.3	1.4	
	146	–		1	0.0	8.2	8.4	
	147	–		1	0.0	6.0	6.3	
	152	–		1	0.0	2.2	2.3	
	153	–		1	0.0	4.0	4.2	
	155	–		1	0.0	14.9	15.0	
	156/157	–		1	0.0	1.8	2.1	
	158	–		1	0.0	2.0	2.1	
	159	–		1	0.0	8.0	8.1	
	160	–		1	0.0	2.1	2.3	
	161	–		1	0.0	1.9	2.2	

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area B KGC
Sampler (s): L. Jenkins	**Signature(s):**	**Project Manager:**	M. Petrozzi
PID manufacturer and model:	Minirae 2000	**Serial no:**	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	1.5.08	**Calibration check and date:**	1.5.08 95.0ppm.

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
1/5/08	162	–	HS	1	0.0	15.9	16.2	
↓	163	–	↓	1	0.0	5.2	5.8	
↓	164	–	↓	1	0.0	26.1	26.2	Check 95.0ppm

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client: Boyd Cooks Cove		**CES Project Code:**	CES050706-BCC
Project: ESA		**Location:**	Area B
Sampler (s): I. Dehkin?	**Signature(s):** [signature]	**Project Manager:**	M. Petrozzi
PID manufacturer and model: Minirae 2000		**Serial no:**	–

Calibration gas type and concentration:	Isobutylene 97.5 ppm	**Lamp voltage:**	10.6 mV
Calibration date:	02/05/08	**Calibration check and date:**	98.6ppm 2/5/08

Date dd/mm/yyyy	Location Details	Depth m	Method (Note 1)	Duration min.	Background ppm	Readings (ppm) Minimum	Maximum	Comments
2.5.08	165	–	HS	1	0.0	21.3	22.3	
	166					28.0	28.9	
	167					20.3	20.4	
	168/169/170					19.7	20.1	
	171					16.4	16.7	
	172					13.7	13.5	
	173					10.6	10.7	
	174					22.4	22.4	
	~~175~~					~~17.9~~	~~12.9~~	
	~~176~~							
	177					17.7	17.9	
	~~178~~							
	179					7.1	7.4	
	181					20.2	20.9	
	182					15.7	16.3	
	183					19.8	22.1	
	184					10.4	10.5	
	185					19.0	19.3	
	186					17.1	17.5	
	187					10.2	10.4	
	188					22.2	22.4	Check 98.6ppm

Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

SUBSURFACE GAS FIELD DATA SHEET

Client: Boyds Cook Cove		**CES Project Code:**	CES050206 - BCC
Project: Kograh Golf Course		**Location:** Cooks Cove	Area 4
Sampler (s): AG	**Signature(s):**	**Project Manager:**	L.Jenkins
BH ID: ALG 20N		**Monitoring Date / Time:**	10/06/2008

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Standing water, vegetation around monument:	YES/NO	Well ID visible:	YES/NO
Water between PVC and protective casing:	YES/NO	Monument damaged:	YES/NO
Comments:		Odours from well	YES/NO

Water was sucked into the vacuum tank

Ambient reading (FID): — ppm

Initial well pressure: 0 kPa

Initial vent: Nil / Initial pulse / Pulse > 5 s / Continuous

Gas Flow rate: 0 % 440 L/hr **or** % 3000L/hr **OR** % 10 000

Well pressure after initial vent: 0 kPa

Standing Water Level (SWL): — (mBTOC)

Readings

Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	Landfill Gas Analyser CH_4 (%)	CO_2 (%)	O_2 (%)	Flow rate at time of sampling	Comments
Initial	-	-	-	0.3	8.4	14.9	—	Could not purge -
								H2O level too
								high.

* where one tank volume = 12 L

[1] Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

1 kPa = 0.145 psi

1 psi = 6.90 kPa

CONSULTING EARTH SCIENTISTS

SUBSURFACE GAS FIELD DATA SHEET

Client: Boyds Cooks Cove		CES Project Code:	CES050206
Project: Kogarah Golf Course		Location: Cooks Cove	Area A
Sampler (s): AG	Signature(s):	Project Manager:	L.Jenkins
BH ID: AGG 202		Monitoring Date / Time:	10/06/2008

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Standing water, vegetation around monument:	YES/NO	Well ID visible:	YES/NO
Water between PVC and protective casing:	YES/NO	Monument damaged:	YES/NO
Comments:		Odours from well	YES/NO

Ambient reading (FID): – ppm

Initial well pressure: 0 kPa

Initial vent: Nil / Initial pulse / Pulse > 5 s / Continuous

Gas Flow rate: – % 440 L/hr or % 3000L/hr OR % 10 000

Well pressure after initial vent: 0 kPa

Standing Water Level (SWL): – (mBTOC)

Readings

Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	Landfill Gas Analyser CH_4 (%)	CO_2 (%)	O_2 (%)	Flow rate at time of sampling	Comments
Initial	-	-	-	0.2	2.6	18.4		
10		-20	2	0.3	0.4	19.4		
20		-20	2	0.3	0.3	20.7		
30		-20	2	0.2	0.2	20.8		
40		-20	2	0.2	0.2	20.8		

* where one tank volume = 12 L

[1] Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

1 kPa = 0.145 psi

1 psi = 6.90 kPa

CONSULTING EARTH SCIENTISTS

SUBSURFACE GAS FIELD DATA SHEET

Client: Boyds Cook Cove		CES Project Code:	CES050706 - BCC
Project: KGC		Location: Cooks Cove Area	
Sampler (s): AG	Signature(s): AG	Project Manager:	L.Jenkins
BH ID: ALG 203		Monitoring Date / Time:	10/06/2008

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Standing water, vegetation around monument:	YES/NO	Well ID visible:	YES/NO
Water between PVC and protective casing:	YES/NO	Monument damaged:	YES/NO
Comments:		Odours from well	YES/NO

Ambient reading (FID): — ppm

Initial well pressure: 0 kPa

Initial vent: Nil Initial pulse / Pulse > 5 s / Continuous

Gas Flow rate: 0 % 440 L/hr **or** % 3000L/hr **OR** % 10 000

Well pressure after initial vent: 0 kPa

Standing Water Level (SWL): — (mBTOC)

Readings

Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	Landfill Gas Analyser CH_4 (%)	CO_2 (%)	O_2 (%)	Flow rate at time of sampling	Comments
Initial	-	-	-	0.1	0.3	20.0		
10		-20	1	0.2	0.2	20.7		
20		-20	1	0.2	0.2	20.8		
30		-20	1	0.2	0.2	20.8		
40		-20	1	0.2	0.2	20.8		

* where one tank volume = 12 L

[1] Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

1 kPa = 0.145 psi

1 psi = 6.90 kPa

CONSULTING EARTH SCIENTISTS

SUBSURFACE GAS FIELD DATA SHEET

Client: Boyds Cook Cove		**CES Project Code:**	CES050706-BCC
Project: KGC		**Location:** Cooks Cove	Area A
Sampler (s): AG	**Signature(s):**	**Project Manager:**	L.Jenkins
BH ID: ALG204		**Monitoring Date / Time:**	10/06/2008

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Standing water, vegetation around monument:	YES/NO	Well ID visible:	YES/NO
Water between PVC and protective casing:	YES/NO	Monument damaged:	YES/NO
Comments:		Odours from well	YES/NO

Water was sucked into the vacuum tank. Only initial could be taken.

Ambient reading (FID):	—	ppm		
Initial well pressure:	0	kPa		
Initial vent:		Nil / Initial pulse / Pulse > 5 s / Continuous		
Gas Flow rate:	—	% 440 L/hr or	% 3000L/hr OR	% 10 000
Well pressure after initial vent:	0	kPa		
Standing Water Level (SWL):	—	(mBTOC)		

Readings

Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	Landfill Gas Analyser CH_4 (%)	CO_2 (%)	O_2 (%)	Flow rate at time of sampling	Comments
Initial	-	-	-	0.2	10.2	4.1	—	Cannot purge due
				—	—	—	—	to high H2O level

* where one tank volume = 12 L

[1] Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

1 kPa = 0.145 psi

1 psi = 6.90 kPa

CONSULTING EARTH SCIENTISTS

SUBSURFACE GAS FIELD DATA SHEET

Client: Boyds Cooks Cove		CES Project Code:	CES050706-BCC
Project: KCC		Location: Cooks Cove	Area A
Sampler (s): AG	Signature(s):	Project Manager:	L.Jenkins
BH ID: ALG 205		Monitoring Date / Time:	10/06/2008

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Standing water, vegetation around monument:	YES/NO	Well ID visible:	YES/NO
Water between PVC and protective casing:	YES/NO	Monument damaged:	YES/NO
Comments:		Odours from well	YES/NO

Ambient reading (FID): — ppm

Initial well pressure: 0 kPa

Initial vent: Nil / Initial pulse / Pulse > 5 s / Continuous

Gas Flow rate: 0 % 440 L/hr or % 3000L/hr OR % 10 000

Well pressure after initial vent: 0 kPa

Standing Water Level (SWL): — (mBTOC)

Readings

Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	Landfill Gas Analyser CH_4 (%)	CO_2 (%)	O_2 (%)	Flow rate at time of sampling	Comments
Initial	-	-	-	0.2	3.5	14.3		
10		-20	1	0.2	3.7	13.6		
20		-20	1	0.2	3.7	13.6		
30		-20	1	0.2	3.8	13.6		
40		-20	1	0.2	3.7	13.6		

* where one tank volume = 12 L

[1]Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

1 kPa = 0.145 psi

1 psi = 6.90 kPa

CONSULTING EARTH SCIENTISTS

SUBSUREACE GAS FIELD DATA SHEET

Client: BOYD COOKS COVE	CES Project Code: CES050706-BCC
Project: Cooks Cove Area A subsurface gas KGC	Location: Cooks Cove Area A
Sampler (s): AG Signature(s):	Project Manager: L.Jenkins
BH ID: ALG 206	Monitoring Date / Time: 10/06/2008

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Standing water, vegetation around monument:	YES/NO	Well ID visible:	YES/NO
Water between PVC and protective casing:	YES/NO	Monument damaged:	YES/NO
Comments:		Odours from well	YES/NO

Ambient reading (FID):	—	ppm		
Initial well pressure:	0	kPa		
Initial vent:		Nil / Initial pulse / Pulse > 5 s / Continuous		
Gas Flow rate:	—	% 440 L/hr or	% 3000L/hr OR	% 10 000
Well pressure after initial vent:	0	kPa		
Standing Water Level (SWL):	—	(mBTOC)		

Readings

Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	Landfill Gas Analyser CH_4 (%)	CO_2 (%)	O_2 (%)	Flow rate at time of sampling	Comments
Initial	-	-	-	0.1	0.9	18.6.	~~[illegible]~~ —	well could not
				—	—	—		be purged due to
								high water level
								- pump was
								taking in water

* where one tank volume = 12 L

[1] Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

1 kPa = 0.145 psi

1 psi = 6.90 kPa

CONSULTING EARTH SCIENTISTS

SUBSURFACE GAS FIELD DATA SHEET

Client: Boyds Cook Cove		CES Project Code: CES050706 - BCC	
Project: KCC		Location: Cooks Cove	Area B
Sampler (s): AG	Signature(s):	Project Manager:	L.Jenkins
BH ID: BCGC01		Monitoring Date / Time:	10/06/2008

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Standing water, vegetation around monument:	YES/NO	Well ID visible:	YES/NO
Water between PVC and protective casing:	YES/NO	Monument damaged:	YES/NO
Comments:		Odours from well	YES/NO

Ambient reading (FID): — ppm

Initial well pressure: 0 kPa

Initial vent: Nil / Initial pulse / Pulse > 5 s / Continuous

Gas Flow rate: 0 % 440 L/hr **or** % 3000L/hr **OR** % 10 000

Well pressure after initial vent: kPa

Standing Water Level (SWL): — (mBTOC)

Readings

Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	Landfill Gas Analyser: CH_4 (%)	CO_2 (%)	O_2 (%)	Flow rate at time of sampling	Comments
Initial	-	-	-	0.1	2.7	18.6		
10		-20	1	0.1	11.6	6.6		
20		-20	1	0.1	12.1	6.2		
30		-20	1	0.2	11.9	6.0		
40		-20	1	0.1	11.9	6.1		
50		-20	1	0.1	11.9	6.1		

* where one tank volume = 12 L

[1] Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

1 kPa = 0.145 psi

1 psi = 6.90 kPa

CONSULTING EARTH SCIENTISTS

SUBSURFACE GAS FIELD DATA SHEET

Client: Boyds Cooks Cove		**CES Project Code:**	CES030706 - BCC
Project: BCC		**Location:** Cooks Cove	Area B
Sampler (s): AG	**Signature(s):**	**Project Manager:**	L.Jenkins
BH ID: BCG 402		**Monitoring Date / Time:**	10/06/2008

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Standing water, vegetation around monument:	YES/NO	Well ID visible:	YES/NO
Water between PVC and protective casing:	YES/NO	Monument damaged:	YES/NO
Comments:		Odours from well	YES/NO

Ambient reading (FID): — ppm

Initial well pressure: 0 kPa

Initial vent: Nil / Initial pulse / Pulse > 5 s / Continuous

Gas Flow rate: 0 % 440 L/hr **or** % 3000L/hr **OR** % 10 000

Well pressure after initial vent: 0 kPa

Standing Water Level (SWL): — (mBTOC)

Readings

Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	Landfill Gas Analyser CH_4 (%)	CO_2 (%)	O_2 (%)	Flow rate at time of sampling	Comments
Initial	-	-	-	0.2	2.2	19.3		
10		-20	1	0.2	0.4	20.5		
20		-20	1	0.2	0.3	20.8		
30		-20	1	0.2	0.2	20.8		
40		-20	1	0.2	0.2	20.9		
50		-20	1	0.2	0.2	20.8		

* where one tank volume = 12 L

[1] Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

1 kPa = 0.145 psi

1 psi = 6.90 kPa

CONSULTING EARTH SCIENTISTS

SUBSURFACE GAS FIELD DATA SHEET

Client: Roycls Cooks Cove		**CES Project Code:** CES050206-BCC	
Project: KCC		**Location:** Cooks Cove Area B	
Sampler (s): AG	**Signature(s):**	**Project Manager:**	L.Jenkins
BH ID: BLG 403		**Monitoring Date / Time:**	10/06/2008

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Standing water, vegetation around monument:	YES/NO	Well ID visible:	YES/NO
Water between PVC and protective casing:	YES/NO	Monument damaged:	YES/NO
Comments:		Odours from well	YES/NO

Ambient reading (FID): — ppm

Initial well pressure: 0 kPa

Initial vent: Nil / Initial pulse / Pulse > 5 s / Continuous

Gas Flow rate: 0 % 440 L/hr **or** % 3000L/hr **OR** % 10 000

Well pressure after initial vent: 0 kPa

Standing Water Level (SWL): — (mBTOC)

Readings

Cumulative volume (L)*	**Cumulative time vented (min)**	**Maximum Vacuum on Well (psi)**	**Recovery Time - to equilibrate to atmospheric pressure (min)**	**Landfill Gas Analyser** CH_4 (%)	CO_2 (%)	O_2 (%)	**Flow rate at time of sampling**	**Comments**
Initial	-	-	-	0.2	1.5	19.7		
10		-20	1	0.2	1.5	19.4		
20		-20	1	0.1	1.5	19.3		
30		-20	1	0.1	1.4	19.4		
40		-20	1	0.1	1.4	19.4		

* where one tank volume = 12 L

[1] Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

1 kPa = 0.145 psi

1 psi = 6.90 kPa

CONSULTING EARTH SCIENTISTS

SUBSURFACE GAS FIELD DATA SHEET

Client: Boyds Cooks Cove		**CES Project Code:**	CES050706 - BCC
Project: BCC		**Location:** Cooks Cove	Area B
Sampler (s): AG	**Signature(s):**	**Project Manager:**	L.Jenkins
BH ID: BCG 404		**Monitoring Date / Time:**	10/06/2008

Well Status

Well damaged:	YES/NO	Well locked:	YES/NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Standing water, vegetation around monument:	YES/NO	Well ID visible:	YES/NO
Water between PVC and protective casing:	YES/NO	Monument damaged:	YES/NO
Comments:		Odours from well	YES/NO

Ambient reading (FID): — ppm

Initial well pressure: 0 kPa

Initial vent: Nil / Initial pulse / Pulse > 5 s / Continuous

Gas Flow rate: 0 % 440 L/hr **or** % 3000L/hr **OR** % 10 000

Well pressure after initial vent: 0 kPa

Standing Water Level (SWL): — (mBTOC)

Readings

Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	Landfill Gas Analyser CH_4 (%)	CO_2 (%)	O_2 (%)	Flow rate at time of sampling	Comments
Initial	-	-	-	0.1	1.2	19.4		
10		-20	1	0.2	1.3	19.7		
20		-20	1	0.1	1.2	19.5		
30		-20	1	0.2	1.2	19.5		
60		-20	1	0.1	1.2	19.5		

* where one tank volume = 12 L

[1] Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

1 kPa = 0.145 psi

1 psi = 6.90 kPa

CONSULTING EARTH SCIENTISTS

MONITORING WELL DEVELOPMENT FIELD DATA SHEET

Client: Boyels Coghs Cove	CES Project Code: CES050706 - BCC
Project: Kogarah Golf Course	Location: Area A
Sampler (s): Jenkins Signature(s):	Project Manager: Petrozzi

Well Development Record

Date	Well ID	Development Method (s)	Standing Water Level (before/after)	Depth to Bottom of Well (before/after)	Water Volume Removed (L)	Description and comments (eg. Turbidity, odours, free-phase product, changes through development process)
21/5/08	AMW203	Footvalve	1.54/1.55	2.45/2.45	100	Grey tint, slightly turbid. H_2S odour good recovery.
21/5/08	AMW ~~206~~ 205	FV	0.44/~~20~~ 2.04	2.04/2004	30	Brown V. turbid organic odour. Purged dry every 5L.
21.5.08	AMW207	FV	1.46/2.51	2.51/2.5	7	Brown turbid odourless Purged to dry every 1L. Very slow recovery.
21.5.08	AMW204	FV	0.67/0.67	2.40/2.42	50	Brown turbid odourless good recovery.
21/5/08	AMW202	FV	0 ~~.68~~ /0.67	2.52/2.52	~~100~~ 75	Brown / pale brown V. turbid / turbid good recovery
21.5.08	AMW201	FV	0.40/0.50	2.40/2.41	75	brown / pale brown turbid odourless good recovery.
21.5.08	AMW 206	FV	0.90/2.30	2.43/2.43	10	Dark grey to Dark brown V. turbid odourless purged to dry every 2L.
21.5.08	ABH202	FV	1.31/3.90	3.95/3.95	40	Brown V. turbid HC odour purged to dry every 10L.
21.5.08	ABH2105	FV	1.42/1.50	3.96/3.96	60	Brown V. turbid with HC odour good recovery.

Note 1:
B = Bailer; SB = Surge Block; AIR = Air sparging/air lift; NLIFT = Nitrogen gas sparging/lift; PUMP = Pumping/over pumping

CONSULTING EARTH SCIENTISTS

MONITORING WELL DEVELOPMENT FIELD DATA SHEET

Client: Boyds Cooks Cove	CES Project Code: CES050206-BCC
Project: Kogarah Golf Course	Location: Area A
Sampler (s): Jenkins Signature(s):	Project Manager: Petrozzi

Well Development Record

Date	Well ID	Development Method (s)	Standing Water Level (before/after)	Depth to Bottom of Well (before/after)	Water Volume Removed (L)	Description and comments (eg. Turbidity, odours, free-phase product, changes through development process)
23/5/08	ADH2100	FV	1.54/6.25	6.50/6.50	30	Pale brown turbid odourless Purged to dry after 30L very slow recovery.
23/5/08	ABH2110	FV	1.69/ -	1.86/ -	—	Not enough water to develop.

Note 1:
B = Bailer; SB = Surge Block; AIR = Air sparging/air lift; NLIFT = Nitrogen gas sparging/lift; PUMP = Pumping/over pumping

CONSULTING EARTH SCIENTISTS

Calibration Record Sheet

Meter: TPS 90-FLMV Multiparameter Instrument

Serial no: S3676 (old unit) and T0001 (new unit)

CALIBRATION			Standard used (pH) (tick appropriate)			Standard used		Eh		CALIBRATION CHECK			Calibration check results					
Date	Time	Calibrated by	pH 4	pH 6.86	pH 10	EC uS/cm	DO Air	Eh check mV	Result mV	Calibration check Date	Calibration check Time	Checked by	pH 4	pH 7	pH 10	EC uS/cm	Eh mV	Comments
16/05/08	09:00	SD	✓	✓	—	2760	✓	220	222									FM1
20/05/08	17:00	JA	✓	✓	—	2760	✓	220	244	22/2/08	06:45am	JA	3.86	6.93	—	3.20 mS	236	FM2
22/05/08	06:50	JA	✓	✓	—	2.95mS	✓	220	239	23/2/08	05:00am	JA	3.98	7.10	—	2.84mS	227	FM2.
23/05/08	05:00	JA	✓	✓	—	2.76	✓	220		23/5/08	12.00	JA	4.16	7.06	—	2.81mS	267	FM2
28/05/08	07:30	JA	✓	✓	—	2.76mS	✓	220	235	30/5/08	5.00pm	JA	4.15	7.46	—	2.75mS	235	FM2
30/05/08	15:45	AG	✓	✓	—	2.74mS	✓	220	236									
30-5-08	17:00	MS	✓	✓	—	2.76	✓	220	217	4.6.08	4:45pm	MS	4.16	7.57	—	2.88	223	FM1
2/6/08	07:30	JA	✓	✓	—	2.76	✓	220	240	3/6/08	7am	JA	4.09	6.97	—	2.70	239	FM 2
3/6/08	07am	JA	✓	✓	—	2.76	✓	220	227	3/6/08	13:00	JA	4.08	7.17	—	2.62	223	FM2
6.6.08	15:30	MS	✓	✓	—	2.76	✓	220	208									Not used.
10.6.08	17:05	GDM	✓	✓	—	2760	✓	220	242	11.6.08	15:30	GDM	4.00	7.01	—	2760	225	FM1
16.6.08	17:00	LJ	✓	✓	—	2.26	✓	220	246	19.6.08	8:30	JA	3.90	6.82	—	2.75mS	261	FM2
25.6.08	19:30	JA	✓	✓	—	7.54	✓	220		26.6.08	5:30	JA	4.00	7.09	—	2.55	246	FM 2
27/06/08	18:00	AG	✓	✓	—	2.64	✓	220	217									
								220										
								220										
								220										
								220										
								220										
								220										
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								220										
								220										
								220										

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Calibration Record Sheet

Meter: TPS 90-FLMV Multiparameter Instrument

Serial no: S3676 (old unit) and T0001 (new unit)

CALIBRATION			Standard used (pH) (tick appropriate)			Standard used		Eh		CALIBRATION CHECK			Calibration check results					
										Calibration check		Checked by	pH			EC	Eh	Comments
Date	Time	Calibrated by	pH 4	pH 6.86	pH 10	EC uS/cm	DO Air	Eh check mV	Result mV	Date	Time		pH 4	pH 7	pH 10	uS/cm	mV	
16/05/08	09:00	SD	✓	✓	—	2760	✓	220	222	22/2/08	06:45am	JA	3.86	6.93	—	3.20 mS	236	FM1 FM2
20/05/08	17:00	JA	✓	✓	—	2760	✓	220	244	23/2/08	05:00am	JA	3.98	7.10	—	2.84mS	227	FM2.
22/05/08	06:50	JA	✓	✓	—	2.95mS	✓	220	239	23/2/08	12:00	JA	4.16	7.06	—	2.81mS	267	FM2
23/05/08	05:00	JA	✓	✓	—	2.76	✓	220		30/5/08	5.00pm	JA	4.15	7.46	—	2.75mS	235	FM2
28/05/08	07:30	JA	✓	✓	—	2.76mS	✓	220	235									
30/05/08	15:45	AG	✓	✓	—	2.74m	✓	220	236	4.6.08	4:45pm	MS	4.16	7.57	—	2.88	223	FM1
30-5-08	17:00	MS	✓	✓	✓	2.76	✓	220	217	3/6/08	7am	JA	4.09	6.97	—	2.70	239	FM 2
2/6/08	07:30	JA	✓	✓	—	2.76	✓	220	240	3/6/08	13:00	JA	4.08	7.17	—	2.62	223	FM2
3/6/08	07am	JA	✓	✓	—	2.76	✓	220	227									Not used.
6.6.08	15:30	MS	✓	✓	—	2.76	✓	220	208	11.6.03	15:50	ODM	4.00	7.01	—	2760	225	FM1
10.6.08	17:05	ODM	✓	✓	—	2760	✓	220	242	19.6.08	8:30	JA	3.90	6.82	—	2.75mS	261	FM2
16.6.08	17:00	LG	✓	✓	—	2.28	✓	220	246	26.6.08	5:30	JA	4.00	7.09	—	2.55	246	FM 2
25.6.08	19:30	JA	✓	✓	—	1.54	✓	220										
27/06/08	18:00	AG	✓	✓	—	2.64	✓	220	217									
								220										
								220										
								220										
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								220										
								220										
								220										

Appendix 5
Boreholes Logs

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329867.686
Northing: 6243591.190
Elevation: 2.97

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Environmental Log: ABH201

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, fine grained, dark brown, dry, loose with rootlets.	050508-01-KW	Direct Push		
				FILL: Sand, medium grained, orange/brown, dry, loose, trace clay with gravels.				
				FILL: Sandstone fill, coarse grained, white, dry, hard. conglomerate rock (pink/white) - possible concrete.	050508-02-KW	Direct Push		
1				FILL: Sand, fine grained, yellow, dry to moist, loose.				
				FILL: Sand, fine grained, dark brown, dry, loose.				
				FILL: Sand, fine grained, yellow, dry, loose.				
				FILL: Sandstone fill, coarse grained, white, hard (core loss)				
2				SAND: Sand, fine grained, brown, dry, loose with trace clay and gravels.				
				SAND: Sand, fine grained, brown, dry to moist, dense.				
				SAND: Sand, fine grained, pale grey, moist, dense.	050508-03-KW	Direct Push		
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 05/05/2008
Date Completed: 05/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC **Easting:** 329924.428

Project: ESA **Northing:** 6243586.055

Client: Boyd Cooks Cove **Elevation:** 1.74

Location: Cooks Cove - Area A

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Environmental Log: ABH202

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION		
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 / 250 / 500 / 750
0	Auger Hollow Flight		ASPHALT: Bitumen			
			FILL: Sand, fine grained, brown, dry, loose, gravels and rootlets, odourless. Moist at 0.4 m.	090508-191-KW	Hand Auger	
				090508-192-KW	Hand Auger	
			FILL: Silty sand, fine grained, brown/grey, moist, soft, trace clay, sandstone, gravels, roots.	090508-193-KW	Hand Auger	
1		▼	SAND: Sand, fine to medium grained, grey/brown, wet at 1.3 m. Hydrocarbon odour at 1.3 m. Strong hydrocarbon odour at 2.0 m.	090508-200-KW	Push Tube	
2				090508-202-KW	Push Tube	
			SAND: Silty sand, fine grained, grey, wet, soft, trace clay, slight H2S odour.			
			SAND: Sand, fine grained, grey, wet, dense, silty.	090508-203-KW	Push Tube	
3			SAND: Sand, fine to medium grained, grey, saturated, very slight hydrocarbon odour.			
			SAND: Sand, medium grained, brow, wet, loose.	150508-601-KW	Solid Flight Auger	
4			**EOH at 4.0mBGL (targeted depth)**			
5						

WELL DETAIL

Drill Company: Macquarie Drilling **Date Commenced:** 09/05/2008

Drill Model: Mac200 **Date Completed:** 15/05/2008

Hole Diameter (mm): 150 **Logged/checked by:** K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329763.306
Project:	ESA	**Northing:**	6243541.165
Client:	Boyd Cooks Cove	**Elevation:**	1.23
Location:	Cooks Cove - Area A		

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Environmental Log: ABH203

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0.0–0.3	Direct Push		TOPSOIL: Grass over silty sand topsoil, fine grained, dark brown, moist, dense, rootlets.	070508-59-KW	Push Tube	0	
0.3–0.7			FILL: Silty sand, fine to medium grained, grey/brown, moist, dense, gravels, minor crushed sandstone.				
0.7–0.8			SAND: Sand, fine to medium grained, pale grey, moist, dense.	070508-60-KW	Push Tube	0	
0.8–2.3		▼ (approx. 1.5)	SAND: Sand, fine to medium grained, daker grey, wet from 1.2 m, moderately dense, H2S odour, roots, saturated from 1.5 m to 2.2 m.	ABH203(1.9-2.0)	Push Tube		
2.3–2.8			SAND: Sand, fine to medium grained, pale grey, wet, dense, slight H2S odour.	070508-61-KW	Push Tube	0	
2.8			**EOH at 2.8mBGL (targeted depth)**				

Drill Company:	Macquarie Drilling	**Date Commenced:**	07/05/2008
Drill Model:	Mac200	**Date Completed:**	07/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329799.291

Northing: 6243532.840

Elevation: 1.06

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Environmental Log: ABH204

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			TOPSOIL: Grass over silty sand topsoil, fine grained, dark brown, moist, rootlets.	070508-57-KW	Push Tube		
				FILL: Silty sand, fine grained, dark brown/grey, moist, dense, ironstone gravel at 0.2 m, rootlets throughout.	070508-56-KW	Push Tube		
					070508-55-KW	Push Tube		
1		▼		SAND: Sand, fine to medium grained, pale grey, moist to wet from 1.2 m, dense, minor silty lenses, H2S odour.				
				SILTY SAND: Silty sand, fine to medium grained, dark grey, moist to wet, dense.	070508-58-KW	Push Tube		
2				SAND: Sand, fine to medium grained, pale grey, saturated from 1.5 to 1.8 m, then moist to wet, H2S odour.				
3				**EOH at 2.8mBGL (targeted depth)**				
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 07/05/2008

Date Completed: 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329831.695
Northing: 6243544.297
Elevation: 1.19

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Environmental Log: ABH205

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)
0.0–0.3	Direct Push (0–2.8)		TOPSOIL: Grass over silty sand topsoil, fine grained, dark brown, moist, rootlets.	060508-49-KW	Push Tube	0
0.3–0.6			FILL: Sand, fine grained, dark brown/grey, moist, firm, silty.	060508-50-KW	Push Tube	0
0.6–1.0			FILL: Silty sand, fine to medium grained, dark brown/black, moist, dense.			
1.0–1.3			FILL: Sand, fine to medium grained, pale grey, moist, moderately dense, silty lenses, H2S odour.			
1.3–1.6		▼ (1.5)	FILL: Sand, fine to medium grained, pale brown, wet at 1.5 m, silty lenses, H2S odour.			
1.6–2.8			SAND: Sand, fine to meidum grained, pale grey, wet, dense, silty lenses, H2S odour.	060508-51-KW	Push Tube	0
2.8			**End of borehole.**			

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 06/05/2008
Date Completed: 06/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329880.449
Project:	ESA	**Northing:**	6243542.211
Client:	Boyd Cooks Cove	**Elevation:**	2.68
Location:	Cooks Cove - Area A		

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Environmental Log: ABH206

DRILLING INFO. | **LITHOLOGY** | **SAMPLING INFORMATION** | **WELL DETAIL**

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) (0, 250, 500, 750)
0	Direct Push		TOPSOIL: Grass on silty sand topsoil, brown, dry, loose, roots.	090508-208-KW	Push Tube	
			SAND: Sand, fine to medium grained, yellow, dry, loose.			
			SILTY SAND: Silty sand, fine grained, dark grey/brown, dry, loose to mod dense.			
			SAND: Sand, fine grained, pale grey, dry, loose.			
1			SILTY SAND: Silty sand, fine grained, dark grey, dry, loose, odourless.	090508-209-KW	Push Tube	
		▼	SAND: Sand, fine to medium grained, wet from 1.4 m, loose, trace silty, H2S odour.			
2				090508-210-KW	Push Tube	
			EOH at 2.8mBGL (targeted depth)			
3						
4						
5						

Drill Company:	Macquarie Drilling	**Date Commenced:**	09/05/2008
Drill Model:	Mac200	**Date Completed:**	09/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329925.011
Project:	ESA	**Northing:**	6243539.904
Client:	Boyd Cooks Cove	**Elevation:**	3.72
Location:	Cooks Cove - Area A		

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Environmental Log: ABH207

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Pus			ASPHALT: Bitumen				
				FILL: Roadbase and gravel with crushed sandstone, dry, odourless.	090508-207-KW	Push Tube		
				SANDSTONE: Sandstone, white/orange, dry, hard. EOH at 0.4mBGL (Refusal on sandstone bedrock)				
1								
2								
3								
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	09/05/2008
Drill Model:	Mac200	**Date Completed:**	09/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Easting: 329676.926

Project: ESA
Northing: 6243500.164

Client: Boyd Cooks Cove
Elevation: 2.12

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Location: Cooks Cove - Area A

Environmental Log: ABH208

Depth (m)	Method	Water	Description	Sample ID	Type
0	Direct Push		TOPSOIL: 0.2 m core loss. Grass over silty sand topsoil, fine grained, dark brown, moist to dry, roots.	070508-67-KW	Push Tube
			FILL: Sand, fine grained, pale brown, dry, loose, shells, ironstone, gravels.		
1			FILL: Sand, fine grained, dark brown, crushed sandstone (orange), with charcoal fragments.	070508-68-KW	Push Tube
2			SILTY SAND: Silty sand, fine to medium grained, dark brown, moist, dense, trace clay.		
		▼	SAND: Sand, fine to medium grained, palse grey, saturated from 2.4-2.7m, moderately dense, trace silty, H2S odour.	070508-69-KW	Push Tube
3			**EOH at 2.8mBGL (targeted depth)**		
4					
5					

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Date Commenced: 07/05/2008

Drill Model: Mac200
Date Completed: 07/05/2008

Hole Diameter (mm): 50
Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329738.333
Project:	ESA	**Northing:**	6243496.302
Client:	Boyd Cooks Cove	**Elevation:**	1.13
Location:	Cooks Cove - Area A		

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Environmental Log: ABH209

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			TOPSOIL: 0.5 m core loss. Grass over silty sand, fine grained, dark brown, moist, roots.	070508-62-KW	Push Tube		
				FILL: Sand, fine to medium grained, yellow, dry to moist, loose, bark and gravel.	070508-63-KW	Push Tube		
1				SILTY SAND: Silty sand, fine to medium grained, dark brown, moist, moderately dense, trace clay, increasing clay with depth.				
				SILTY SAND: Sand, fine grained, pale grey/brown, saturated from 1.5-2.2 m, soft, silt lenses, H2S odour.	070508-64-KW	Push Tube		
2				SAND: Sand, fine to medium grained, pale grey, wet, dense, trace silty lenses H2S odour.	ABH209(1.7-1.9)	Push Tube		
3				**EOH at 2.8mBGL (targeted depth)**				
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	07/05/2008
Drill Model:	Mac200	**Date Completed:**	07/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329798.581
Project:	ESA	**Northing:**	6243492.370
Client:	Boyd Cooks Cove	**Elevation:**	0.86
Location:	Cooks Cove - Area A		

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Environmental Log: ABH210

Description	Sample ID	Type
TOPSOIL: 0.3 m core loss. Grass over silty clay topsoil, fine grained, dark brown, moist, soft, rootlets.	060508-46-KW	Push Tube
FILL: Black coke and ash with white slag and silty sand, fine grained, dark brown, moist, glass, VOC (WD40) odour.	060508-47-KW	Push Tube
SILTY SAND: Silty sand, fine to medium grained, dark grey, moist, dense.		
SILTY SAND: Silty sand, medium to coarse grained, pale brown, moist, dense, trace clay, slight VOC and H2S odour.	060508-48-KW	Push Tube
SAND: Sand, medium grained, pale grey, moist and wet at 1.2 m, dense, silt lenses, H2S odour.		
SILTY SAND: Silty sand, medium grained, dark grey, wet (saturated from 1.4-2.8 m), H2S odour.		
SAND: Sand, medium grained, grey, wet, moderately dense, silty lenses.	ABH210(2.6-2.8)	Push Tube
EOH at 2.8mBGL (targeted depth)		

Method: Direct Push (0–2.8 m)

Drill Company:	Macquarie Drilling	**Date Commenced:**	06/05/2008
Drill Model:	Mac200	**Date Completed:**	06/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329832.382
Project:	ESA	**Northing:**	6243498.085
Client:	Boyd Cooks Cove	**Elevation:**	1.18
Location:	Cooks Cove - Area A		

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Environmental Log: ABH211

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand, trace clay, dark brown, fine grained, moist, dense with rootlets	120508-214-KW	Push Tube		
				FILL: Sand, brown, trace clay, fine to medium grained, dense, moist, silt lenses and rootlets				
				FILL: Sand, pale grey, medium grained, moist to wet, H2S odour, dense, silt lenses throughout, saturated at 1.4m to 2.0m				
1					120508-216-KW	Push Tube		
					120508-215-KW	Push Tube		
2				SAND: Sand, pale grey, course grained, dense and wet				
					120508-217-KW	Push Tube		
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	12/05/2008
Drill Model:	Mac200	**Date Completed:**	12/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329878.222
Northing: 6243497.379
Elevation: 5.73

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Environmental Log: ABH212

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty top soil, dark brown and moist	080508-161-KW			
				FILL: Silty sand, fine to medium grained, brown, firm, charcoal fragments and shells at 0.4m. Trace clay and moist	080508-169-KW	Push Tube		
				FILL: Sand, yellow, fine grained, dense and dry to moist	080508-162-KW	Push Tube		
1								
		▼		FILL: Silty sand, dark brown, fine grained and dry				
				SAND: Sand, white, fine grained, very dense, hard and dry (near rig refusal)				
2								
					080508-163-KW	Push Tube		
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 08/05/2008
Date Completed: 08/05/2008
Logged/checked by: K.Weir/L.Jenkins

Sheet: 1 of 1

Project ID: CES050706-BCC	**Easting:** 329919.200		
Project: ESA	**Northing:** 6243488.726		
Client: Boyd Cooks Cove	**Elevation:** 5.00		
Location: Cooks Cove - Area A	**Environmental Log:** ABH213		

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DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, loose, dry to moist with rootlets	120508-211-KW	Push Tube		
				FILL: Sand, pale brown, fine grained, loose, dry to moist				
				FILL: Sand, yellow, medium grained, dry, black charcoal at 0.5m	120508-212-KW	Push Tube		
1				SANDSTONE: Sandstone, orange course grained and dry. Refusal at 1.3m BGL on sandstone bedrock	120508-213-KW	Push Tube		
				End of borehole.				
2								
3								
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 12/05/2008

Date Completed: 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329655.819
Project:	ESA	**Northing:**	6243449.734
Client:	Boyd Cooks Cove	**Elevation:**	0.97
Location:	Cooks Cove - Area A		

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Environmental Log: ABH214

Depth (m)	Method	Water	Description	Sample ID	Type
0.0–0.1	Direct Push		FILL: Grass over silty sand topsoil, dark brown, moist with rootlets	070508-70-KW	Push Tube
0.25–0.5	Direct Push		FILL: Silty sand, dark brown, fine grained, dense and moist		
0.5–2.0	Direct Push	▼ (0.6)	FILL: Sand, yellow/pale grey, fine to medium grained, dense, moist and H2S odour. Silt lenses from 0.8m. Wet from 0.6m. Saturated from 1.5-2.0m	070508-71-KW	Push Tube
2.0–2.8	Direct Push		SAND: Sand, pale grey, fine to medium grained, dense, moist to wet		
2.8			**EOH at 2.8mBGL (targeted depth)**		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company:	Macquarie Drilling	**Date Commenced:**	07/05/2008
Drill Model:	Mac200	**Date Completed:**	07/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329724.248
Project:	ESA	**Northing:**	6243447.953
Client:	Boyd Cooks Cove	**Elevation:**	1.04
Location:	Cooks Cove - Area A		

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Environmental Log: ABH215

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty clay topsoil, dark brown, firm to soft, moist with rootlets	060508-36-KW	Push Tube		
				FILL: Silty sand, dark grey, fine to medium grained, moist and dense				
				FILL: Sand, yellow/pale grey, fine to medium grained, dense, moist with rootlets. Silt lenses and H2S odour throughout	060508-38-KW	Push Tube		
1					060508-37-KW	Push Tube		
		▼		SILTY SAND: Silty sand, fine to medium grained with trace clay, brown/grey, soft and H2S odour. Saturated form 1.45m to 2.0m				
2				SAND: Sand, pale grey, fine to medium grained, moderately dense, moist to wet with H2S odour	060508-39-KW	Push Tube		
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	06/05/2008
Drill Model:	Mac200	**Date Completed:**	06/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329754.370

Northing: 6243446.681

Elevation: 0.97

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Environmental Log: ABH216

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		FILL: Grass over silty clay topsoil, brown/orange, moist, dense with rootlets	060508-40-KW	Push Tube		
			FILL: Silty sand, fine to medium grained, pale brown, moist and slightly loose	060508-41-KW	Push Tube		
			FILL: Silty clayey sand, dark brown, fine to medium grained, dense, moist and odourless				
1		▼	FILL: Silty sand, fine to medium grained, pale brown/yellow, moist, dense with H2S odour				
			FILL: Sand with minor silt, pale grey, moist, loose and moist with H2S odour, becoming darker grey/brown. Sturated from 1.4-2.1m				
2			SAND: Sand, pale grey, wet, fine to medium grained, dense with H2S odour				
				060508-42-KW	Push Tube		
3			EOH at 2.8mBGL (targeted depth)				
4							
5							

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 06/05/2008

Date Completed: 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC **Easting:** 329814.547

Project: ESA **Northing:** 6243438.850

Client: Boyd Cooks Cove **Elevation:** 0.93

Location: Cooks Cove - Area A

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Environmental Log: ABH217

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand, topsoil, fine to medium grained, dark brown, moist and loose	060508-43-KW	Push Tube		
				FILL: Silty sand, fine to medium grained, moist, pale brown/grey, dense with H2S odour. Grading to sand with trace silts with depth	060508-44-KW	Push Tube		
1				FILL: Silty sand with trace clay, light brown, fine to medium grained, moist and dense with H2S odour				
				FILL: Increase in clay content, becoming wet at 1.3m	050608-45-KW	Push Tube		
		▼		SILTY SAND: Silty sand, dark brown/grey, fine to medium grained, saturated, loose wit H2S odour				
2				SAND: Sand with trace silt, grey, fine to medium grained, moist, dense with H2S odour.				
				EOH at 2.3mBGL (refusal on dense sands)				
3								
4								
5								

Drill Company: Macquarie Drilling **Date Commenced:** 06/05/2008

Drill Model: Mac200 **Date Completed:** 06/05/2008

Hole Diameter (mm): 50 **Logged/checked by:** K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329845.698
Project:	ESA	**Northing:**	6243452.655
Client:	Boyd Cooks Cove	**Elevation:**	1.39
Location:	Cooks Cove - Area A		

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Environmental Log: ABH218

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	WELL DETAIL
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, moist with rootlets	060508-06-KW	Push Tube		
			FILL: Sand, brown, moist, fine grained and dense	060508-07-KW	Push Tube		
			SAND: Sand, light brown, fine grained, moist and dense. Refusal at 0.5mBGL on Sandstone				

FID/PID (ppm) scale: 0, 250, 500, 750

Depth scale: 0, 1, 2, 3, 4, 5

Drill Company:	Macquarie Drilling	**Date Commenced:**	06/05/2008
Drill Model:	Mac200	**Date Completed:**	06/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC | **Easting:** 329884.676
Project: ESA | **Northing:** 6243447.707
Client: Boyd Cooks Cove | **Elevation:** 2.50
Location: Cooks Cove - Area A

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Environmental Log: ABH219

Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, loose, moist, with rootlets	060508-08-KW	Push Tube		
				FILL: Sand, brown, fine grained, loose, dry to moist. Sandstone at 0.4-0.5m				
				SAND: Sand, dark grey, fine to medium grained and moist. Refusal on sandstone at 1.0mBGL	060508-09-KW	Push Tube		
1				**EOH at 1.0mBGL (refusal on sandstone bedrock)**				
2								
3								
4								
5								

FID/PID scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50
Date Commenced: 06/05/2008
Date Completed: 06/05/2008
Logged/checked by: K.Weir/L.Jenkins

Sheet: 1 of 1

Project ID:	CES050706-BCC	**Easting:**	329924.044
Project:	ESA	**Northing:**	6243450.645
Client:	Boyd Cooks Cove	**Elevation:**	2.25
Location:	Cooks Cove - Area A		

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Environmental Log: ABH220

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, fine grained, moist with rootlets	060508-04-KW	Push Tube		
				FILL: Ash fill, black/grey, crisp and dry to moist	060508-05-KW	Push Tube		
				FILL: Sand, yellow, fine grained, moist and dense				
1				FILL: Clayey sand with trace silt, dark grey, moist and dense				
				FILL: Sand, trace clay, light brown, dense and moist. Refusal on sandstone bedrock at 0.6mBGL				
2								
3								
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	06/05/2008
Drill Model:	Mac200	**Date Completed:**	06/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329994.603
Project:	ESA	**Northing:**	6243450.997
Client:	Boyd Cooks Cove	**Elevation:**	1.31
Location:	Cooks Cove - Area A		

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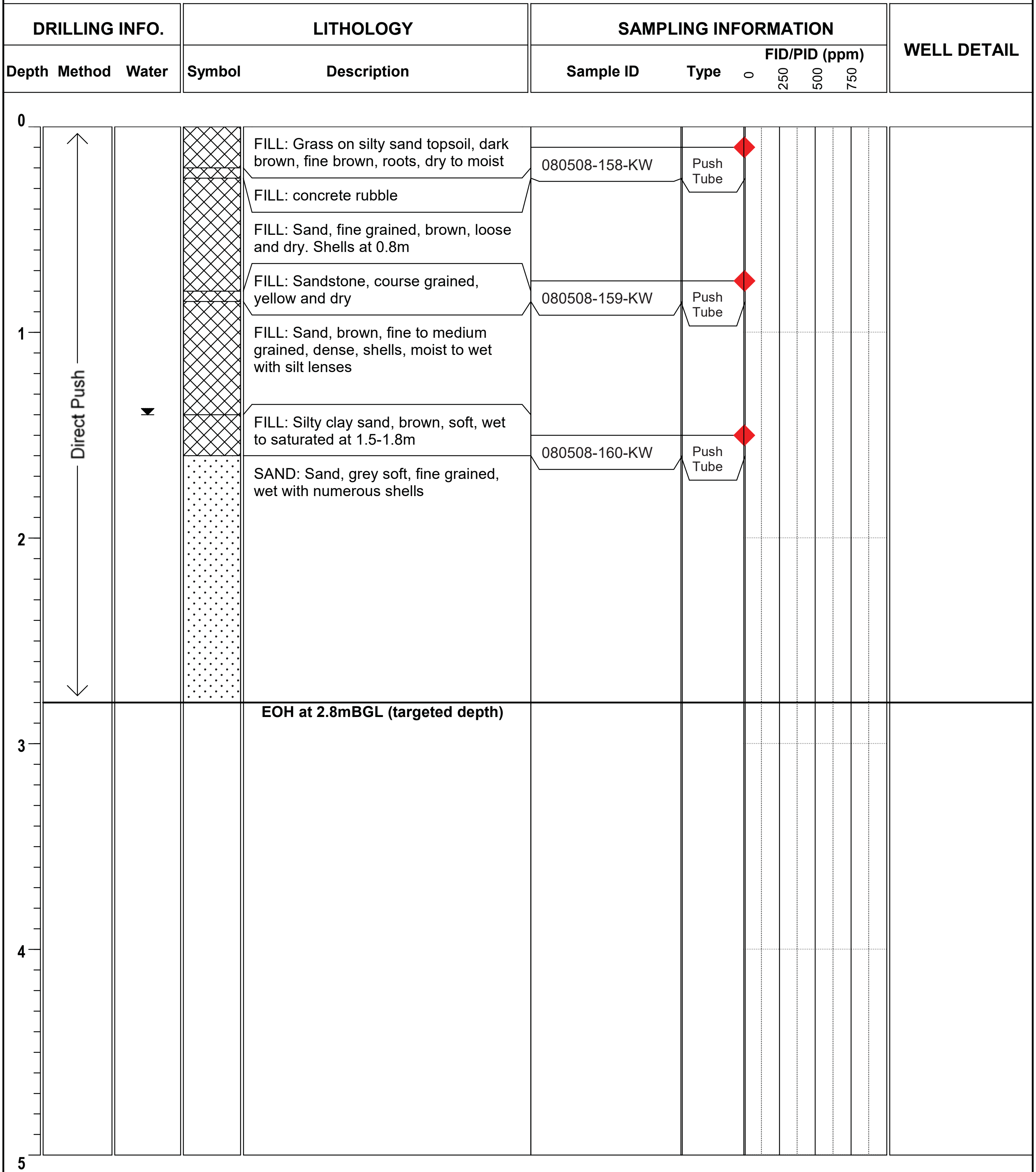
Environmental Log: ABH221



Description	Sample ID	Type
FILL: Grass on silty sand topsoil, dark brown, fine brown, roots, dry to moist	080508-158-KW	Push Tube
FILL: concrete rubble		
FILL: Sand, fine grained, brown, loose and dry. Shells at 0.8m		
FILL: Sandstone, course grained, yellow and dry	080508-159-KW	Push Tube
FILL: Sand, brown, fine to medium grained, dense, shells, moist to wet with silt lenses		
FILL: Silty clay sand, brown, soft, wet to saturated at 1.5-1.8m	080508-160-KW	Push Tube
SAND: Sand, grey soft, fine grained, wet with numerous shells		

EOH at 2.8mBGL (targeted depth)

Drill Company:	Macquarie Drilling	**Date Commenced:**	08/05/2008
Drill Model:	Mac200	**Date Completed:**	08/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329565.810
Project:	ESA	**Northing:**	6243401.446
Client:	Boyd Cooks Cove	**Elevation:**	0.94
Location:	Cooks Cove - Area A		

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Environmental Log: ABH222

Depth (m)	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) (0 / 250 / 500 / 750)	Well Detail
0.0–0.25	Direct Push		Fill	FILL: Silty topsoil, brown, moist with roots	070508-76-KW	Push Tube		
0.25–0.5	Direct Push		Fill	FILL: Silty sand, dark brown/black, fine grained, moist and soft	070508-77-KW	Push Tube		
0.5–1.4	Direct Push	▼ (~1.4)		UNKNOWN: Coreloss				
1.4–2.8	Direct Push		Sand	SAND: Sand, pale grey, fine to medium grained, moist to wet, soft and loose with H2S odour. Silt lenses from 2.0. Saturated from 1.7-2.5m.	070508-78-KW	Push Tube		
2.8				**EOH at 2.8mBGL (targeted depth)**				

Drill Company:	Macquarie Drilling	**Date Commenced:**	08/05/2008
Drill Model:	Mac200	**Date Completed:**	08/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329606.336
Project:	ESA	**Northing:**	6243406.270
Client:	Boyd Cooks Cove	**Elevation:**	2.09
Location:	Cooks Cove - Area A		

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Environmental Log: ABH223

Depth (m)	Method	Water	Description	Sample ID	Type
0–0.2	Direct Push		FILL: Grass over sandy topsoil, brown, dry with gravels and rootlets	070508-72-KW	Push Tube
0.2–1.3	Direct Push		FILL: Sand, fine grained, brown, dry and loose with gravels and ash at 0.5-0.6m. Shells and sandstone gravels, dense and moist at depth	070508-73-KW	Push Tube
1.3–1.4	Direct Push		FILL: Silty sand, brown/grey, fine grained, dense, moist, with gravels and possible ash	070508-74-KW	Push Tube
1.4–2.0	Direct Push		FILL: Silty sand, dark grey/black, fine grained, dense, moist, silt lenses at 1.9-2.1m		
2.0–2.3	Direct Push		SAND: Sand, pale grey, fine to medium grained, dense, moist to wet with roots		
2.3–4.1	Direct Push	▼ (2.8)	SILTY SAND: Silty sand, dark grey, fine to medium grained, moist to wet at 2.8m. Saturated at 3.7-4.1m	070508-75-KW	Push Tube
			EOH at 4.1mBGL (targeted depth)		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company:	Macquarie Drilling	**Date Commenced:**	08/05/2008
Drill Model:	Mac200	**Date Completed:**	08/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329657.034
Northing: 6243404.105
Elevation: 1.16

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Environmental Log: ABH224

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand top soil, fine grained, loose, moist with roots	060508-30-KW	Push Tube		
				FILL: Sand, yellow/grey. dense , moist with orange mottles				
				FILL: Silty clay, brown/grey/orange, soft, moist with rootlets	060508-31-KW	Push Tube		
				FILL: Silty sand, dark grey, moderately dense and moist				
1				FILL: Sand with trace clay, pale brown, fine to medium grained, slight organic odour, moist to wet at 0.9m				
		▼		FILL: Silty sand with trace clay, pale grey, fine to medium grained, dense, wet with organic odour				
				FILL: Dark brown, soft and saturated from 1.4-2.0m				
2				FILL: Silty sand, pale grey, fine to medium grained, dense with wood				
				SAND: Sand, pale, grey, fine to medium grained, wet and dense	060508-32-KW	Push Tube		
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 06/05/2008
Date Completed: 06/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329694.665
Project:	ESA	**Northing:**	6243404.713
Client:	Boyd Cooks Cove	**Elevation:**	1.32
Location:	Cooks Cove - Area A		

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Environmental Log: ABH225

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, fine to medium grained, dark brown, moist with rootlets	060508-33-KW	Push Tube		
				FILL: Sand, yellow, fine to medium grained, loose, moist, odourless and shells	060508-34-KW	Push Tube		
1				FILL: Silty clay, brown/orange, dense, moist with rootlets				
		▼		FILL: Silty sand, dark grey, fine to medium grained, moist and odourless with silt lenses. Saturated at 1.5m				
				FILL: Silty sand, brown, fine to medium grained wit trace clays, loose and soft with slight H2S odour. Saturated from 1.5-2.0m	060508-35-KW	Push Tube		
2				FILL: Silty clay sand, dark grey/brown, fine to medium grained, wet, slightly loose with slight H2S odour				
				SAND: Sand, pale grey, fine to medium grained, moist, dense and odourless				
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	06/05/2008
Drill Model:	Mac200	**Date Completed:**	06/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC **Easting:** 329755.651

Project: ESA **Northing:** 6243402.717

Client: Boyd Cooks Cove **Elevation:** 1.32

Location: Cooks Cove - Area A

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Environmental Log: ABH226

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) (0 / 250 / 500 / 750)	WELL DETAIL
0	Direct Push		FILL: Silty sand topsoil, brown, fine grained, moist, loose with roots	060508-20-KW	Push Tube		
			FILL: Black ash fill				
			FILL: Sand, yellow, fine to medium grained, moderately dense, moist, shells, charcoal gravels and tree roots	060508-21-KW	Push Tube		
			FILL: Silty clay, brown, soft and moist				
1			FILL: Silty sand, dark brown, fine to medium grained, moderately dense, moist with organic odour				
		▼	FILL: Sand, pale grey, fine to medium grained, dense, moist, organic odour with silt lenses and trace clays at 1.4m				
			FILL: Sand brown, wet and loose	060508-22-KW	Push Tube		
2			FILL: Clayey sand, brown/dark grey, fine to medium grained, dense and wet				
			SAND: Sand, pale grey, medium grained, moist and dense with minor silt lenses				
3			**EOH at 2.8mBGL (targeted depth)**				
4							
5							

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 06/05/2008

Date Completed: 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329798.506

Northing: 6243404.901

Elevation: 1.03

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Environmental Log: ABH227

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, brown, moist and loose				
				FILL: Silty clay, brown/grey, soft and moist with minor gravels	060508-19-KW	Push Tube		
				FILL: Silty sand, dark brown/grey, fine to medium grained moderately dense and moist	060508-18-KW	Push Tube		
					060508-17-KW	Push Tube		
1				FILL: Sand, pale grey, medium grained, moderately dense with trace silt lenses				
		▼		FILL: Clayey silt sand, dark grey with organic odour				
				FILL: Silty sand, brown/grey, moist and moderately dense				
				FILL: Grading to silty clayey sand				
2				SAND: Sand, pale grey, fien to medium grained, wet with slight organic odour				
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 06/05/2008

Date Completed: 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329849.080

Northing: 6243400.702

Elevation: 1.10

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Environmental Log: ABH228

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty clay topsoil, dark brown and moist with charcoal at 0.3m	060508-10-KW	Push Tube		
				FILL: Sand, yellow/pale grey, fine to medium grained with shells and moist	060508-11-KW	Push Tube		
				FILL: Clayey silt, brown/grey, soft, moist with minor gravels				
1				FILL: Sand, dark grey, fine to medium grained with trace clay, moist with rootlets				
		▼		FILL: Sand, pale grey, fine grained with silt lenses, moist and wet at 1.5m				
2				FILL: silty sand, dark grey, wet, loose with organic odour				
				SAND: Sand, pale grey, fine to medium grained, dense and moist	060508-12-KW	Push Tube		
				EOH at 2.6mBGL (refusal on sandstone bedrock)				
3								
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 06/05/2008

Date Completed: 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC	**Easting:** 329888.140		
Project: ESA	**Northing:** 6243401.205		
Client: Boyd Cooks Cove	**Elevation:** 0.76		
Location: Cooks Cove - Area A			

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Environmental Log: ABH229

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty clay topsoil, dark brown, moist with rootlets. Ash at 0.1m and tree roots at 0.3m	060508-13-KW	Push Tube		
				FILL: Sand, pale grey, fine to medium grained, shells, moist and dense	060508-16-KW	Push Tube		
				FILL: Silty sand, dark brown, firm, moist with trace clay	060508-15-KW	Push Tube		
1		▼		SAND: Sand, pale grey, fine grained, dense, moist with H2S odour. Silt clay contant from 1.2m. Wet from 1.5m. Refusal on sandstone at 1.6mBGL	060508-14-KW	Push Tube		
				EOH at 1.6mBGL (refusal on sandstone bedrock)				
2								
3								
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	06/05/2008
Drill Model:	Mac200	**Date Completed:**	06/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329918.449
Project:	ESA	**Northing:**	6243403.763
Client:	Boyd Cooks Cove	**Elevation:**	1.23
Location:	Cooks Cove - Area A		

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Environmental Log: ABH230

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over sandy topsoil, brown, moist with roots	080508-148-KW	Push Tube		
				FILL: Sand, brown, fine to medium grained, loose, dry to moist with gravels, sandstone and minor charcoal	080508-149-KW	Push Tube		
				FILL: Shale rocks, crushed brick, brown clay, stiff, dry and sandstone rubble				
1				FILL: Sand, yellow, fine to medium grained, moderately dense and moist				
		▼		FILL: Silty sand, grey, fine to medium grained, moist and dense with H2S odour				
				FILL: Silty clayey sand, brown/grey and wet from 1.4 - 2.2m				
				SILTY SAND: Silty sand, grey, wet, soft with rootlets and H2S odour				
2				SANDSTONE: Weathered sandstone, course grained, white and wet	080508-150-KW	Push Tube		
3				**EOH at 2.2mBGL (refusal on sandstone bedrock)**				
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	08/05/2008
Drill Model:	Mac200	**Date Completed:**	08/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC	**Easting:** 329973.047		CONSULTING EARTH SCIENTISTS
Project: ESA	**Northing:** 6243405.760		
Client: Boyd Cooks Cove	**Elevation:** 0.97		Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399
Location: Cooks Cove - Area A	**Environmental Log:**	**ABH231**	

DRILLING INFO. | **LITHOLOGY** | **SAMPLING INFORMATION** | **WELL DETAIL**

Method: Direct Push (0 – 2.8 m). Water level marked at approx. 1.5 m.

Description	Sample ID	Type
FILL: Grass over silty sand topsoil, fine grained, loose, moist with roots	080508-151-KW	Push Tube
FILL: Sand, pale grey/brown, fine grained, loose and dry		
FILL: Crushed sandtsone, white, dry		
FILL: Silty sand with trace clay, fine grained, brown, moderately dense and moist	080508-153-KW 080508-152-KW	Push Tube Push Tube
FILL: Sand, yellow, fine to medium grained, moderately dense and moist	080508-154-KW	Push Tube
FILL: Silty sand, grey, fine grained, dense and moist with concrete gravels		
FILL: Sand, pale grey, fine to medium grained, dense, silty lenses with H2S odour		
FILL: Silty clayey sand, brown, soft and wet, Saturated from 1.5-2.1m		
SILTY SAND: Silty sand, dark grey, fine to medium grained, dense and moist to wet		
SAND: Sand, pale grey, fine to medium grained, dense and wet to moist		
EOH at 2.8mBGL (targeted depth)		

FID/PID (ppm): 0, 250, 500, 750

Depth (m): 0, 1, 2, 3, 4, 5

Drill Company:	Macquarie Drilling	**Date Commenced:**	08/05/2008
Drill Model:	Mac200	**Date Completed:**	08/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329835.915
Northing: 6243574.015
Elevation: 1.30

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Environmental Log: ABH232

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty clay top soil, dark brown, soft and moist	060508-52-KW	Push Tube		
				FILL: Crushed sandstone, white/orange, course grained, dry to moist	060508-53-KW	Push Tube		
				FILL: Silty clayey sand, dark brown, moist with rootlets				
1				FILL: Silty sand, dark brown, fine grained, moist and odourless				
		▼		FILL: Sand, pale grey, fine to medium grained, dense, moist with silt lenses. Wet at 1.4m				
2					060508-54-KW	Push Tube		
				SAND: Sand with silt layers, grey, fine to medium grained, dense with H2S odour. Saturated from, 2.2-2.6m				
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 06/05/2008
Date Completed: 06/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329498.372
Project:	ESA	**Northing:**	6243360.060
Client:	Boyd Cooks Cove	**Elevation:**	1.27
Location:	Cooks Cove - Area A		

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Environmental Log: ABH233

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		FILL: Grass over silty sand topsoil, moist, dense with roots	070508-93-KW	Push Tube		
			FILL: Sand, brown, fine to medium grained, loose, moist with gravels	070508-95-KW	Push Tube		
			FILL: Sandstone rubble, white/orange, hard. Clay with sand, brown, fine grained and moist	070508-94-KW	Push Tube		
1			FILL: Silty sand, black, fine grained, dinse and moist				
		▼	SAND: Sand, pale grey, fine to medium grained, moderately dense, moist, H2S odour. Wet from 1.4m. Saturated at 2.2-2.6m				
2							
			SILTY SAND: Silty clay sand, grey, wet with H2S odour	070508-96-KW	Push Tube		
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

Drill Company:	Macquarie Drilling	**Date Commenced:**	07/05/2008
Drill Model:	Mac200	**Date Completed:**	07/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329568.152
Project:	ESA	**Northing:**	6243360.562
Client:	Boyd Cooks Cove	**Elevation:**	0.85
Location:	Cooks Cove - Area A		

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Environmental Log: ABH234

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0–0.2	Direct Push			FILL: Grass over silty sand topsoil, dark brown, moist with roots				
0.3–0.5	Direct Push			FILL: Sand, pale grey, fine to medium grained, moderately dense and moist	070508-82-KW	Push Tube		
0.5–0.8	Direct Push			FILL: Silty sand, dark brown, fine grained, very dense and moist	070508-81-KW	Push Tube		
0.8–1.0	Direct Push			FILL: Sand with trace clay, pale brown, dense and moist with roots				
1.0–2.5	Direct Push	▼ (1.5)		SAND: Sand, pale grey, fine to medium grained, dense, moist with H2S odour. Saturated at 1.5-2.4m				
2.5–2.8	Direct Push			SILTY SAND: Silty sand, dark grey, fine to medium grained, soft to dense and moist to wet	070508-83-KW	Push Tube		
2.8				**EOH at 2.8mBGL (targeted depth)**				

Drill Company:	Macquarie Drilling	**Date Commenced:**	07/05/2008
Drill Model:	Mac200	**Date Completed:**	07/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329611.110

Northing: 6243354.212

Elevation: 1.14

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Environmental Log: ABH235

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	070508-79-KW	Push Tube		
				FILL: Sand, yellow, fine grained, loose and moist	070508-80-KW	Push Tube		
				FILL: Silty clay, brown/grey, soft and moist				
1				FILL: Sand, yellow, fine to medium grained, dense and moist				
				FILL: Silty clay, dark brown, soft and moist				
		▼		FILL: Sand, yellow, fine to medium grained, dense and moist				
				FILL: Silty clay, dark brown, soft and moist				
2				FILL: Sand, pale grey/orange, fien to medium grained, dense and moist				
				FILL: Silty clay, dark brown, soft and moist				
				FILL: Silty sand, dark grey, fine to medium grained, dense and moist				
				SAND: Sand, pale grey, silt lenses, moist to wet and H2S odour. Saturated from 1.4-2.3m				
3				SAND: Sand, pale grey, medium grained, dense, moist to wet with silt lenses at 2.6m. EOH at 2.8mBGL (targeted depth)				
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 07/05/2008

Date Completed: 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC
Easting: 329665.268
Project: ESA
Northing: 6243343.476
Client: Boyd Cooks Cove
Elevation: 1.25
Location: Cooks Cove - Area A

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Environmental Log: ABH236

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	080508-102-KW	Push Tube		
				FILL: Sand, yellow, fine to medium grained, loose, moist, trace silts and shells				
				FILL: Silty clay, dark brown, soft and moist	080508-103-KW	Push Tube		
1				FILL: Sand, pale grey with orange mottles, fine to medium grained, trace silt lenses, shells and moist				
		▼		FILL: Silty sand, dark grey, fine grained, dense and moist with rootlets	080508-104-KW	Push Tube		
				FILL: Sand, pale brown/grey, fine to medium grained, silt lenses and moist to wet				
2				SILTY SAND: Silty clayey sand, brown/grey, fine to medium grained, wet, soft with H2S odour. Saturated from 1.4-2.5m				
				SAND: Sand, pale grey, fine to medium grained, dense and moist				
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling
Date Commenced: 08/05/2008
Drill Model: Mac200
Date Completed: 08/05/2008
Hole Diameter (mm): 50
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC **Easting:** 329703.000

Project: ESA **Northing:** 6243361.425

Client: Boyd Cooks Cove **Elevation:** 1.40

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Location: Cooks Cove - Area A

Environmental Log: ABH237

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm) (0 / 250 / 500 / 750)	Well Detail
0.0–0.3	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	060508-27-KW	Push Tube		
0.3–1.0	Direct Push		FILL: Sand, yellow, fine to medium grained, silty clay lenses at 1.0-1.2m, moderately dense, moist and shells				
1.0–1.25	Direct Push		FILL: Silty clay lense, grey, moist and dense	060508-28-KW	Push Tube		
1.25–1.5	Direct Push		FILL: Silty sand, dark brown, fine to medium grained, moist with rootlets				
1.5–1.9	Direct Push	▼ (1.7)	SAND: Sand, pale grey, fine to medium grained, dense, moist with shells. Saturated at 1.7m				
1.9–2.8	Direct Push		SILTY SAND: Silty clay sand, dark grey, fine to medium grained, moderately dense, wet and H2S odour	060508-29-KW	Push Tube		

EOH at 2.8mBGL (targeted depth)

Drill Company: Macquarie Drilling **Date Commenced:** 06/05/2008

Drill Model: Mac200 **Date Completed:** 06/05/2008

Hole Diameter (mm): 50 **Logged/checked by:** K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329743.172
Northing: 6243375.462
Elevation: 1.22

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Environmental Log: ABH238

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	060508-24-KW	Push Tube		
				FILL: Sand, yellow, fine to medium grained, loose, moist with shells at 0.7m	060508-23-KW	Push Tube		
				FILL: Silty clay, grey/brown, moist and oderately dense				
1				FILL: Sand, pale grey, fine to medium grained, dense and moist	060508-25-KW	Push Tube		
				FILL: Silty clay, grey/brown, fine to medium grained and moderately dense				
		▼		FILL: Silty sand, dark brown, fine to medium grained, dense and moist	060508-26-KW	Push Tube		
2				FILL: Sand, yellow, fine to medium grained, dense, moist with organic odour				
				SILTY SAND: Silty sand with trace clays, brown/grey, moist, dense, organic odour and shells. Saturated from 1.5m				
				SILTY SAND: Silty clay sand, dark grey, fine to medium grained with increase in density				
3				SAND: Sand, pale grey, moist and dense. EOH at 2.8mBGL (targeted depth)				
4								
5								

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 06/05/2008
Date Completed: 06/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC **Easting:** 329791.277

Project: ESA **Northing:** 6243361.707

Client: Boyd Cooks Cove **Elevation:** 1.04

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Location: Cooks Cove - Area A

Environmental Log: ABH239

Depth (m)	Method	Water	Description	Sample ID	Type
0.0–0.3	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	080508-121-KW	Push Tube
0.3–0.6	Direct Push		FILL: Crushed sandstone, orange, course grained and white	080508-122-KW	Push Tube
0.6–0.9	Direct Push		FILL: Sand, pale, brown, fine grained, loose and moist with white shells		
0.9–1.1	Direct Push		FILL: Silty clay, dark brown, firm and moist		
1.1–1.4	Direct Push	▼	FILL: Sand, grey, fine to medium grained, silty clay lenses throughout and moist		
1.4–2.5	Direct Push		SILTY SAND: Silty clay sand, fine to medium grained, brown/grey with H2S odour. Saturated from 1.4 to 1.7m		
2.5–2.8	Direct Push		SAND: Sand, pale grey, fine to medium grained, wet and very dense		
2.8			**EOH at 2.8mBGL (targeted depth)**		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 08/05/2008

Date Completed: 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329850.039	**CONSULTING EARTH SCIENTISTS**
Project:	ESA	**Northing:**	6243371.561	
Client:	Boyd Cooks Cove	**Elevation:**	1.04	
Location:	Cooks Cove - Area A			

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Environmental Log: ABH240

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	080508-125-KW	Push Tube		
			FILL: Sand, yellow, fine to medium grained, loose, moist with shells	080508-124-KW	Push Tube		
			FILL: Silty sand, brown, soft and moist	080508-123-KW	Push Tube		
1			FILL: Silty sand, dark grey, firm and moist with trace silty clay lenses	080508-126-KW	Push Tube		
		▼	FILL: Sand, pale grey, fine to medium grained, dense, moist with slight organic odour				
			FILL: Silty clay sand, brown/grey, soft and wet. Saturated from 1.4-1.6m and wet from 1.6-2.0m				
2			SAND: Sand, pale grey, fine to medium grained, dense and most to wet				
3			**EOH at 2.8mBGL (targeted depth)**				
4							
5							

Drill Company:	Macquarie Drilling	**Date Commenced:**	08/05/2008
Drill Model:	Mac200	**Date Completed:**	08/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329885.967
Northing: 6243340.325
Elevation: 0.79

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Environmental Log: ABH241

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		FILL: Grass over silty clay topsoil, dark brown, loose, moist with rootlets	080508-127-KW	Push Tube		
			FILL: Sand, yellow, fine to medium grained, loose, moist with shells and orange mottles				
			FILL: Silty clay, orange/brown/grey, soft to firm and moist	080508-128-KW	Push Tube		
1			FILL: Silty sand, dark grey/orange/brown, dense and moist				
		▼	FILL: Silty clayey sand, dark brown, soft and moist. Saturated from 1.4-1.9m. Clay content and stiffness increased with depth	080508-129-KW	Push Tube		
2			SILTY SAND: Silty sand with trace clay, dark grey, fine grained and moist to wet				
			SAND: Sand, pale grey, fine to medium grained, dense and moist				
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 08/05/2008
Date Completed: 08/05/2008
Logged/checked by: K.Weir/L.Jenkins

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Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329921.058
Northing: 6243367.814
Elevation: 0.68

Environmental Log: ABH242

Depth (m)	Method	Water	Lithology Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, dense with roots	080508-144-KW	Push Tube		
			FILL: Sand, pale grey, fine grained, dense, moist with orange mottles, rootlets and shells	080508-146-KW	Push Tube		
			FILL: Crushed brick, orange and dry	080508-145-KW	Push Tube		
			FILL: Silty sand, brown, fine grained, dense and moist				
1		▼ (approx. 1.5)	SAND: Sand, pale grey, interspersed with thin silty clay layers, moist, firm with H2S odour. Saturated at 1.5-2.0m				
2			SAND: Sand, pale grey, fine to medium grained, dense and wet	080508-147-KW	Push Tube		
2.8			**EOH at 2.8mBGL (targeted depth)**				

FID/PID (ppm) scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 08/05/2008
Date Completed: 08/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329975.701

Northing: 6243350.352

Elevation: 0.82

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Environmental Log: ABH243

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	080508-141-KW	Push Tube		
				FILL: Silty sand, dark brown, fine grained, dense and moist with black charcoal at 0.2m	080508-142-KW	Push Tube		
				FILL: Silty sand, dark grey, fine grained, moderately dense, moist with course grained, yellow crushed sandstone				
1				FILL: Sand, pale grey with orange mottles, fine grained, moist to wet and dense				
		▼		FILL: Silty sand, dark brown, firm and moist	080508-143-KW	Push Tube		
				FILL: Silty sand, dark brown, silty clay lenses throughout, dense and moist				
2				SILTY SAND: Silty clay sand, dark grey, soft and wet				
				SAND: Sand, pale grey, fine to medium grained, dense and moist				
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	08/05/2008
Drill Model:	Mac200	**Date Completed:**	08/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329477.016

Northing: 6243318.888

Elevation: 1.37

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Environmental Log: ABH244

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots				
				FILL: Sand, yellow, fine to medium grained, loose, dry to moist	070508-90-KW	Push Tube		
				FILL: Ash fill, black/grey with sand	070508-91-KW	Push Tube		
				FILL: Silty sand with trace clays, dark grey, soft and moist				
1				FILL: Ash fill, white gravels, minor sand, moist to wet				
		▼		SAND: Sand, pale grey, fine to medium grained with silt lenses, moderately dense, moist to wet with H2S odour. Saturated from 1.5-2.7m	070508-92-KW	Push Tube		
2								
				SAND: Sand, darker grey with minor silt, wet with H2S odour				
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 08/05/2008

Date Completed: 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC
Easting: 329519.186
Project: ESA
Northing: 6243321.583
Client: Boyd Cooks Cove
Elevation: 1.19
Location: Cooks Cove - Area A

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Environmental Log: ABH245

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 / 250 / 500 / 750	
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, moist, gravels with roots				
			FILL: Sand, dark brown, fine grained, loose with ash	070508-87-KW	Push Tube		
			FILL: Sand, yellow, fine grained, loose and moist	070508-88-KW	Push Tube		
			FILL: Sand, dark brown, fine grained, ash waste and loose				
1			FILL: Silty sand, dark brown, fine grained, dense and moist	070508-89-KW	Push Tube		
		▼	SAND: Sand, pale grey, fine to medium grained, loose to moderately dense and moist. Saturated from 1.5-2.8m with H2S odour				
2							
3			**EOH at 2.8mBGL (targeted depth)**				
4							
5							

Drill Company: Macquarie Drilling
Date Commenced: 07/05/2008
Drill Model: Mac200
Date Completed: 07/05/2008
Hole Diameter (mm): 50
Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329557.512
Project:	ESA	**Northing:**	6243322.832
Client:	Boyd Cooks Cove	**Elevation:**	0.94
Location:	Cooks Cove - Area A		

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Environmental Log: ABH246

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, moist with roots	070508-84-KW	Push Tube		
			FILL: Sand, pale grey, fine to medium grained, loose, dry and moist				
			FILL: Silty sand and trace clay, dark brown, moist and loose				
			FILL: Sand, yellow, fine to medium grained, firm and moist				
1		▼	SAND: Sand, pale grey, fine to medium grained, firm, moist, with silt lenses and H2S odour. Staurated at 1.4-2.8m	070508-86-KW	Push Tube		
				070508-85-KW	Push Tube		
2							
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

Drill Company:	Macquarie Drilling	**Date Commenced:**	07/05/2008
Drill Model:	Mac200	**Date Completed:**	07/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329615.280

Northing: 6243323.531

Elevation: 1.60

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Environmental Log: ABH247

Depth (m)	Method	Water	Lithology Description	Sample ID	Type	FID/PID (ppm)
0–0.25	Direct Push		FILL: Grass over silty sand topsoil, dark brown, roots and dry	070508-99-KW	Push Tube	0
0.25–0.6	Direct Push		FILL: Silty sand, dark brown, fine to medium grained, dense, black charcoal and gravels	070508-98-KW	Push Tube	
0.6–0.8	Direct Push		FILL: Sand, yellow, fine to medium grained, dense with some gravels			
0.8–1.2	Direct Push		FILL: Sand, pale grey, fine to medium grained, dense, moist with silt lenses and shells	070508-100-KW	Push Tube	0
1.2–2.4	Direct Push	▼ (approx. 1.5)	SILTY SAND: Silty sand, dark grey/brown, dense, moist with H2S odour. Saturated from 1.5-2.2m			
2.4–2.8	Direct Push		SAND: Sand, pale grey, fine to medium grained, dense, moist with H2S odour	070508-101-KW	Push Tube	0

EOH at 2.8mBGL (targeted depth)

WELL DETAIL

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 07/05/2008

Date Completed: 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

Sheet: 1 of 1

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329653.717
Northing: 6243309.430
Elevation: 1.26

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Environmental Log: ABH248

Depth	Method	Water	Description	Sample ID	Type
0	Direct Push (0–2.8)		FILL: Grass over silty sand topsoil, dark brown, trace clay and moist	080508-105-KW	Push Tube
			FILL: Sand, yellow, fine to medium grained, loose, dry to moist with silt lenses and shells		
1			FILL: Silty clayey sand, fine grained, soft and moist	080508-107-KW	Push Tube
			FILL: Silty sand, dark grey, fine to medium grained, trace clay with H2S odour	080508-106-KW	Push Tube
		▼	FILL: Sand, pale grey, fine to medium grained, moderately dense and moist		
2			SILTY SAND: Silty clayey, sand, dark grey, saturated, from 1.7-2.0m. Wet from 2.0-2.3m with H2S odour		
			SAND: Sand, pale grey, fine to medium, moderately, moist to wet with H2S odour	080508-108-KW	Push Tube
			EOH at 2.8mBGL (targeted depth)		
3					
4					
5					

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 08/05/2008
Date Completed: 08/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329700.709
Northing: 6243313.382
Elevation: 1.25

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Environmental Log: ABH249

Depth (m)	Method	Water	Description	Sample ID	Type
0–0.25	Direct Push		FILL: Grass over silty sand topsoil, dark brown, loose, moist with roots	080508-109-KW	Push Tube
0.25–0.8	Direct Push		FILL: Sand, pale brown, fine to medium grained, loose, dry to moist		
0.8–1.2	Direct Push		FILL: Silty sand, grey, fine grained, dense, moist with ash waste (black and white)	080508-110-KW	Push Tube
1.2–1.4	Direct Push		FILL: Silty clayey sand, dark grey, soft and moist	080508-111-KW	Push Tube
1.4–1.6	Direct Push	▼ (approx. 1.5)	FILL: Sand, grey with silt clay lenses, fine to medium grained and moist		
1.6–2.4	Direct Push		SILTY SAND: Silty clayey sand, dark grey, fine grained, wet. Saturated from 1.5-2.2m	080508-112-KW	Push Tube
2.4–2.8	Direct Push		SAND: Sand, pale grey, fine to medium grained, moderately dense and wet		
2.8			**EOH at 2.8mBGL (targeted depth)**		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 08/05/2008
Date Completed: 08/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC **Easting:** 329744.618

Project: ESA **Northing:** 6243326.767

Client: Boyd Cooks Cove **Elevation:** 1.28

Location: Cooks Cove - Area A

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Environmental Log: ABH250

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	WELL DETAIL
0	Direct Push		FILL: Grass over silty sand, dark brown, fine grained, loose and moist with roots	080508-113-KW	Push Tube		
			FILL: Sand, yellow, fine to medium grained, loose, dry to moist, shells, black gravels with trace silty clay lenses	080508-114-KW	Push Tube		
1			FILL: Ash waste layer, balck/white, wet from 0.9-1.1m				
		▼	FILL: Sailty sand, grey, fine grained, silty clay lenses and moist to wet				
			SILTY SAND: Silty clayey sand, fine grained, soft and wet. Saturated from 1.4-2.0m	080508-115-KW	Push Tube		
2			SAND: Sand, pale grey, fien to medium grained, moserately dense, wet with silt lenses				
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

FID/PID scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling **Date Commenced:** 08/05/2008

Drill Model: Mac200 **Date Completed:** 08/05/2008

Hole Diameter (mm): 50 **Logged/checked by:** K.Weir/L.Jenkins

Project ID: CES050706-BCC **Easting:** 329785.264

Project: ESA **Northing:** 6243325.035

Client: Boyd Cooks Cove **Elevation:** 1.28

Location: Cooks Cove - Area A

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Environmental Log: ABH251

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand topsiul, dark brown, fine grained, loose and moist with roots	080508-116-KW	Push Tube		
			FILL: Sand, yellow, fine to medium grained, loose, moist with shells and orange mottles				
1			FILL: Silty sand with trace clay, brown, firm and moist with roots	080508-117-KW	Push Tube		
		▼	FILL: Silty clay, brown, soft and moist				
			SILTY SAND: Silty sand with trace clay, saturated at 1.4-2.4m				
2							
			SAND: Sand, pale grey, fine to medium grained, dense and wet with trace silt				
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

FID/PID scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling **Date Commenced:** 08/05/2008

Drill Model: Mac200 **Date Completed:** 08/05/2008

Hole Diameter (mm): 50 **Logged/checked by:** K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329839.757
Northing: 6243324.867
Elevation: 0.93

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Environmental Log: ABH252

Depth (m)	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine to medium grained, moist with rootlets	080508-130-KW	Push Tube
			FILL: Sand, yellow, fine to medium grained, loose, shells and moist		
			FILL: Silty clay, dark brown, soft and moist	080508-131-KW	Push Tube
1			FILL: Sand, yellow, fine to medium grained, dense and moist with shells		
			FILL: Silty clay, dark brown, firm and moist	080508-132-KW	Push Tube
		▼	FILL: Silty sand, dark grey, fine to medium grained, dense and moist		
2			FILL: Silty clayey sand, brown/grey, fine grained, soft and wet from 1.4-2.1m		
			SILTY CLAY: Sand, pale grey, fine to medium grained, dense, moist to wet		
2.8			**EOH at 2.8mBGL (targeted depth)**		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50
Date Commenced: 08/05/2008
Date Completed: 08/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC **Easting:** 329882.049

Project: ESA **Northing:** 6243319.073

Client: Boyd Cooks Cove **Elevation:** 0.83

Location: Cooks Cove - Area A

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Environmental Log: ABH253

Depth	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, loose, moist with roots	080508-133-KW	Push Tube
			FILL: Sand, fine to medium grained, loose, moist with silt lenses		
			FILL: Silty clay, dark brown, soft and moist	080508-134-KW	Push Tube
			FILL: Sand, yellow, fine to medium grained, loose and moist		
1			FILL: Silty clay, dark brown, firm and moist		
		▼	FILL: Sand, yellow, fine to medium grained, loose and moist with shells		
			FILL: Silty clay, dark brown, soft and very moist		
			FILL: Silty sand, dark grey/brown, fine grained and moist		
2			SILTY SAND: Silty clayey sand, brown, fine grained, soft, moist to wet. Saturated from 1.5-2.4m	080508-135-KW	Push Tube
			SAND: Shells with pale grey sand		
			SAND: Sand, pale grey, fine to medium grained, dense and moist		
			EOH at 2.8mBGL (targeted depth)		
3					
4					
5					

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling **Date Commenced:** 08/05/2008

Drill Model: Mac200 **Date Completed:** 08/05/2008

Hole Diameter (mm): 50 **Logged/checked by:** K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329933.287
Northing: 6243310.216
Elevation: 0.82

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Environmental Log: ABH254

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		FILL: Grass over silty clay topsoil, trace sand, dark brown, firm, moist with roots and shells	080508-136-KW	Push Tube		
		▼	FILL: Sand, yellow, fine to medium grained, loose to moderately dense, moist with shells	080508-137-KW	Push Tube		
			FILL: Silty sand, dark grey, fine grained, dense and moist				
1			FILL: Silty sand, dark grey, soft and wet to 0.6m				
			FILL: Silty sand, dark grey/brown mottled silty clay lenses, soft and moist to wet				
			FILL: Sand yellow, fine to medium grained, dense, shells and moist				
2			SILTY SAND: Silty clayey sand, grey, soft and wet. Saturated from 1.5-2.0m then wet				
			SILTY SAND: Ilty sand with trace clay, grey, rootlets, dense and moist	080508-138-KW	Push Tube		
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 08/05/2008
Date Completed: 08/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329978.015
Project:	ESA	**Northing:**	6243308.488
Client:	Boyd Cooks Cove	**Elevation:**	0.77
Location:	Cooks Cove - Area A		

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Environmental Log: ABH255

Depth	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, dense, moist with roots	080508-139-KW	Push Tube
			FILL: Sand, yellow/pale brown, fine grained, danse with large shells		
			FILL: Silty clay, dark brown, firm and moist		
1			FILL: Sand, pale grey, fine to medium grained, loose to moderately dense, moist with silt lenses	080508-140-KW	Push Tube
			FILL: Silty clay, brown, soft and wet		
		▼	FILL: Silty sand, silty clay lenses throughout, dark grey, dense and moist to wet		
			SAND: Sand, pale grey, fine to medium grained, moist and dense		
2			SILTY SAND: Silty clayey sand, dark grey, soft and wet. Saturated from 1.5-2.1m		
			EOH at 2.8mBGL (targeted depth)		
3					
4					
5					

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company:	Macquarie Drilling	**Date Commenced:**	08/05/2008
Drill Model:	Mac200	**Date Completed:**	08/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329467.368
Northing: 6243267.568
Elevation: 1.04

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Environmental Log: ABH256

Depth (m)	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass over silty sand, brown, moist with roots	120508-264-KW	Push Tube
			FILL: Sand, pale brown, fine to medium grained, loose, moist with roots		
			FILL: Silty sand, dark brown, fine grained, dense and moist		
1		▼ (~1.5)	SAND: Sand, pale grey, fine to medium grained, moderately dane, silt lenses, Wet from 1.5-2.6m with slight H2S odour at 2.0m	120508-265-KW	Push Tube
2				120508-266-KW	Push Tube
			SILTY SAND: Silty sand, brown, fine grained, dense and moist		
2.8			**EOH at 2.8mBGL (targeted depth)**		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50
Date Commenced: 12/05/2008
Date Completed: 12/05/2008
Logged/checked by: K.Weir/L.Jenkins

Sheet: 1 of 1

Project ID:	CES050706-BCC	**Easting:**	329513.168
Project:	ESA	**Northing:**	6243272.842
Client:	Boyd Cooks Cove	**Elevation:**	1.65
Location:	Cooks Cove - Area A		

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Environmental Log: ABH257

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	WELL DETAIL
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine grained, loose, moist with roots	120508-254-KW	Push Tube		
			FILL: Silty sand with trace clay, dark brown, medium grained, dense, moist with roots and gravels at 0.4-0.5m	120508-255-KW	Push Tube		
1		▼	SAND: Sand, pale grey, medium grained, dense, moist to wet with silt lenses. Saturated from 1.4-2.2m				
2				120508-256-KW	Push Tube		
2.8			**EOH at 2.8mBGL (targeted depth)**				
3							
4							
5							

FID/PID scale: 0, 250, 500, 750

Drill Company:	Macquarie Drilling	**Date Commenced:**	12/05/2008
Drill Model:	Mac200	**Date Completed:**	12/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329554.256
Northing: 6243257.574
Elevation: 1.21

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Environmental Log: ABH258

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, fine grained, dense, moist with roots	120508-251-KW	Push Tube		
				FILL: Sand, brown, fine to medium grained, loose, moist with sandstone gravels				
1				FILL: Silty sand, dark brown, fine grained, very dense, and moist	120508-252-KW	Push Tube		
				FILL: Sand, pale brown, fine to medium grained, dense, moist with silt lenses				
		▼		SAND: Sand, pale grey, fine to medium grained, silt lenses, moist, trace clay from 1.5m. Saturated from 1.5-2.1m with H2S odour	120508-253-KW	Push Tube		
2				SAND: Sand, pale grey, fine to medium grained, dense and moist to wet				
3				**EOH at 2.8mBGL (targeted depth)**				
4								
5								

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 12/05/2008
Date Completed: 12/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329604.740
Northing: 6243280.712
Elevation: 1.21

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Environmental Log: ABH259

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)
0.00	Direct Push		FILL: Grass on silty sand topsoil, dark brown, loose and moist with roots	120508-248-KW	Push Tube	0
			FILL: Sand, brown, fine grained, moist, roots and silt inclusions			
			FILL: Sand, pale gray, fine grained, loose, moist with silt lenses	120508-249-KW	Push Tube	0
			FILL: Silty clay, brown/grey, soft and wet			
		▼	FILL: Sand, aple grey, fine to medium grained, dense and wet with shells, orange mottles and silt lenses			
			FILL: Silty clay, dark grey, soft and wet			
			SAND: Sand, pale grey, fine to medium grained, moist and loose	120508-250-KW	Push Tube	0
2.8			**EOH at 2.8mBGL (targeted depth)**			

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 12/05/2008
Date Completed: 12/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC	**Easting:** 329656.650	**CONSULTING EARTH SCIENTISTS**	
Project: ESA	**Northing:** 6243268.514		
Client: Boyd Cooks Cove	**Elevation:** 1.74	Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399	
Location: Cooks Cove - Area A	**Environmental Log:**	**ABH260**	

DRILLING INFO. / LITHOLOGY / SAMPLING INFORMATION / WELL DETAIL

Method: Direct Push (0 – 2.8 m)

Water: ▼ approx. 1.5 m

Depth (m)	Description	Sample ID	Type
0 – 0.3	FILL: Grass over silty sand topsoil, dark brown, dry, loose, roots with gravels	120508-243-KW	Push Tube
0.3 – 1.2	FILL: Sand, pale grey, fine grained, dry, loose, shells and moist from 1.0m	120508-246-KW	Push Tube
		120508-245-KW	Push Tube
1.2 – 1.8	FILL: Silty sand, layered orange/brown/grey with trace sand, moist, shells and wet from 1.5-1.8m	120508-247-KW	Push Tube
1.8 – 1.95	FILL: Silty clay, dark grey, soft and wet		
1.95 – 2.2	FILL: Silty sand, black, fine grained, roots, trace clay and moist		
2.2 – 2.4	SAND: Sand, pale grey, moderately dense and wet		
2.4 – 2.8	SAND: Sand, dark grey, silt lenses, fine grained, dense and moist		

EOH at 2.8mBGL (targeted depth)

FID/PID (ppm): 0, 250, 500, 750

Depth scale: 0, 1, 2, 3, 4, 5

Drill Company:	Macquarie Drilling	**Date Commenced:**	12/05/2008
Drill Model:	Mac200	**Date Completed:**	12/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Easting: 329700.965

Project: ESA
Northing: 6243271.449

Client: Boyd Cooks Cove
Elevation: 3.04

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Location: Cooks Cove - Area A

Environmental Log: ABH261

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass on silty sand topsoil, brown, loose and dry	120508-244-KW	Push Tube		
				FILL: Silty sand, dark grey/black, fine grained, dry to moist and loose				
				FILL: Sand, yellow, fine to medium grained, dry to moist, loose with sporadic shells				
1		▼			120508-241-KW	Push Tube		
2				FILL: Silty sand with trace clay, brown, soft, shells with pale grey sand, fine grained and wet				
				FILL: Silty clay, dark brown, dense and moist				
				FILL: Silty sand, dark brown, dense and moist	120508-242-KW	Push Tube		
3				SAND: Sand, grey, fine to medium grained, firm, moist with silt lenses. EOH at 2.8mBGL (targeted depth)				
4								
5								

Drill Company: Macquarie Drilling
Date Commenced: 12/05/2008

Drill Model: Mac200
Date Completed: 12/05/2008

Hole Diameter (mm): 50
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC	**Easting:** 329744.916		
Project: ESA	**Northing:** 6243270.357		
Client: Boyd Cooks Cove	**Elevation:** 1.53		
Location: Cooks Cove - Area A	**Environmental Log:** ABH262		

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DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0–0.25	Direct Push			FILL: Grass over sand topsoil, brown, dry and loose	120508-240-KW			
0.25–1.75		▼ (1.2)		FILL: Sand, yellow, fien to medium grained, loose dry with shells	120508-238-KW	Push Tube		
1.75–2.0				SAND: Sand, grey, silt lenses wet and shells	120508-239-KW	Push Tube		
2.0–2.3				SILTY CLAY: Silty clay, dark grey, soft and wet				
2.3–2.45				SILT: Silt, dark brown, soft and wet				
2.45–2.6				SILTY SAND: Silty clayey sand, dark brown, firm and moist				
2.6–2.8				SILTY SAND: Silty clayey sand, dark brown/grey and coal shells				
2.8				**EOH at 2.8mBGL (targeted depth)**				

Drill Company:	Macquarie Drilling	**Date Commenced:**	12/05/2008
Drill Model:	Mac200	**Date Completed:**	12/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329790.581
Project:	ESA	**Northing:**	6243269.523
Client:	Boyd Cooks Cove	**Elevation:**	0.56
Location:	Cooks Cove - Area A		

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Environmental Log: ABH263

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) (0, 250, 500, 750)	
0	Direct Push		FILL: Grass on sand topsoil, fine grained, dry, roots and loose	120508-235-KW	Push Tube	0	
			FILL: SAnd, yellow, fine grained, loose and dry. Medium grained with shells at 1.2m				
1				120508-236-KW	Push Tube	0	
		▼	FILL: Calyeye sandy silt, black, firm and moist				
2				120508-237-KW	Push Tube	0	
			FILL: Silty clay, dark brown, firm to stiff and moist				
			CLAYEY SAND: Clayey silty sand, dark grey, fine grained, dense, wet, dark grey with shells and H2S odour				
			SILTY SAND: Silty sand, pale grey, mostly shells				
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

Drill Company:	Macquarie Drilling	**Date Commenced:**	12/05/2008
Drill Model:	Mac200	**Date Completed:**	12/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329834.351
Northing: 6243275.328
Elevation: 1.15

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Environmental Log: ABH264

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, fine grained, roots, dry and loose	120508-232-KW	Push Tube		
				FILL: Sand, yellow, finr to medium grained, loose, dry with shells	120508-233-KW	Push Tube		
1		▼		SAND: Sand, greym fine to medium grained, loose, moist with silt lenses and H2S odour. Wet at 1.4m and saturated to 2.2m				
2				SILTY SAND: Silty clayay sand, brown/grey, soft and wet with shells at 2.7m	120508-234-KW	Push Tube		
3				**EOH at 2.8mBGL (targeted depth)**				
4								
5								

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 12/05/2008
Date Completed: 12/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329879.674
Project:	ESA	**Northing:**	6243269.251
Client:	Boyd Cooks Cove	**Elevation:**	0.98
Location:	Cooks Cove - Area A		

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Environmental Log: ABH265

Depth	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass over silty sand, dark brown, dense, moist, fine grained with roots and shells	120508-228-KW	Push Tube
			FILL: Sand, yellow, fine to medium grained, loose, moist with orange mottles and shells		
			FILL: Sand, pale grey, medium grained, dense, moist with shells and wet at 1.0m	120508-230-KW	Push Tube
1		▼	FILL: Silty clayey sand, dark grey, shells, medium grained and wet	120508-229-KW	Push Tube
			SAND: Sand with silt lenses, pale grey, medium grained, wet and dense		
			SILTY SAND: Silty clayey sand, dark grey, soft wet with shells at 2.5m	120508-231-KW	Push Tube
2					
			EOH at 2.8mBGL (targeted depth)		
3					
4					
5					

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company:	Macquarie Drilling	**Date Commenced:**	12/05/2008
Drill Model:	Mac200	**Date Completed:**	12/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329923.654

Northing: 6243270.129

Elevation: 0.89

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Environmental Log: ABH266

Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 / 250 / 500 / 750	WELL DETAIL
0	Direct Push (0–2.8)			FILL: Grass over sand silt, brown, fine grained, moist, loose with rootlets	120508-226-KW	Push Tube		
				FILL: Sand, yellow becoming pale grey, medium grained, moist with shells				
1				FILL: Sand, pale grey with orange mottling, moist to wet with shell layers				
		▼		SILTY SAND: Silty sand, grey, moist to wet, fine to medium grained with shells	120508-227-KW	Push Tube		
2				SILTY SAND: Silty clayey sand, dark brown/grey, wet, fine grained, H2S odour and shells. Saturated from 1.9 to 2.8m				
3				**EOH at 2.8mBGL (targeted depth)**				
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 12/05/2008

Date Completed: 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC **Easting:** 329967.925

Project: ESA **Northing:** 6243267.861

Client: Boyd Cooks Cove **Elevation:** 0.84

Location: Cooks Cove - Area A

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Environmental Log: ABH267

Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	WELL DETAIL
0	Direct Push			FILL: Grass over silty sandtopsoil, brown, fine to medium grained dry, rootlets and shells	120508-223-KW	Push Tube		
				FILL: Sand, pale grey/yellow, mediun grained, moist and loose with shells and roots	120508-224-KW	Push Tube		
1				FILL: Silty sand, black/dark brown, fine grained, moist to wet with organic odour	120508-225-KW	Push Tube		
		▼		SILTY SAND: Silty clayey sand, pale brown, fine grained, moist to wet with organic odour				
2				SAND: Sand, pale grey, medium grained, loose and wet with shells				
				SILTY SAND: Silty clayey sand, dark grey, soft and wet with organic odour				
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 12/05/2008

Date Completed: 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329593.088
Northing: 6243240.023
Elevation: 1.23

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Environmental Log: ABH268

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 / 250 / 500 / 750	WELL DETAIL
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, firm and moist with roots	120508-275-KW	Push Tube		
			FILL: Silty sand, brown, fine grained, moist and loose				
			FILL: Silty sand with trace clay, brown/grey, fine grained, moist, gravels and shells	120508-273-KW	Push Tube		
1			FILL: Sandstone, orange/grey, hard and moist				
			FILL: Clay, orange/brown/grey/red mottles, stiff with roots				
		▼	SILTY SAND: Silty clayey sand, dark grey, fine grained, firm, moist to wet	120508-274-KW	Push Tube		
2							
			SAND: Sand, pale grey, fine to medium grained, moderately dense and moist				
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 12/05/2008
Date Completed: 12/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC **Easting:** 329604.835

Project: ESA **Northing:** 6243226.073

Client: Boyd Cooks Cove **Elevation:** 1.78

Location: Cooks Cove - Area A

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Environmental Log: ABH269

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)
0 – 0.33	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine grained, dry and loose	130508-314-KW	Push Tube	
0.33 – 0.58			FILL: Sand, brown, fine grained, dry, loose with shells	130508-315-KW	Push Tube	
0.58 – 0.83			FILL: Silty sand, dark brown, moist, roots with organic odour			
0.83 – 1.08			FILL: Sand, yellow, fine to medium grained, loose to moderately dense			
1.08 – 1.33			FILL: Silty clay, dark brown, soft and moist	130508-316-KW	Push Tube	
1.33 – 1.58			FILL: Crushed sandstone, yellow/orange, moist and hard			
1.58 – 2.5		▼	SILTY SAND: Silty clayey sand, dark brown, wet, dense with slight H2S odour			
2.5 – 2.8			SILTY SAND: Silty sand, grey, fine to medium grained, silt lenses, dense and moist			
			EOH at 2.8mBGL (targeted depth)			

WELL DETAIL

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 13/05/2008

Date Completed: 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329651.860

Northing: 6243217.683

Elevation: 1.77

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Environmental Log: ABH270

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0 – 0.3	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine grained, moist, loose with roots	130508-311-KW	Push Tube	0	
0.3 – 1.6	Direct Push	Water at ~1.4	FILL: Sand, yellow, fine to medium grained, loose, moist with numerous shells. Wet at 1.5m				
1.6 – 1.9	Direct Push		FILL: Sand, pale grey, fine to medium grained, moderately dense, wet with trace shells	130508-312-KW	Push Tube	0	
1.9 – 2.2	Direct Push		FILL: Silty clay, dark brown, soft and wet				
2.2 – 2.5	Direct Push		FILL: Silty sand, dark brown/black, fine grained, moist with rootlets and trace clay				
2.5 – 2.7	Direct Push		SILTY SAND: Silty clayey sand, dark brown, fine grained, wet and soft	130508-313-KW	Push Tube	0	
2.7 – 2.8	Direct Push		SILTY SAND: Silty sand, dark grey, fine grained, dense, moist with rootlets				

EOH at 2.8mBGL (targeted depth)

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 13/05/2008

Date Completed: 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329701.581
Project:	ESA	**Northing:**	6243235.471
Client:	Boyd Cooks Cove	**Elevation:**	2.04
Location:	Cooks Cove - Area A		

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Environmental Log: ABH271

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		FILL: Grass over sandy topsoil, brown, fine to medium, dry, loose with roots	130508-308-KW	Push Tube		
			FILL: Silty sand, pale brown, dry and loose				
			FILL: Sand, yellow, fine grained, dry, loose with shells	130508-309-KW	Push Tube		
1			FILL: Sand, pale grey, fine to medium grained, dry grading to moist with depth, shells and loose				
		▼					
			FILL: Silty sand with trace clay, dark grey, fine to medium grained, numerous shells. Silty clay lenses	130508-310-KW	Push Tube		
2			FILL: Silty clayey sand, dark grey, fine grained, wet to saturated				
			FILL: Silty sand, dark brown, firm, moist to wet				
			FILL: Silty bsand, dark grey/black, fine grained and wet				
			FILL: Silty clay, dark brown, wet and dense				
3			SAND: Sand, grey, medium to course grained, wet with silt lenses. EOH at 2.8mBGL (targeted depth)				
4							
5							

Drill Company:	Macquarie Drilling	**Date Commenced:**	13/05/2008
Drill Model:	Mac200	**Date Completed:**	13/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329748.078
Northing: 6243224.958
Elevation: 2.32

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Environmental Log: ABH272

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)
0	Direct Push		FILL: Grass over sand, pale brown, fine to medium grained, dry, loose with roots. Charcoal fragments andmetal pieces	130508-305-KW	Push Tube	0
			FILL: Bark, brown and dry	130508-304-KW	Push Tube	
			FILL: Clay, orange/red/grey, stiff, dry with rootlets			
1			FILL: Silty, sand, dark brown, fine grained, dry to moist with rootlets			
			FILL: Silty clay, dark brown, dry to moist, soft with shells			
		▼	FILL: Sand, pale grey, fine to medium grained, moderately dense, moist to wet with shells and orange mottles			
2			FILL: Silty clayey sand, dark grey, fine to medium grained, soft and wet			
			FILL: Sandy silt, dark grey, soft and wet	130508-307-KW	Push Tube	0
			FILL: Silty clay, dark brown, soft and wet			
			SILTY SAND: Silty clayey sand, dark grey, fine to medium grained, wet and soft			
3			**EOH at 2.8mBGL (targeted depth)**			
4						
5						

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 13/05/2008
Date Completed: 13/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329799.533

Northing: 6243215.432

Elevation: 1.66

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Environmental Log: ABH273

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, brown, fine grained, dry and loose with roots	130508-292-KW	Push Tube		
				FILL: Sand, aple brown, fine grained, dry and loose with roots and shells				
				FILL: Sand, yellow/pale grey with orange mottles and trace silts and several shells. Fine grained and moist	130508-294-KW	Push Tube		
1					130508-293-KW	Push Tube		
		▼						
2				SAND: Sand, pale grey, fine to medium grained, moderately dense and wet with shells				
				SILTY CLAY: Silty clay, dark brown, soft and wet				
				SILTY SAND: Silty clayey sand, dark grey, wet and dense. EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 13/05/2008

Date Completed: 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329843.486
Project:	ESA	**Northing:**	6243214.480
Client:	Boyd Cooks Cove	**Elevation:**	2.05
Location:	Cooks Cove - Area A		

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Environmental Log: ABH274

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 / 250 / 500 / 750	
0	Direct Push		FILL: Grass over silty sand topsoil, brown, dry, fine grained with rootlets	130508-289-KW	Push Tube		
			FILL: Crushed sandstone, orange/brown, course grained with clay and moist	130508-290-KW	Push Tube		
			FILL: Sand, dark brown, fine to medium grained, loose and moist				
1		▼	SAND: Sand, pale grey, fine to medium grained, loose, moist with shells. Saturated from 1.4-2.5m				
2				130508-291-KW	Push Tube		
			CLAYEY SILT: Clayey silt, dark brown, firm and wet				
			SILTY CLAY: Silty clay, dark brown, soft and moist				
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

Drill Company:	Macquarie Drilling	**Date Commenced:**	13/05/2008
Drill Model:	Mac200	**Date Completed:**	13/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Sheet: 1 of 1

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329883.398

Northing: 6243214.269

Elevation: 1.36

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Environmental Log: ABH275

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand, brown, fine grained, loose, moist with roots	130508-285-KW	Push Tube		
				FILL: Sand, pale brown, fine to medium grained, loose, dry to moist, shells with orange mottles and roots				
				FILL: Sand, yellow, fine to medium grained, moderately turbid, dense, large shells and moist	130508-288-KW	Push Tube		
1								
		▼		SAND: Sand, pale grey, fine to medium grained, shells and moist	130508-287-KW	Push Tube		
					130508-286-KW	Push Tube		
2				SILTY CLAY: Silty clay, dark grey, very soft and wet				
				SILTY SAND: Silty clayey sand, dark grey, dense, moist, with shells at 2.7-2.8m				
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 13/05/2008

Date Completed: 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329929.395
Northing: 6243205.442
Elevation: 1.81

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Environmental Log: ABH276

Depth	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass over silty sand, topsoil, dark brown, loose and dry with rootlets	130508-282-KW	Push Tube
			FILL: Sand, brown, fine to medium grained, gravels and ash (black/grey/white), dry to moist and loose		
				130508-283-KW	Push Tube
1			FILL: Sand, pale grey, fine grained, moderately dense, moist with shells		
		▼	FILL: Sand, orange, fine grained, dense and moist	130508-284-KW	Push Tube
			FILL: Sand, yellow, medium grained, moderately dense, moist and shells		
2			SAND: Sand, pale grey, fine to medium grained and moderately dense		
			SILTY SAND: Silty clayey sand, dark grey, soft and moist with organic odour		
			EOH at 2.8mBGL (targeted depth)		
3					
4					
5					

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 13/05/2008
Date Completed: 13/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329968.774
Project:	ESA	**Northing:**	6243234.696
Client:	Boyd Cooks Cove	**Elevation:**	0.96
Location:	Cooks Cove - Area A		

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Environmental Log: ABH277

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown/black, fine grained, loose and moist with roots	130508-279-KW	Push Tube		
			FILL: Sand, yellow, fine to medium grained, loose and moist with shells and rootlets	130508-278-KW	Push Tube		
			FILL: Sand, yellow and pale grey with trace silt and large shells. Moist, medium grained and loose				
1		▼	FILL: Sandy clayey silt, dark brown/black, strong H2S odour	130508-280-KW	Push Tube	0	
			FILL: Silty sand, dark grey, moist with rootlets, shells and strong H2S odour				
2			FILL: Silty clayey sand, fine grained, dark brown, soft and saturated with H2S odour	130508-281-KW	Push Tube	0	
			FILL: Silty clay, dark brown/grey, soft and moist with large shells and H2S odour				
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

FID/PID (ppm) scale: 0, 250, 500, 750

Drill Company:	Macquarie Drilling	**Date Commenced:**	13/05/2008
Drill Model:	Mac200	**Date Completed:**	13/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 330013.553
Northing: 6243235.996
Elevation: 0.89

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Environmental Log: ABH278

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, soft, fine grained and moist	120508-276-KW	Push Tube		
				FILL: Sand, yellow grading to pale brown, fine to medium grained, moderately dense and moist				
				FILL: Silty sand with trace clay, dark grey. Mostly shells	120508-277-KW	Push Tube		
1				FILL: Silty sand, grey, fine to medium grained, moderately dense and moist with shells				
		▼		FILL: Sand, pale grey, medium grained, moist to wet with large shells				
				FILL: Clayey silt, dark brown, soft and moist to wet				
2				FILL: Sand, pale grey, medium grained, wet with shells				
				FILL: Clayey silt, dark brown/black and wet				
				SILTY SAND: Silty sand with trace clay, dark grey, wet with slight H2S odour				
3				**EOH at 2.8mBGL (targeted depth)**				
4								
5								

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 13/05/2008
Date Completed: 13/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC	**Easting:** 329709.653		
Project: ESA	**Northing:** 6243160.286		
Client: Boyd Cooks Cove	**Elevation:** 2.58		

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Location: Cooks Cove - Area A

Environmental Log: ABH279

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over sandy topsoil, dark brown, loose, dry with roots	130508-319-KW	Push Tube		
			FILL: Sand, dark brown, fine grained, dry with gravels and clay				
1			FILL: Sand and silt layers, brown, grey with shells	130508-320-KW	Push Tube		
		▼	SAND: Sand, pale grey, medium grained, wet, dense with trace silt and shells	130508-321-KW	Push Tube		
2							
			SAND: Sand, grey, medium grained and wet				
			CLAYEY SILT: Clayey silt, dark grey, firm and moist. EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

FID/PID scale: 0, 250, 500, 750

Drill Company:	Macquarie Drilling	**Date Commenced:**	13/05/2008
Drill Model:	Mac200	**Date Completed:**	13/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329745.044

Northing: 6243167.894

Elevation: 2.87

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Environmental Log: ABH280

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		FILL: Grass over sandy topsoil, brown, fine to medium grained, dry and loose	130508-299-KW	Push Tube		
			FILL: Sand, brown, fine to medium grained, dry to moist and loose				
			FILL: Clay, brown/grey/orange mottles, gravels and very stiff	130508-300-KW	Push Tube		
1			FILL: Sand, pale grey, fine to medium grained, dry and loose with shells				
		▼	FILL: Crushed sandstone, white/pink, dry and hard				
			UNKNOWN: Core loss				
2			SAND: Sand, pale grey, fine to medium grained, loose, moist with shells				
			SILTY SAND: Silty sand, grey, fine to medium grained, moist, shells, silt lenses with shells and H2S odour	130508-301-KW	Push Tube		
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 13/05/2008

Date Completed: 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329789.418
Northing: 6243190.974
Elevation: 1.85

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Environmental Log: ABH281

Depth (m)	Method	Water	Description	Sample ID	Type
0 – 0.6	Direct Push		FILL: Grass over unknown due to core loss	130508-302-KW	Push Tube
0.6 – 1.3	Direct Push		FILL: Sand, yellow, fine to medium grained, loose, moist with shells. Silt lenses at 0.9m		
1.3 – 2.05	Direct Push	▼	FILL: Silty sand, fine to medium grained, loos and moist to wet. Grading through brown/grey/yellow and grey. Wet from 1.4m	130508-303-KW	Push Tube
	Direct Push		FILL: Silty clay, dark grey, soft and wet		
	Direct Push		FILL: Silty sand, dark grey, fine to medium grained, wet, moderately dense with shells and trace clay		
	Direct Push		FILL: Sandy clayey silt, black, moderately dense and wet		
	Direct Push		FILL: Silty clay, dark brown/grey, soft and moist		
– 2.8	Direct Push		FILL: Silty clayey sand, fine grained, dark brown, dense and moist. EOH at 2.8mBGL (targeted depth)		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 13/05/2008
Date Completed: 13/05/2008
Logged/checked by: K.Weir/L.Jenkins

Sheet: 1 of 1

Project ID: CES050706-BCC | **Easting:** 329825.352

Project: ESA | **Northing:** 6243184.501

Client: Boyd Cooks Cove | **Elevation:** 1.35

Location: Cooks Cove - Area A

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Environmental Log: ABH282

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, moist with rootlets	130508-296-KW	Push Tube		
				FILL: Sand, pale brown, fine to medium grained, loose and moist with shells				
				FILL: Sand, yellow, fine to medium grained, loose and moist with shells				
1				FILL: Sand, dark grey, fine to medium grained, loose and moist with shells				
				FILL: Sand, pale grey, with dark brown, fine to course grained, moderately dense and moist with silt lenses, orange mottles and shells	130508-297-KW	Push Tube		
		▼		SAND: Sand, pale grey, medium grained, moderately dense and wet at 1.5m				
2				SAND: Shell layer				
				SILTY SAND: Silty clayey sand, grey, moist and soft	130508-298-KW	Push Tube		
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 13/05/2008

Date Completed: 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Sheet: 1 of 1

Project ID: CES050706-BCC **Easting:** 329888.702

Project: ESA **Northing:** 6243165.119

Client: Boyd Cooks Cove **Elevation:** 1.59

Location: Cooks Cove - Area A

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Environmental Log: ABH283

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty clayey sand topsoil, dark brown, firm, dry to moist with roots and charcoal	150508-381-KW	Push Tube		
				FILL: Sand, pale brown, fine grained, loose and dry to moist	150508-382-KW	Push Tube		
				FILL: Sand, pale yellow, grading to grey, fine to medium grained, loose and moist. Wet at 1.5m				
1								
		▼						
				SAND: Sand, pale grey, medium grained, moderately dense and wet with shells	150508-383-KW	Push Tube		
2								
				SILTY CLAY: Silty clay, dark brown, firm and wet				
				SILTY SAND: Silty sand, grey, medium grained and wet				
				SILTY CLAY: Silty clay, dark grey, firm and wet. EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 15/05/2008

Date Completed: 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329927.212

Northing: 6243176.201

Elevation: 1.76

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Environmental Log: ABH284

Depth (m)	Method	Water	Description	Sample ID	Type
0.00	Direct Push		FILL: Grass over silty top soil, dark brown, firm, dry with roots	150508-384-KW	Push Tube
			FILL: Sand, yellow, fine grained, loose and dry		
			FILL: Silty clay, dark brown, firm and dry		
			FILL: Sand, yellow, fine to medium grained, orange mottles,shells and wet from 1.4m	150508-387-KW	Push Tube
		▼ (approx. 1.5)			
			SAND: Sand, grey, medium grained, moderately dense and wet	150508-386-KW	Push Tube
				150508-385-KW	Push Tube
			SILTY SAND: Silty clayey sand, dark brown, soft and wet with shells	150508-388-KW	Push Tube
2.8			**EOH at 2.8mBGL (targeted depth)**		

FID/PID (ppm): 0 250 500 750

WELL DETAIL

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 15/05/2008

Date Completed: 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329971.624
Project:	ESA	**Northing:**	6243183.325
Client:	Boyd Cooks Cove	**Elevation:**	1.74
Location:	Cooks Cove - Area A		

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Environmental Log: ABH285

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)
0–0.2	Direct Push		FILL: Bark over silty sand topsoil, dark brown, dry, loose with roots	150508-389-KW	Push Tube	
0.2–0.6			FILL: Silty clay, dark brown, firm and dry			
0.6–1.9		Water level ~1.5 m	FILL: Sand, pale grey with orange mottles and shells, fine to medium grained, loose to dense and moist. Wet at 1.4m	150508-390-KW	Push Tube	
1.9–2.4			SILTY SAND: Silty clayey sand, fien grained, dark brown and wet			
2.4–2.8			SILTY SAND: Silty sand, dark grey with trace clay and wet			
2.8			**EOH at 2.8mBGL (targeted depth)**			

FID/PID (ppm) scale: 0, 250, 500, 750

WELL DETAIL

Drill Company:	Macquarie Drilling	**Date Commenced:**	15/05/2008
Drill Model:	Mac200	**Date Completed:**	15/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 330001.417
Northing: 6243192.728
Elevation: 1.44

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Environmental Log: ABH286

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)
0 – 0.33	Direct Push		FILL: Grass on silty sand topsoil with trace clay, dark brown, moist, roots and gravels	150508-391-KW	Push Tube	0
0.33 – 1.2	Direct Push		FILL: Sand, yellow, fine to medium grained, dry, loose, shells and orange mottles. Ash at 0.3m	150508-392-KW	Push Tube	0
1.2 – 2.0	Direct Push	▼ (approx. 1.3)	FILL: Sand, grey, fine to medium grained, moiost, shells, loose with orange mottles and wet at 1.3m			
2.0 – 2.3	Direct Push		FILL: Silty clayey sand, dark brown, wet and soft			
2.3 – 2.6	Direct Push		SILTY SAND: Silty sand, grey, fine to medium grained, moderatley dense, wet with rootlets	150508-394-KW	Push Tube	0
2.6 – 2.8	Direct Push		SILTY SAND: Silty clayey sand, dark grey, soft, moist to wet with shells.	150508-393-KW	Push Tube	
2.8			EOH at 2.8mBGL (targeted depth)			

FID/PID (ppm) scale: 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 15/05/2008
Date Completed: 15/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329802.345

Northing: 6243164.287

Elevation: 1.88

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Environmental Log: ABH287

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty topsoil, brown, fine grained, dry, loose with rootlets	150508-379-KW	Push Tube		
0.5			FILL: Sand, pale grey, silt lenses and orange mottles, shells, fine to medium grained, moist at depth and wet from 1.3m	150508-378-KW	Push Tube		
1.6		▼ (~1.3)		150508-380-KW	Push Tube		
1.9			SILTY SAND: Silty sand, dark grey, firm, fine to medium grained, wet with shells and silt lenses				
2.55			SILTY SAND: Silty clay, dark brown and moist				
2.8			**EOH at 2.8mBGL (targeted depth)**				

FID/PID scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 15/05/2008

Date Completed: 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329838.139
Project:	ESA	**Northing:**	6243142.892
Client:	Boyd Cooks Cove	**Elevation:**	1.53
Location:	Cooks Cove - Area A		

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Environmental Log: ABH288

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine grained, moist and rootlets	150508-373-KW	Push Tube		
			FILL: Sand, pale grey, fine to medium grained, loose and moist with shells	150508-374-KW	Push Tube		
1			FILL: Silty clay, brown/grey mottled, firm and dry to moist				
		▼	FILL: Sand, pale grey with orange mottles, fine to medium grained, moist and dense with shells				
			FILL: Sand, orange, medium grained, wet and loose				
2			SILTY SAND: Silty sand, medium grained, wet with shells				
			SILTY CLAY: Silty clay, dark brown, soft and moist	150508-375-KW	Push Tube		
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

FID/PID (ppm) scale: 0, 250, 500, 750

Drill Company:	Macquarie Drilling	**Date Commenced:**	15/05/2008
Drill Model:	Mac200	**Date Completed:**	15/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329888.068

Northing: 6243145.122

Elevation: 1.88

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Environmental Log: ABH289

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty clay topsoil, dark brown, moist with rootlets	150508-371-KW	Push Tube		
					150508-370-KW	Push Tube		
1		▼		FILL: Sand, pale grey/orange mottles, fine to medium grained, moderately dense, moist with shells. Wet at 1.4m				
2					150508-372-KW	Push Tube		
				SANDY CLAY: Sandy silty clay, dark brown, firm and moist				
				SILTY SAND: Silty clayey sand, dark brown, firm and moist with shells and roots				
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 15/05/2008

Date Completed: 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329924.715

Northing: 6243131.849

Elevation: 1.87

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Environmental Log: ABH290

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand, topsoil, dark brown, firm with trace clay	150508-358-KW	Push Tube		
			FILL: Crushed sandstone, course grained, orange and dry				
			FILL: Silty sand, dark brown, fine grained and dry				
			FILL: Silty clay, dark brown, firm and dry				
1			FILL: Sand, pale, grey, fine to medium grained, dry and dense with shells and orange mottles				
		▼	FILL: Silty clay, dark brown, firm and dry	150508-359-KW	Push Tube		
			FILL: Sand, pale grey, medium grained, orange mottles, moist with shells				
2			SAND: Sand, pale grey, fine to medium grained, dense and wet with shells				
			SILTY CLAY: Silty clay, dark brown, soft and moist				
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

FID/PID scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 15/05/2008

Date Completed: 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329972.055
Northing: 6243136.666
Elevation: 2.52

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Environmental Log: ABH291

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, firm and moist	150508-354-KW	Push Tube		
				FILL: Sand, pale brown, fine to medium grained, loose to dense, dry to moist with sandstone gravels	150508-353-KW	Push Tube		
					150508-352-KW	Push Tube		
1				FILL: Silty clayey sand, brown, soft and moist with shells				
				FILL: Sand, pale grey, fine to medium grained, moist and loose	150508-355-KW	Push Tube		
				FILL: Silt clay, dark brown, firm and moist				
2		▼		FILL: Sand, pale grey, medium grained, dense and wet with shells				
				FILL: Ash waste, black/white, loose and wet	150508-356-KW	Push Tube		
3				SILTY SAND: Silty clayey sand, dark grey, soft and wet				
4				SAND: Sand with trace clay, brown, fine grained and moist to wet	150508-357-KW	Push Tube		
				EOH at 4.2mBGL (targeted depth)				
5								

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 15/05/2008
Date Completed: 15/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329795.443
Northing: 6243093.234
Elevation: 1.88

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Environmental Log: ABH292

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		FILL: Grass over silty sand topsoil, brown, fine to medium grained, moist and loose.				
			FILL: Sand, yellow, fine to medium grained, moist and loose with ash gravels at 0.8-0.9m				
1			FILL: Clayey silt, brown/orange mottles, dense and moist	130508-325-KW	Push Tube		
			FILL: Silty sand, yellow, fine to medium grained, with shells and as gravels	130508-326-KW	Push Tube		
		▼	FILL: Silty clay, grey/brown, dense and moist with orange mottles				
			FILL: Sand, pale grey, medium grained, moist and loose with shells. Saturated form 1.4-1.6m	130508-327-KW	Push Tube		
2			FILL: Silty sand, grey, dense and moist with shells				
			FILL: Clayey silt, grey dense and moist with shells				
			FILL: Clayey silt with trace sands, black, dense and moist with ash wast, glass and gravels. Refusal on sandstone fill at 1.9mBGL				
3							
4							
5							

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 13/05/2008
Date Completed: 13/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC **Easting:** 329831.892

Project: ESA **Northing:** 6243084.592

Client: Boyd Cooks Cove **Elevation:** 1.91

Location: Cooks Cove - Area A

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Environmental Log: ABH293

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over sand topsoil, dark brown and moist with rootlets				
				FILL: Crushed sandstone (white/brown), brown with silt, clay and ash at 0.4-0.5m	130508-328-KW	Push Tube		
				FILL: Silty clay, brown/orange, moist, firm with charcoal and gravels				
1				FILL: Crushed sandstone, orange, course grained and moist				
				FILL: Silty sand, brwon/grey with charcoal	130508-329-KW	Push Tube		
		▼		FILL: Sand, pale grey, fine to medium grained with silt lenses and shells. Wet at 1.4m				
2				SILTY CLAY: Silty clay, dark grey, firm and moist with shells	130508-330-KW	Push Tube		
				SILT: Silt, black, fine grained and firm				
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 13/05/2008

Date Completed: 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329858.669
Northing: 6243120.087
Elevation: 1.70

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Environmental Log: ABH294

Depth (m)	Method	Water	Description	Sample ID	Type
0–0.25	Direct Push		FILL: Grass over silty sand, dark brown, moist and roots	150508-367-KW	Push Tube
0.25–0.5	Direct Push		FILL: Silty clayey sand, dark brown, gravels, firm and moist with shells		
0.5–1.4	Direct Push	▼ (approx. 1.4)	FILL: Silty clay, brown/grey, firm and dry with rootlets	150508-368-KW	Push Tube
1.4–2.0	Direct Push		FILL: Sand, grey, silty, fine to medium grained with shells and wet from 1.4m		
2.0–2.2	Direct Push		FILL: silty clay, dark grey, soft and wet	150508-369-KW	Push Tube
2.2–2.5	Direct Push		SAND: Sand, grey, silty, medium grained and wet with shells		
2.5–2.8	Direct Push		SILTY CLAY: Silty clay, dark grey, soft and wet		

EOH at 2.8mBGL (targeted depth)

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50
Date Commenced: 15/05/2008
Date Completed: 15/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329741.167
Project:	ESA	**Northing:**	6243137.961
Client:	Boyd Cooks Cove	**Elevation:**	2.02
Location:	Cooks Cove - Area A		

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Environmental Log: ABH295

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, fine grained, dry and loose with roots	130508-324-KW	Push Tube		
				FILL: Sand, yellow, fine to medium grained, loose and dry with shells. Moist at 1.4m. Wet at 1.6m with silt lenses	130508-322-KW			
1					130508-323-KW	Push Tube		
		▼						
2				FILL: Silty clay, dark grey, firm and moist				
				FILL: Sand, pale grey, medium grained, wet and dense				
				FILL: Silty clay, dark grey, firm and moist				
				SAND: Silty sand, dark grey, moist, dense with slight H2S odour				
3				**EOH at 2.8mBGL (targeted depth)**				
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	13/05/2008
Drill Model:	Mac200	**Date Completed:**	13/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329442.022
Northing: 6243279.278
Elevation: 1.42

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Environmental Log: ABH296

Depth (m)	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass over silty topsoil, dark brown, dense and moist with roots	120508-261-KW	Push Tube
			FILL: Sand, pale brown, fine grained, loose and dry	120508-262-KW	Push Tube
			FILL: Silty sand, dark brown, fine grained, dense and moist		
1.2		▼ (~1.5)	SAND: Sand, pale grey, fine to medium grained, loose to moderately dense, moist with trace silt lenses and roots	120508-263-KW	Push Tube
2.8			**EOH at 2.8mBGL (targeted depth)**		

DRILLING INFO. | LITHOLOGY | SAMPLING INFORMATION | FID/PID (ppm) 0 250 500 750 | WELL DETAIL

Depth scale: 0, 1, 2, 3, 4, 5

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 12/05/2008
Date Completed: 12/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329954.741

Northing: 6243567.285

Elevation: 1.82

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Environmental Log: ABH297

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0–1.3	Direct Push			ASPHALT: Bitumen	090508-166-KW	Push Tube		
				FILL: Sand, dark brown, fine to medium grained, loose and dry with gravels and shell fragments	090508-164-KW			
				FILL: Sand, yellow, fine grained, loose, dry and odourless	090508-165-KW	Push Tube		
				FILL: Silty sand, dark grey, fine grained, loose, dry and odourless	090805-166-KW	Push Tube		
				SANDSTONE: Sanstone, yellow/white/orange, course grained, moist and odourless. Refusal on sandstone bedrock at 1.3mBGL	090508-181-KW	Push Tube		

Depth scale: 0, 1, 2, 3, 4, 5

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 09/05/2008

Date Completed: 09/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329957.270
Project:	ESA	**Northing:**	6243565.596
Client:	Boyd Cooks Cove	**Elevation:**	1.97
Location:	Cooks Cove - Area A		

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Environmental Log: ABH298

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)
0	Direct Push		ASPHALT: Bitumen			
			FILL: Sand, brown, fine to medium grained, looseand dry with gravels, shells and trace clay	090508-167-KW	Push Tube	
			FILL: Silty sand, dark brown, fine grained, dry, loose and odourless			
1			FILL: Sand, yellow, fine to medium grained, loose and dry.	090508-184-KW	Push Tube	
			EOH at 1.5mBGL (targeted depth)			

FID/PID (ppm) scale: 0, 250, 500, 750. WELL DETAIL.

Drill Company:	Macquarie Drilling	**Date Commenced:**	09/05/2008
Drill Model:	Mac200	**Date Completed:**	09/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329956.887

Northing: 6243568.981

Elevation: 1.86

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Environmental Log: ABH299

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			ASPHALT: Bitumen				
				FILL: Sand, brown, fine to medium grained, loose, dry with gravels, shells and charcoal	090508-168-KW	Hand Auger		
				FILL: Sand, grey/brown, fine grained, loose, dry to moist and odourless	090508-169-KW	Hand Auger		
1				FILL: Sand, yellow, fine grained, dense, dry and odourless	090508-170-KW	Hand Auger		
				FILL: Silty sand, dark grey, fine grained, dry, loose and odourless	090508-182-KW	Push Tube		
				FILL: Sandstone, yellow/orange, course grained and moist. Refusal on sandstone at 1.5mBGL	090508-183-KW	Push Tube		
2								
3								
4								
5								

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

Date Commenced: 09/05/2008

Date Completed: 09/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329957.565
Northing: 6243566.232
Elevation: 2.16

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Environmental Log: ABH2100

DRILLING INFO.	LITHOLOGY	SAMPLING INFORMATION		
Method: Auger Solid Flight (0–6.5 m)	**Description**	**Sample ID**	**Type**	
	ASPHALT: Bitumen	090508-171-KW	Hand Auger	
	FILL: Sand, brown, fine grained, loose, dry, gravesl, brick, blue metal, sheells and odourless	090508-172-KW	Hand Auger	
	FILL: Sand, grey, fine grained, dry and odourless			
	FILL: Sand, yellow/grey, fine grained, dry, loose and odourless	090508-173-KW	Hand Auger	
	FILL: Silty sand, dark grey, fine grained, loose and dry	090508-180-KW	Push Tube	
	SANDSTONE: Orange/yellow sandstone, fine grained and dry	090508-179-KW	Push Tube	
	SANDSTONE: Sandstone, white and moist			
	EOH at 6.5mBGL (targeted depth)			

Columns: Depth (0–7 m), Method, Water, Symbol, Description, Sample ID, Type, FID/PID (ppm) 0 / 250 / 500 / 750, WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 75
Date Commenced: 21/05/2008
Date Completed: 21/05/2008
Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC	**Easting:** 329960.173		
Project: ESA	**Northing:** 6243565.265		
Client: Boyd Cooks Cove	**Elevation:** 2.16		
Location: Cooks Cove - Area A	**Environmental Log:**	**ABH2101**	

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DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			ASPHALT: Bitumen				
				FILL: Sand, brown, fine grained, loose, dry with gravels and blue metals	090508-174-KW	Hand Auger		
				FILL: Sand, grey, fine grained, loose dry and odourless	090508-175-KW	Hand Auger		
				FILL: Sand, yellow/brown, fine grained, loose, dry and odourless	090508-176-KW	Hand Auger		
1				FILL: Silt sand, dark brown, fine grained, dry, loose and odourless				
				SANDSTONE: Weathered sandstone, white/orange, moist and odourless	090508-177-KW	Push Tube		
				EOH at 1.7mBGL (refusal on sandstone bedrock)	090508-178-KW	Push Tube		
2								
3								
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	09/05/2008
Drill Model:	Mac200	**Date Completed:**	09/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329960.984
Northing: 6243570.536
Elevation: 2.16

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Environmental Log: ABH2102

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		ASPHALT: Bitumen and blue metal				
			FILL: Crushed sandstone fill, pale brown/orange, course grained, sandstone gravels, loose and dry	090508-185-KW	Push Tube		
			FILL: Sand, grey/brown, loose and dry with black gravels				
			FILL: Crushed brick, red. hard and dry	090508-186-KW	Push Tube		
1			FILL: Sand, pale brown, fine grained, moderately dense dry				
			FILL: Silty sand, dark brown, fine grained, moderately dense and dry				
		▼	FILL: Sand, yellow/pale brown, medium grained and dry to moist				
			FILL: Silty sand with trace clay, dark brown/grey. Wet at 1.6m	090508-187-KW	Push Tube		
2			FILL: Sand, pale grey with silt lenses and wet. Refusal on sandstone at 2.0mBGL				
3							
4							
5							

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 09/05/2008
Date Completed: 09/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329920.146
Project:	ESA	**Northing:**	6243581.574
Client:	Boyd Cooks Cove	**Elevation:**	
Location:	Cooks Cove - Area A		

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Environmental Log: ABH2103

Depth (m)	Method	Water	Description	Sample ID	Type
0 – 0.1	Direct Push		ASPHALT: Bitumen		
0.1 – 1.0	Direct Push		FILL: Sand, brown, fine grained, loose, dry to moist with gravels and shells. Terracota at 0.3m. Moist with orange mottles at 0.9m and gravels	090508-195-KW	Hand Auger
				090508-194-KW	Hand Auger
				090508-196-KW	Hand Auger
1.0 – 2.5	Direct Push	▼ (approx. 1.3m)	FILL: Sand, grey with silt lenses, fine to medium grained, wet from 1.4m. Saturated from 1.4-2.8m	090508-197-KW	Hand Auger
				090508-199-KW	Push Tube
2.5 – 2.8	Direct Push		FILL: Silty clayey sand, brown, soft and saturated with several shells	090508-201-KW	Push Tube
			EOH at 2.8mBGL (targeted depth)		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company:	Macquarie Drilling	**Date Commenced:**	09/05/2008
Drill Model:	Mac200	**Date Completed:**	09/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329920.146
Northing: 6243581.574
Elevation: 1.89

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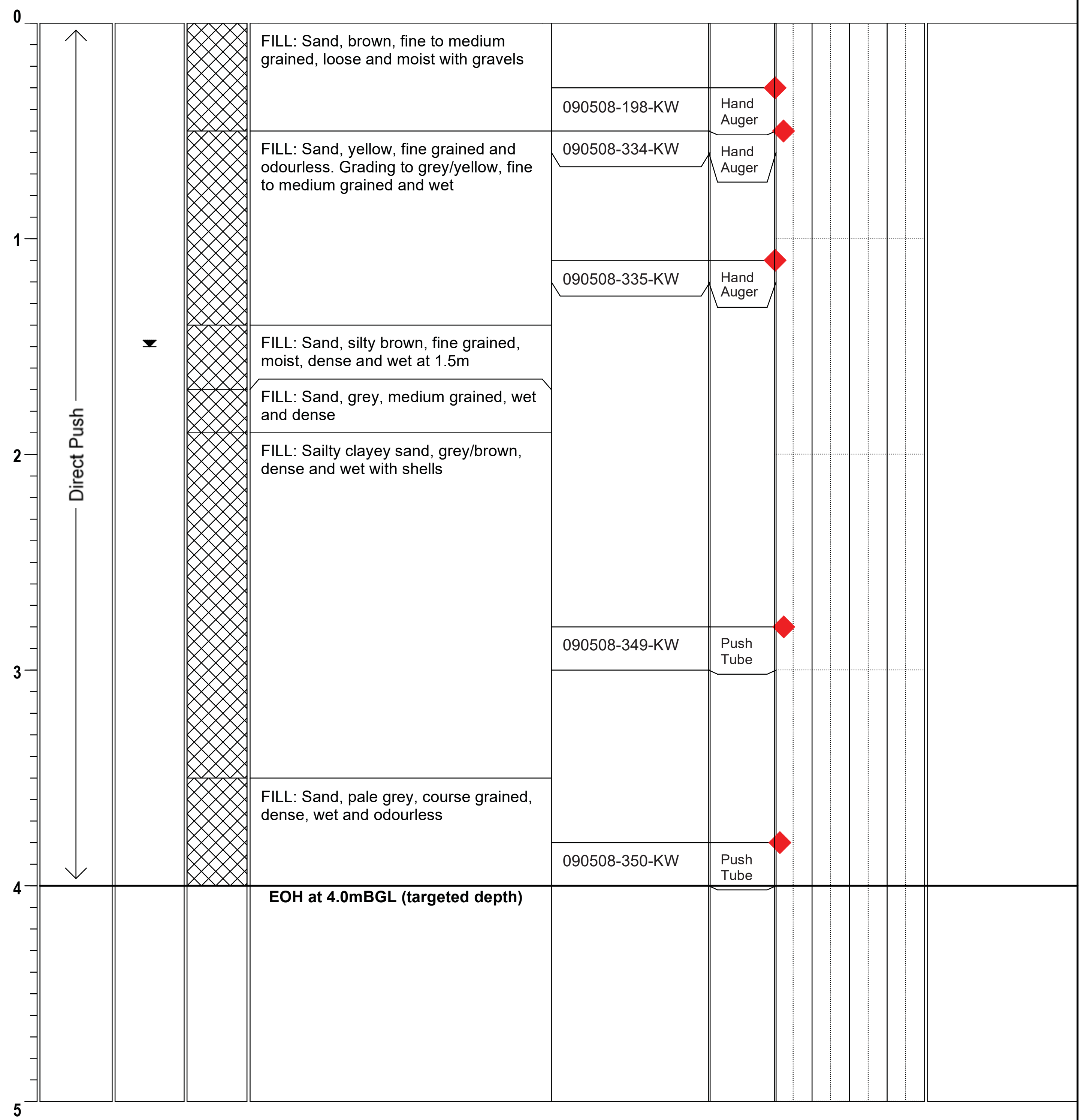
Environmental Log: ABH2104

Depth (m)	Method	Water	Description	Sample ID	Type
0–0.5	Direct Push		FILL: Sand, brown, fine to medium grained, loose and moist with gravels	090508-198-KW	Hand Auger
0.5–1.4	Direct Push		FILL: Sand, yellow, fine grained and odourless. Grading to grey/yellow, fine to medium grained and wet	090508-334-KW	Hand Auger
				090508-335-KW	Hand Auger
1.4–1.65	Direct Push	▼	FILL: Sand, silty brown, fine grained, moist, dense and wet at 1.5m		
1.65–1.9	Direct Push		FILL: Sand, grey, medium grained, wet and dense		
1.9–3.5	Direct Push		FILL: Sailty clayey sand, grey/brown, dense and wet with shells	090508-349-KW	Push Tube
3.5–4.0	Direct Push		FILL: Sand, pale grey, course grained, dense, wet and odourless	090508-350-KW	Push Tube
4.0			**EOH at 4.0mBGL (targeted depth)**		



Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 09/05/2008
Date Completed: 09/05/2008
Logged/checked by: K.Weir/L.Jenkins

Sheet: 1 of 1

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329916.377
Northing: 6243589.938
Elevation: 1.98

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Environmental Log: ABH2105

Depth (m)	Method	Water	Lithology Description	Sample ID	Type	FID/PID (ppm)
0	Direct Push		FILL: Gravels			
			FILL: Clayey sand, orange/grey, course grained, odourless and moist, large boulder rocks, sandstone and concrete. Very strong, hydrocarbon odour from 1m	150508-323-KW	Hand Auger	
1.4		▼	UNKNOWN: Core loss	150508-333-KW	Hand Auger	
2.8			SAND: Sand grey, fine to medium grained, saturated, hydrocarbon odour and loose	150508-346-KW	Push Tube	
3.8			SAND: Brown sand, fine to medium grained with no odour	150508-600-KW	Solid Flight Auger	
4			**EOH at 4.0mBGL (targeted depth)**			

FID/PID scale: 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 75

Date Commenced: 15/05/2008
Date Completed: 15/05/2008
Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329905.057
Northing: 6243586.237
Elevation: 2.25

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Environmental Log: ABH2106

Depth	Method	Water	Description	Sample ID	Type	WELL DETAIL
0	Direct Push		ASPHALT: Bitumen			
			FILL: Silty brown topsoil, fine grained and moist	090508-204-KW	Push Tube	
			FILL: Sand, brown, loose, moist with shells and gravels			
1			FILL: Brick, yellow sandstone and moist			
		▼	FILL: Sand, yellow, medium grained, moderately dense with shells and moist. Saturated at 2.0m	090508-205-KW	Push Tube	
2			FILL: Sand, grey, medium grained, moderately dense with shells and moist. Saturated at 2.0m			
			FILL: Silty clay, grey, soft and wet with H2S odour	090508-206-KW	Push Tube	
3			**EOH at 2.8mBGL (targeted depth)**			
4						
5						

FID/PID (ppm): 0, 250, 500, 750

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 09/05/2008
Date Completed: 09/05/2008
Logged/checked by: K.Weir/L.Jenkins

Project ID:	CES050706-BCC	**Easting:**	329919.941
Project:	ESA	**Northing:**	6243590.875
Client:	Boyd Cooks Cove	**Elevation:**	
Location:	Cooks Cove - Area A		

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Environmental Log: ABH2107

Depth	Method	Water	Description	Sample ID	Type
0	Direct Push		CONCRETE: Concrete		
			FILL: Silty sand topsoil, fine to medium grained, moist and odourless with gravels	150508-339-KW	Hand Auger
			FILL: Sand, brown/grey, fine to medium grained, gravels and odourless	150508-340-KW	Hand Auger
1			FILL: Rocks, sand, grey becoming brown, moist to wet with strong hydrocarbon odour and surface sheen.	150508-341-KW	Hand Auger
		▼		150508-342-KW	Hand Auger
			EOH at 1.6mBGL due to access restrictions		

Drill Company:	Macquarie Drilling	**Date Commenced:**	15/05/2008
Drill Model:	Mac200	**Date Completed:**	15/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329921.010
Northing: 6243586.932
Elevation:

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Environmental Log: ABH2108

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			CONCRETE: Concrete	150508-343-KW	Hand Auger		
				FILL: Sand, yellow, fine grained, most to dry. Rocks at 0.3m				
				FILL: Silty sand, dark brown, fine grained with trace clay, moist with slight HC odour	150508-344-KW	Hand Auger		
1				FILL: Very strong Hydrocarbon odour	150508-345-KW	Hand Auger		
		▼		FILL: Silty sand, dark grey, fine to medium grained, wet with shells and hydrocarbon odour				
2								
3					150508-347-KW	Push Tube		
4				SAND: Sand, pale grey, silty lenses, odourless and moist	150508-348-KW	Push Tube		
				EOH at 4.5mBGL (targeted depth)				
5								

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 50

Date Commenced: 15/05/2008
Date Completed: 15/05/2008
Logged/checked by: K.Weir/L.Jenkins

Sheet: 1 of 1

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329905.057
Northing: 6243586.237
Elevation: 2.25

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Environmental Log: ABH2109

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0–0.1	Direct Push (0–3.0)		FILL: Gravels and roadbase	150508-336-KW	Hand Auger		
0.1–1.0			FILL: Silty sand, dark brown, fine to medium grained, moist and odourless	150508-337-KW	Hand Auger		
1.0–1.2			FILL: Sand, grey, fine to medium grained, moist and odourless	150508-338-KW	Hand Auger		
1.2–2.6		▼ (1.4)	FILL: Sand, pale grey, fien to medium grained, dense, odourless and wet at 1.4m				
2.6–3.0			SILTY SAND: Silty sand, grey, fine to medium grained, moist and dense	150508-351-KW	Push Tube		
3.0			**EOH at 3.0mBGL (targeted depth)**				

Drill Company:	Macquarie Drilling	**Date Commenced:**	15/05/2008
Drill Model:	Mac200	**Date Completed:**	15/05/2008
Hole Diameter (mm):	50	**Logged/checked by:**	K.Weir/L.Jenkins

Project ID: CES050706-BCC	**Easting:** 329956.998		
Project: ESA	**Northing:** 6243565.240		
Client: Boyd Cooks Cove	**Elevation:** 1.9		
Location: Cooks Cove - Area A	**Environmental Log:** ABH2110		

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DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		ASPHALT: Bitumen				
			FILL: Sand, brown, fine grained, loose, dry, gravesl, brick, blue metal, sheells and odourless				
			FILL: Sand, grey, fine grained, dry and odourless				
1			FILL: Sand, yellow/grey, fine grained, dry, loose and odourless				
			FILL: Silty sand, dark grey, fine grained, loose and dry				
			SANDSTONE: Orange/yellow sandstone, fine grained and dry				
2			**EOH at 2.0mBGL (targeted depth)**				
3							
4							
5							

Drill Company:	Macquarie Drilling	**Date Commenced:**	21/05/2008
Drill Model:	Mac200	**Date Completed:**	21/05/2008
Hole Diameter (mm):	75	**Logged/checked by:**	Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	329464.951
Project:	ESA	**Northing:**	6243255.406
Client:	Boyd Cooks Cove	**Elevation:**	1.09
Location:	Cooks Cove - Area A		

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Environmental Log: ALG201

Depth (m)	Method	Water	Description	Sample ID	Type
0	Auger Solid Flight		FILL: Grass over silty sand topsoil, dark brown, moist, roots and fine grained		
			FILL: Sand, brown, fine to medium grained, moist, loose with roots and trace silt	120508-267-KW	Push Tube
			FILL: Silty sand, brown, fine grained, dense and moist	120508-268-KW	Push Tube
1		▼ (approx. 1.5)	SAND: Sand, pale grey, fine to medium grained, moderately dense with silt lenses. Saturated from 1.5-2.6m. H2S odour at 2.0m	120508-269-KW	Push Tube
			SAND: Silty sand, brown, fine grained, dense and moist		
2.8			**EOH at 2.8mBGL (targeted depth)**		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company:	Macquarie Drilling	**Date Commenced:**	12/05/2008
Drill Model:	Mac200	**Date Completed:**	12/05/2008
Hole Diameter (mm):	75	**Logged/checked by:**	Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	329556.712
Project:	ESA	**Northing:**	6243218.788
Client:	Boyd Cooks Cove	**Elevation:**	1.68
Location:	Cooks Cove - Area A		

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Environmental Log: ALG202

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Auger Solid Flight			FILL: Grass over silty sand topsoil, fine grained with roots				
				FILL: Sand, pale brown, fine grained, dry and loose with sandstone fragments (white), minor coal fragments. Orange/red mottles	120508-270-KW	Push Tube		
1				FILL: Clay, red/brown/orange/grey mottles, coal fragments, pebbles and dry to moist	120508-272-KW	Push Tube		
					120508-271-KW	Push Tube		
		▼		FILL: Silty sand, fine to medium grained, loose and wet . Saturated from 1.5-2.0m				
				FILL: Silty clay, brown, moist and soft				
2				SILTY SAND: Silty sand, pale grey, dense and moist with silt lenses				
				EOH at 2.8mBGL (targeted depth)				
3								
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	12/05/2008
Drill Model:	Mac200	**Date Completed:**	12/05/2008
Hole Diameter (mm):	75	**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329702.791

Northing: 6243184.299

Elevation: 1.98

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Environmental Log: ALG203

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Auger Solid Flight		FILL: Grass over silty sand topsoil, dark brown, fine grained, dry to moist	130508-317-KW	Push Tube		
			FILL: Silty sand, dark brown, fine grained, dense and dry to moist				
			FILL: Silty sand, yellow, fine grained, moist and loose				
			FILL: Sand, yellow, medium grained, loose, moist with shells and silt lenses, orange mottles and wet at 1.5m	130508-318-KW	Push Tube		
1							
		▼					
			FILL: Sand, grey, fine to medium grained, moderately dense, wet with shells				
2			FILL: Silty clay, dark brown, moist and soft				
			SILTY SAND: Silty sand, dark brown/grey, moist and soft				
			EOH at 2.8mBGL (targeted depth)				
3							
4							
5							

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 75

Date Commenced: 12/05/2008

Date Completed: 12/05/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC **Easting:** 329801.119

Project: ESA **Northing:** 6243134.358

Client: Boyd Cooks Cove **Elevation:** 1.54

Location: Cooks Cove - Area A

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Environmental Log: ALG204

Depth	Method	Water	Description	Sample ID	Type
0	Auger Solid Flight		FILL: Grass over silty clay topsoil, dark brown, moist with roots	150508-376-KW	Push Tube
			FILL: Sand, yellow, fine to medium grained, loose, dry, shells. Wet at 1.4m		
		▼ (1.5)	FILL: Sand, grey, fine to medium grained, wet and dense	150508-377-KW	Push Tube
			FILL: Silty clay, dark grey, firm to moist and wet		
2			FILL: Sand, grey, fine to medium grained, wet and dense		
			FILL: Silty clay, dark brown, firm and wet. Slight H2S odour		
			FILL: Siltyb sand, dark brown, dense and moist		
			FILL: Silty clay, dark brown, firm and moist		
3			FILL: Silt, dark grey, trace clay, firm, moist with shells. EOH at 2.8mBGL (targeted depth)		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 75

Date Commenced: 15/05/2008

Date Completed: 15/05/2008

Logged/checked by: Jenkins/Weir

Sheet: 1 of 1

Project ID:	CES050706-BCC	**Easting:**	329892.571
Project:	ESA	**Northing:**	6243104.247
Client:	Boyd Cooks Cove	**Elevation:**	2.49
Location:	Cooks Cove - Area A		

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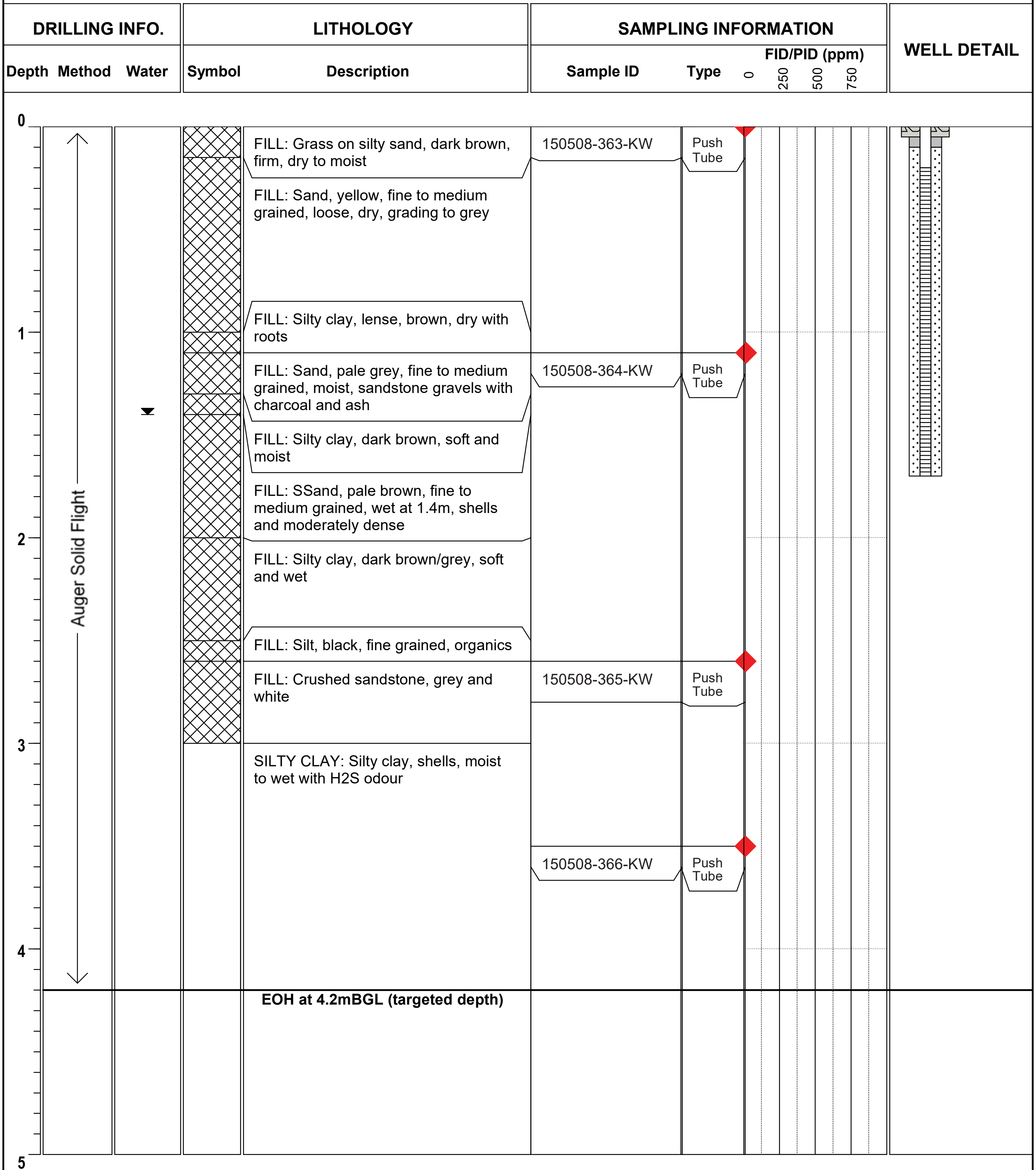
Environmental Log: ALG205

Depth (m)	Method	Description	Sample ID	Type
0	Auger Solid Flight	FILL: Grass on silty sand, dark brown, firm, dry to moist	150508-363-KW	Push Tube
		FILL: Sand, yellow, fine to medium grained, loose, dry, grading to grey		
		FILL: Silty clay, lense, brown, dry with roots		
1		FILL: Sand, pale grey, fine to medium grained, moist, sandstone gravels with charcoal and ash	150508-364-KW	Push Tube
		FILL: Silty clay, dark brown, soft and moist		
		FILL: SSand, pale brown, fine to medium grained, wet at 1.4m, shells and moderately dense		
2		FILL: Silty clay, dark brown/grey, soft and wet		
		FILL: Silt, black, fine grained, organics		
		FILL: Crushed sandstone, grey and white	150508-365-KW	Push Tube
3		SILTY CLAY: Silty clay, shells, moist to wet with H2S odour	150508-366-KW	Push Tube
4.2		**EOH at 4.2mBGL (targeted depth)**		



Drill Company:	Macquarie Drilling	**Date Commenced:**	15/05/2008
Drill Model:	Mac200	**Date Completed:**	15/05/2008
Hole Diameter (mm):	75	**Logged/checked by:**	Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	329967.076
Project:	ESA	**Northing:**	6243101.231
Client:	Boyd Cooks Cove	**Elevation:**	1.75
Location:	Cooks Cove - Area A		

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Environmental Log: ALG206

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0.0–0.2	Auger Solid Flight		FILL: Grass over silty sand topsoil, dark brown, dry with roots				
0.2–1.0	Auger Solid Flight		FILL: Sand, yellow, fine grained, dense, moist, grading to pale grey with silt lenses				
1.0–1.4	Auger Solid Flight	▼	FILL: Silty clay, dark brown, soft and moist				
1.4–2.1	Auger Solid Flight		FILL: Sandy silty clay, dark brown, soft and wet at 1.4m. Becoming grey at 1.9m				
2.1–2.4	Auger Solid Flight		FILL: Silty clay, dark grey, firm and moist				
2.4–2.6	Auger Solid Flight		SAND: Sand, pale grey, medium grained, dense, wet with shells				
2.6–2.8	Auger Solid Flight		SILTY SAND: Silty sand with trace clay, dark brown/grey, soft and moist				

EOH at 2.8mBGL (targeted depth)

Drill Company:	Macquarie Drilling	**Date Commenced:**	15/05/2008
Drill Model:	Mac200	**Date Completed:**	15/05/2008
Hole Diameter (mm):	75	**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC

Project: ESA

Client: Boyd Cooks Cove

Location: Cooks Cove - Area A

Easting: 329456.755

Northing: 6243292.819

Elevation: 1.15

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Environmental Log: AMW201

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	

Method: Auger Solid Flight (0 – 2.8 m)

Description
FILL: Grass over silty sand topsoil, dark brown, moist with roots
FILL: Sand, pale brown, fine grained, moderately dense, moist with gravels
FILL: Silty clayey sand, brown, fine grained, moist and very dense
FILL: Sand, pale grey, fine to medium grained, loose and moist
FILL: Silty sand, dark brown, fine grained, trace clay, dense and moist
SAND: Sand, pale grey, fine to medium grained, moist with silt lenses
EOH at 2.8mBGL (targeted depth)

Sample ID	Type
120508-257-KW	Push Tube
120508-260-KW	Push Tube
120508-259-KW	Push Tube
120508-258-KW	Push Tube

Depth scale: 0, 1, 2, 3, 4, 5

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 75

Date Commenced: 12/05/2008

Date Completed: 12/05/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 329693.146
Northing: 6243513.796
Elevation: 1.37

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Environmental Log: AMW202

Depth (m)	Method	Water	Description	Sample ID	Type
0–0.3	Auger Solid Flight		FILL: Grass over silty sand topsoil, dark brown, fine grained, loose with roots	070508-65-KW	Push Tube
0.3–0.65	Auger Solid Flight		FILL: Silty sand, pale brown, fine grained, dense, moist with sandstone gravels, tiles and no odour	070508-66-KW	Push Tube
0.65–0.9	Auger Solid Flight		FILL: Silty clayey sand, brown/orange, moist, dense with no odour		
0.9–2.8	Auger Solid Flight	▼ (approx. 1.5)	SAND: Sand, dark grey grading to pale grey with depth, fine to medium grained, ,oist and dense with trace silt. Saturated from 1.5-1.8m. H2S odour		
2.8			**EOH at 2.8mBGL (targeted depth)**		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 75

Date Commenced: 07/05/2008
Date Completed: 07/05/2008
Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	329961.734
Project:	ESA	**Northing:**	6243611.832
Client:	Boyd Cooks Cove	**Elevation:**	1.97
Location:	Cooks Cove - Area A		

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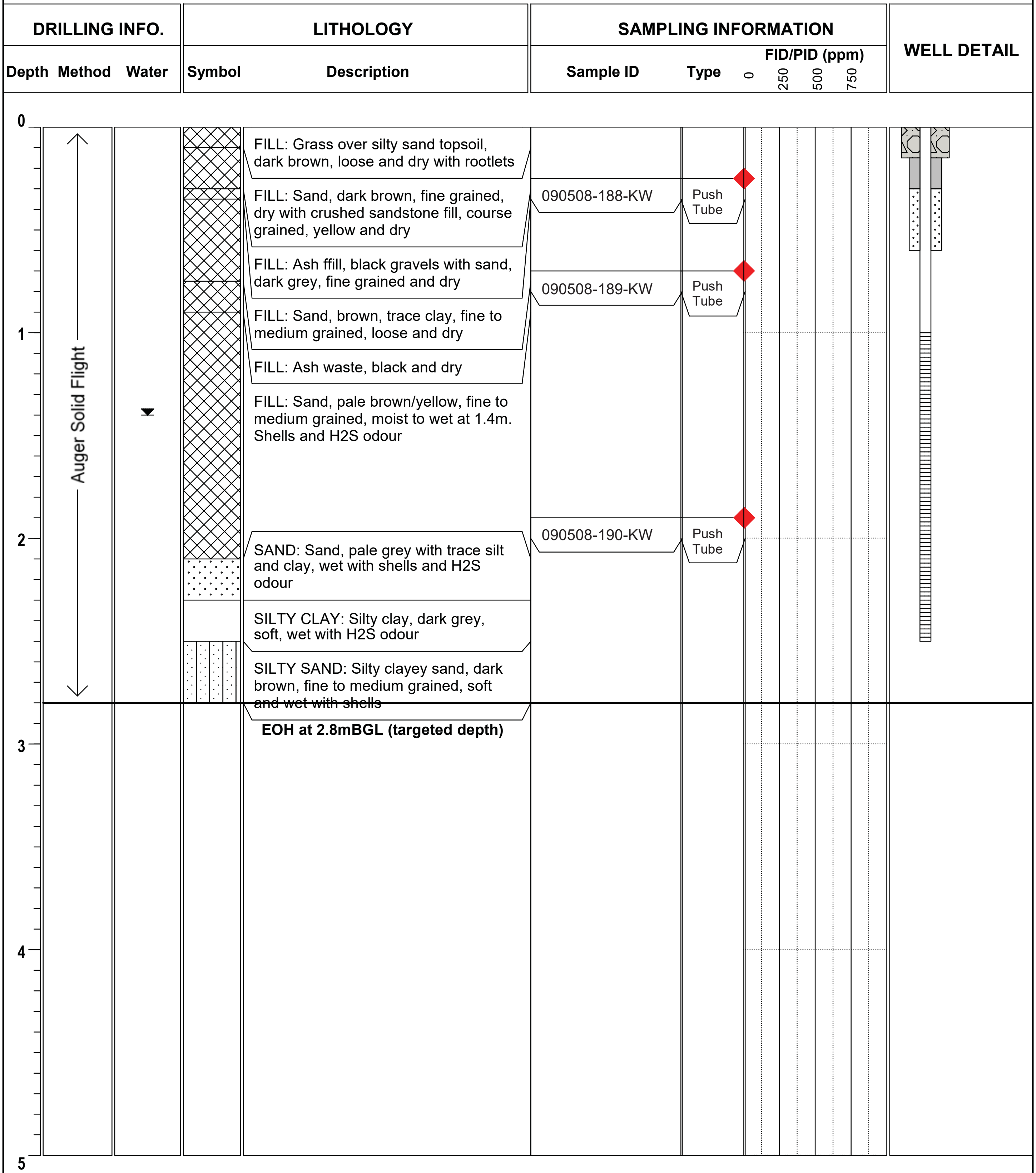
Environmental Log: AMW203



Description
FILL: Grass over silty sand topsoil, dark brown, loose and dry with rootlets
FILL: Sand, dark brown, fine grained, dry with crushed sandstone fill, course grained, yellow and dry
FILL: Ash ffill, black gravels with sand, dark grey, fine grained and dry
FILL: Sand, brown, trace clay, fine to medium grained, loose and dry
FILL: Ash waste, black and dry
FILL: Sand, pale brown/yellow, fine to medium grained, moist to wet at 1.4m. Shells and H2S odour
SAND: Sand, pale grey with trace silt and clay, wet with shells and H2S odour
SILTY CLAY: Silty clay, dark grey, soft, wet with H2S odour
SILTY SAND: Silty clayey sand, dark brown, fine to medium grained, soft and wet with shells
EOH at 2.8mBGL (targeted depth)

Sample ID	Type
090508-188-KW	Push Tube
090508-189-KW	Push Tube
090508-190-KW	Push Tube

Drill Company:	Macquarie Drilling	**Date Commenced:**	09/05/2008
Drill Model:	Mac200	**Date Completed:**	09/05/2008
Hole Diameter (mm):	75	**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC **Easting:** 329812.026

Project: ESA **Northing:** 6243339.925

Client: Boyd Cooks Cove **Elevation:** 1.21

Location: Cooks Cove - Area A

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Environmental Log: AMW204

Depth (m)	Method	Water	Description	Sample ID	Type
0	Auger Solid Flight		FILL: Grass over silty sand top soil, dark brown, fine grained, loose, dry to moist with roots	080508-118-KW	Push Tube
			FILL: Sand, yellow, fine to medium grained, loose grading to dense with depth, dry to moist with depth and shells		
1			FILL: Silty clay, brown, soft and moist	080508-119-KW	Push Tube
			FILL: Silty sand, dark grey/black, rootlets, fine grained and moist		
		▼	FILL: Sand, pale grey, fine to medium grained, moderately dense, moist with silt lenses		
2			SILTY SAND: Silty clayey sand, brown/grey, wet from 1.4-2.4m		
			SAND: Sand, grey, fine to medium grained, dense and wet	080508-120-KW	Push Tube
2.8			**EOH at 2.8mBGL (targeted depth)**		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 75

Date Commenced: 09/05/2008

Date Completed: 09/05/2008

Logged/checked by: Jenkins/Weir

Sheet: 1 of 1

Project ID:	CES050706-BCC	**Easting:**	329962.633
Project:	ESA	**Northing:**	6243424.415
Client:	Boyd Cooks Cove	**Elevation:**	0.78
Location:	Cooks Cove - Area A		

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Environmental Log: AMW205

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Auger Solid Flight			FILL: Grass over silty sand top soil, dark brown, firm, moist with rootlets	080508-155-KW	Push Tube		
				FILL: Sand, yellow, fine to medium grained, loose to moderate density and moist				
				FILL: Sand, pale grey, fine to medium grained, loose and moist	080508-156-KW	Push Tube		
1				FILL: Silty clay, brown, firm and moist				
				FILL: Silty sand, brown grading to grey, fine to medium grained, dense and moist				
		▼		FILL: Silty clayey sand, saturated from 1.4 to 2.0m. Brown and stiff				
2				SAND: Sand, pale grey, fine grained, dense and wet with shells. Refusal at 2.2mBGL on sandstone	080508-157-KW	Push Tube		
				EOH at 2.2mBGL (refusal on sandstone bedrock)				
3								
4								
5								

Drill Company:	Macquarie Drilling	**Date Commenced:**	08/05/2008
Drill Model:	Mac200	**Date Completed:**	08/05/2008
Hole Diameter (mm):	75	**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC **Easting:** 329965.424

Project: ESA **Northing:** 6243103.057

Client: Boyd Cooks Cove **Elevation:** 1.80

Location: Cooks Cove - Area A

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Environmental Log: AMW206

Depth (m)	Method	Water	Description	Sample ID	Type
0 – 0.2	Auger Solid Flight		FILL: Grass over silty sand topsoil, dark brown, dry with roots		
0.2 – 1.0	Auger Solid Flight		FILL: Sand, yellow, fine grained, dense, moist, grading to pale grey with silt lenses	150508-361-KW	Push Tube
				150508-360-KW	Push Tube
1.0 – 1.4	Auger Solid Flight	▼ (~1.4)	FILL: Silty clay, dark brown, soft and moist		
1.4 – 2.1	Auger Solid Flight		FILL: Sandy silty clay, dark brown, soft and wet at 1.4m. Becoming grey at 1.9m	150508-362-KW	Push Tube
2.1 – 2.4	Auger Solid Flight		FILL: Silty clay, dark grey, firm and moist		
2.4 – 2.6	Auger Solid Flight		SAND: Sand, pale grey, medium grained, dense, wet with shells		
2.6 – 2.8	Auger Solid Flight		SILTY SAND: Silty sand with trace clay, dark brown/grey, soft and moist		

EOH at 2.8mBGL (targeted depth)

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 75

Date Commenced: 15/05/2008

Date Completed: 15/05/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC
Project: ESA
Client: Boyd Cooks Cove
Location: Cooks Cove - Area A

Easting: 330009.173
Northing: 6243281.985
Elevation: 1.71

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Environmental Log: AMW207

Depth (m)	Method	Water	Description	Sample ID	Type
0–0.3	Auger Solid Flight		FILL: Silty sand top soil, brown, dry, loose with rootlets. Ash at 0.2m		
0.3–1.0	Auger Solid Flight		FILL: Sand fill, fine to medium grained, alternating sand layers. Dark brown/grey/pale brown/grey. Slightly moist with minor ash throughout fill. Metal shavings at 0.6m	120508-218-KW	Push Tube
				120508-219-KW	Push Tube
1.0–1.6	Auger Solid Flight	▼ (approx. 1.5m)	FILL: Sandy clay to clayey sand, pale brown/orange to dark brown, moist and dense with ash gravels at 1.4-1.5m	120508-220-KW	Push Tube
1.6–1.8	Auger Solid Flight		FILL: Clayey sand, grey/brown, wet, fine to medium grained		
1.8–2.0	Auger Solid Flight		FILL: Silty clay, dark brown and wet, soft with H2S odour	120508-221-KW	Push Tube
2.0–2.5	Auger Solid Flight		FILL: Clayey sand, brown, wet, fine to medium grained, silt layers with H2S odour		
2.5–2.8	Auger Solid Flight		FILL: Silty clay, dark grey, soft and wet with shells	120508-222-KW	Push Tube
2.8			**EOH at 2.8mBGL (targeted depth)**		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model: Mac200
Hole Diameter (mm): 75

Date Commenced: 12/05/2008
Date Completed: 12/05/2008
Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC
Easting: 6243578.389
Project: Cooks Cove
Northing: 329982.604
Client: Boyd Cook Cove
Elevation:
Location: Cooks Cove

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Environmental Log: BBH401

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			ASPHALT: Bitumen surface				
				FILL: Sand, medium grained, white/brown, dry and odourless	280408-01-KW	Push Tube		
				FILL: Crushed red brick, hard, dry				
				FILL: Sand, white/pale brown, loose, possible thin peat with shells grading to dark brown/grey. Moist at 1.2m	280408-02-KW	Push Tube		
1					280408-03-KW	Push Tube		
				SANDY SILT: Sandy clay silt, dark grey, organics, some shells, dense and wet	280408-04-KW	Push Tube		
2				SAND: Sand, white/light grey, shell content, some dark grey silt lenses (potenially peat), wet and dense				

Drill Company: Macquarie Drilling
Date Commenced: 28/04/2008
Drill Model:
Date Completed: 28/04/2008
Hole Diameter (mm):
Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC	**Easting:** 6243477.126		
Project: Cooks Cove	**Northing:** 330007.791		
Client: Boyd Cook Cove	**Elevation:**		
Location: Cooks Cove			

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Environmental Log: BBH402

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over sandy clay topsoil, brown, roots, dry and loose	280408-05-KW	Push Tube		
			FILL: Clayey sand, orange/brown, ash, sandstone fragments (pink/white)				
			FILL: Gravelly sand fill, brown, loose, dry to moist, ash (black) with sandstone fragments	280408-06-KW	Push Tube		
			FILL: Sand, light to dark brown, moderately dense, fine to medium grained, coal/ash (small air bubbles) at 0.8-0.9m. Dry to moist	280408-07-KW	Push Tube		
			FILL: White crushed sandstone				
1			FILL: Sand, dark brown, organic/shell content. Very dense, fine grained with sandstone				
			FILL: Silty sand, trace clay, black/dark brown, shells with organic odour. Very dense, fine grained and moist	280408-08-KW	Push Tube		
			FILL: Fractured sandstone, white and dry				
2			FILL: Sand, brown, loose, fine to medium grained with shells				
			FILL: Silty clay, brown, moist and plastic				
			FILL: Sandy clay, black, dense, fine grained, moist and wet at 2.5m, shells and organic odour. Refusal on sandstone fill				

FID/PID scale: 0, 250, 500, 750

Drill Company:	Macquarie Drilling	**Date Commenced:**	28/04/2008
Drill Model:		**Date Completed:**	28/04/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting: 6243347.165
Northing: 330025.068
Elevation:

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Environmental Log: BBH403

Depth (m)	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass over silty sand topsoil, brown with rootlets	280408-10-KW`	Push Tube
			FILL: Sand, yellow/orange, trace clay, fine grained, dry to moist gravels, dense		
			FILL: Becoming dark brown, shells at 0.7m	280408-11-KW	Push Tube
			SAND: Sand, light grey, moist to wet, fine to medium grained, loose		
1			SAND: Becoming dark grey, silty clay lenses, organic odour	280408-14-KW	Push Tube
			SILTY SAND: Silty clay sand, dark grey, oganic odour and inclusions, wet at 2.3m	280408-13-KW	Push Tube
				280408-12-KW	Push Tube
2			SAND: Sand, light grey, medium grained, loose and wet		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 28/04/2008
Date Completed: 28/04/2008
Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC

Project: Cooks Cove

Client: Boyd Cook Cove

Location: Cooks Cove

Easting: 6243231.781

Northing: 330048.383

Elevation:

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Environmental Log: BBH404

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		FILL: Grass over sand, light grey, fine to medium grained, moist with shells, rootlets and gravels	280408-15-KW	Push Tube		
			FILL: Dark brown, silty clayey sand, fine grained and moist				
			FILL: Clay, light grey with red ironstone gravels				
			FILL: Dark brown, silty sand, fine grained, gravels, organic odour, moist and dense	280408-16-KW	Push Tube		
			FILL: Sandstone, white/orange, crushed				
1			SAND: Sand, grey, fine grained, loose, dry to moist, organic black peat lense at 1.3m				
			SAND: Becoming grey/orange fine to medium grained	280408-17-KW	Push Tube		
2			CLAY: Clay, dark brown, moist to wet, plastic				
			SAND: Sand, grey, fine grained, moderately dense and moist				
			PEAT: Black peat silty lense with brown sand, medium grained, loose				
			End of borehole.				
3							

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 28/04/2008

Date Completed: 28/04/2008

Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243245.671
Project:	Cooks Cove	**Northing:**	329381.599
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH405

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over fill comprising clayey sand, orange/brown, medium to coarse grained, dry to moist, gravels and rootlets	290408-48-KW	Hand Auger		
				FILL: Crushed sandstone fill, white/brown/orange, coarse grained, moist to dry, minor black bitumen gravels. Refusal on fill				
					290408-49-KW	Hand Auger		

Drill Company:	Macquarie Drilling	**Date Commenced:**	28/04/2008
Drill Model:		**Date Completed:**	28/04/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC

Project: Cooks Cove

Client: Boyd Cook Cove

Location: Cooks Cove

Easting: 6243252.022

Northing: 329429.637

Elevation:

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Environmental Log: BBH406

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil. Medium grained, light brown, moist, loose, some gravels	290408-46-KW	Push Tube		
				FILL: Sandy silt, dark brown, fine to medium grained				
				FILL: Silty sand, darker brown, moist, dense medium grained	290408-47-KW	Push Tube		
1				SAND: Sand, pale grey, medium grained, moist, moderately dense, brown peat lenses throughout, wet at 1.5m				
2								

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 29/04/2008

Date Completed: 29/04/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting: 6243213.42
Northing: 329440.547
Elevation:

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Environmental Log: BBH407

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand top soil, fine grained, dark brown, moist with gravels	290408-43-KW	Push Tube		
				FILL: Clayey sand, fine to medium grained, light brown/orange with crushed white sandstone and ironstone gravels, moist and dense	290408-44-KW	Push Tube		
				FILL: Silty clayey sand, dark brown, fine to medium grained, very dense, minor gravels, bone, moist with organic odour				
1								
				SILTY SAND: Silty sand, dark grey, fine grained, very dense, moist to wet. Wet at 1.6m.	290408-45-KW	Push Tube		
2								

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 29/04/2008
Date Completed: 29/04/2008
Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243233.644
Project:	Cooks Cove	**Northing:**	329503.188
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH408

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand top soil, grey/brown, roots, moist, medium grained and loose	290408-50-KW	Push Tube		
				FILL: Silty sand, dark grey/brown, dense, moist, fine grained with gravels				
				FILL: Sandy silt, dark brown, moderately dense and moist				
1				SAND: Sand, grey, medium grained, moderately dense, moist, wet at 1.4m. Organic odour	290408-52-KW	Push Tube		
				SAND: Becoming dark brown	290408-51-KW	Push Tube		
2				SAND: Becoming light grey				

Drill Company:	Macquarie Drilling	**Date Commenced:**	29/04/2008
Drill Model:		**Date Completed:**	29/04/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC	**Easting:** 6243181.502		
Project: Cooks Cove	**Northing:** 329480.958		
Client: Boyd Cook Cove	**Elevation:**		
Location: Cooks Cove	**Environmental Log:** BBH409		

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DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, rootlets				
			FILL: Sand, grey to brown, fine to medium grained, loose to moderately dense, moist, minor/trace gravels	290408-41-KW	Push Tube		
			CLAYEY SAND: Dark brown, fine to medium grained, dense, moist	290408-40-KW	Push Tube		
				290408-39-KW	Push Tube		
			SAND: Pale grey, medium grained, wet at 0.8m, moderately dense				
1							
2				290408-42-KW	Push Tube		

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 29/04/2008

Date Completed: 29/04/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC

Project: Cooks Cove

Client: Boyd Cook Cove

Location: Cooks Cove

Easting: 6243199.687

Northing: 329560.807

Elevation:

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Environmental Log: BBH410

DRILLING INFO.			LITHOLOGY	SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm) 0 / 250 / 500 / 750	
0	Direct Push		FILL: Grass over sandy topsoil, brown/orange/yellow, fine grained with minor clay. Ash at 0.1m. Red ironstone gravels at 0.5m, black charcoal fragments throughout	280408-25-KW	Push Tube		
			FILL: Sand, dark brown, fine grained with glass, bone, moist and loose	280408-26-KW	Push Tube		
1			SAND: Grey, fine grained, moderately dense, moist, shells throughout				
			PEAT: Black decaying organic fibres				
			CLAY: Clay, black, wet at 1.6m, plastic, organic odour, roots, shells with bacterial sheen	280408-27-KW	Push Tube		
2			SAND: Sand, fine to medium grained, grey with shells throughout , wet	280408-28-KW	Push Tube		

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 29/04/2008

Date Completed: 29/04/2008

Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243134.049
Project:	Cooks Cove	**Northing:**	329478.399
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH411

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, fine to medium grained, grey/brown, moist with rootlets				
				FILL: Clay, grey/red/orange, stiff and dry with trace sand, gravels, ironstone gravels, sandstone and shale fragments with ash at 0.8-0.9m	290408-36-KW	Push Tube		
					290408-37-KW	Push Tube		
1								
				SAND: Silty sand, dark brown/grey with sandstone gravels, loose and dry				
2				SILT: Silt, black to dark brown, loose, organic odour, moist				
				SILT: Sand, medium grained, grey, moist and dense	290408-38-KW	Push Tube		

Drill Company:	Macquarie Drilling	**Date Commenced:**	29/04/2008
Drill Model:		**Date Completed:**	29/04/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC	**Easting:** 6243161.139		
Project: Cooks Cove	**Northing:** 329551.915		
Client: Boyd Cook Cove	**Elevation:**		
Location: Cooks Cove	**Environmental Log:**	**BBH412**	

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Depth	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass overlying sandy clay topsoil, brown, rootlets, moist with charcoal pieces	280408-21-KW	Push Tube
			FILL: Sand, dark brown/grey, fine grained, loose, trace clay, moist	280408-22-KW	Push Tube
			FILL: Light grey/brown sand		
			FILL: Silty sandy clay, black with glass and ash inclusions, ash odour	280408-23-KW	Push Tube
1			SAND: Sand, grey, with trace silt and clay, moderately dense, moist and fine grained		
2				280408-24-KW	Push Tube

DRILLING INFO. / LITHOLOGY / SAMPLING INFORMATION / WELL DETAIL

FID/PID (ppm): 0, 250, 500, 750

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 29/04/2008

Date Completed: 29/04/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC **Easting:** 6243127.577

Project: Cooks Cove **Northing:** 329632.103

Client: Boyd Cook Cove **Elevation:**

Location: Cooks Cove

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Environmental Log: BBH413

DRILLING INFO. Depth	Method	Water	LITHOLOGY Description	SAMPLING INFORMATION Sample ID	Type	FID/PID (ppm) 0 250 500 750	WELL DETAIL
0	Direct Push		FILL: Grass over sandy topsoil, brown, rootlets, dry and shells	280408-18-KW	Push Tube		
			FILL: Sand, yellow, medium grained, loose, dry to moist, some shells, silty peat lense at 0.7m				
1			SAND: Sand, grey with dark brown lenses, shells, organics, moist to wet	280408-20-KW	Push Tube		
			CLAYEY SILT: Clayey silt, dark brown, moist, plastic with organic odour				
			SANDSTONE: White, hard sandtsone bedrock. Refusal at 1.6m	280408-19-KW	Push Tube		
2							

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 29/04/2008

Date Completed: 29/04/2008

Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243132.138
Project:	Cooks Cove	**Northing:**	329689.226
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH414

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, roots and moist				
				FILL: Sand, brown, trace clay, fine grained, moist with some gravels	020508-169-KW	Push Tube		
					020508-168-KW	Push Tube		
					020508-170-KW	Push Tube		
				FILL: Sand, yellow, fine to medium grained, loose, shells, moist, silt lenses, wet at 1.5m				
1								
					020508-171-KW	Push Tube		
2								
				SAND: Sand, grey, fine to medium grained, moderately dense, shells and moist				
				SILTY SAND: Silty sand, dark grey, fine grained, dense and moist				
				SILTY CLAY: Silty clay, dark grey soft and moist				
				SILT: Black silt, organic odour, fine grained moist				
				End of borehole.				
3								

Drill Company:	Macquarie Drilling	**Date Commenced:**	02/05/2008
Drill Model:		**Date Completed:**	02/05/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243127.487
Project:	Cooks Cove	**Northing:**	330037.091
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH415

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil with trace clay and gravels, fine grained and moist	300408-78-KW	Push Tube		
				FILL: Clayey sand, orange/brown/grey, moist, medium grained, moderately dense with crushed sandstone				
1				SILTY SAND: Silty sand, dark grey, medium grained, moderately dense, moist with organic odour	300408-79-KW	Push Tube		
				SILTY SAND: Silty sand, dark grey, medium grained, moderately dense, wet with H2S odour at 2.6m				
2					300408-80-KW	Push Tube		

Drill Company:	Macquarie Drilling	**Date Commenced:**	30/04/2008
Drill Model:		**Date Completed:**	30/04/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting: 6243103.394
Northing: 329558.472
Elevation:

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Environmental Log: BBH417

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty clay topsoil, fine grained and odourless				
			FILL: Clayey silty sand, grey/brown with ash and glass fragments, moist and dense	290408-29-KW	Push Tube	0	
			FILL: Clayey sand, grey/orange, moist and dense				
			FILL: Becoming dark grey				
1			FILL: Black silt, fibrous root mass, organic odour, gravels (possible ash), moist to wet	290408-30-KW	Push Tube	0	
			SAND: Sand, grey, fine to medium grained, moist to wet				
			SILTY SAND: Silty sand, dark grey, moist to wet, moderately dense, organic odour. Shells and rootlets from 2.3m				
2				290408-31-KW	Push Tube	0	

FID/PID (ppm) scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 29/04/2008
Date Completed: 29/04/2008
Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243065.891
Project:	Cooks Cove	**Northing:**	329619.808
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH418

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, fine grained, moist, roots and loose	290408-66KW	Push Tube		
				FILL: Sand, pale grey, fine grained, moderately dense, moist with shells				
				FILL: Clayey silt, dark brown, soft, dense. Layered grey/orange silt from 0.8 to 0.9m	290408-67-KW	Push Tube		
1				FILL: Silty sand, dark brown, fine grained, dense and moist				
				SAND: Sand, pale grey, wet, medium grained and dense	290408-68-KW	Push Tube		
				SILTY SAND: Silty sand, dark brown, fine grained, dense with trace clay				
2				SILTY SAND: Silty sand, grey, fine grained, dense, wet with shells				

Drill Company:	Macquarie Drilling	**Date Commenced:**	29/04/2008
Drill Model:		**Date Completed:**	29/04/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Sheet: 1 of 1

Project ID:	CES050706-BCC	**Easting:**	6243081.721
Project:	Cooks Cove	**Northing:**	329679.285
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH419

Depth (m)	Method	Description	Sample ID	Type
0–0.19	Direct Push	FILL: Grass oversilty sand topsoil, brown, loose, fine grained, rootlets and moist		
0.19–0.36	Direct Push	FILL: Sand, brown/grey, fine to medium grained, loose, moist with gravels coal and sandstone	290408-62-KW	Push Tube
0.36–0.5	Direct Push	FILL: Silt, dark brown, moist with gravels		
0.5–0.65	Direct Push	FILL: Clay, grey/orange, moist, stiff with gravels	290408-63-KW	Push Tube
0.65–0.8	Direct Push	FILL: Silty sand, black, fine grained, moderately dense, moist with gravels		
0.8–1.6	Direct Push	FILL: Sand, pale grey, fine grained with trace clay, moist to wet with shells at 1.5m		
1.6–1.8	Direct Push	FILL: Sandy silt, brown/grey and wet		
1.8–2.0	Direct Push	FILL: Silty clay, dark brown, soft, wet and dense		
2.0–2.2	Direct Push	FILL: Fibrous black mass, silt, ash, rock, glass and wet	290408-64-KW	Push Tube
2.2–2.6	Direct Push	FILL: Clayey silt, dark brown, soft, wet and dense		
2.6–2.8	Direct Push	SAND: Sand, grey with silt, shells, moist to wet and dense	290408-65-KW	Push Tube

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company:	Macquarie Drilling	**Date Commenced:**	29/04/2008
Drill Model:		**Date Completed:**	29/04/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243090.111
Project:	Cooks Cove	**Northing:**	329732.258
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH420

Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	WELL DETAIL
0	Auger Solid Flight			FILL: Grass over silty sand top soil, dark brown, fine grained, loose, moist with roots	020508-165-KW	Push Tube		
				FILL: Sand, yellow, fine grained to medium grained. Moderately dense, moist with shells	020508-166-KW	Push Tube		
1				FILL: Silty clay, dark brown. Fine grained sand, dense, moist with organic odour				
				FILL: Sand. Pale grey, fine to medium grained, moist to wet, moderately dense with silt lenses. Wet at 1.6m				
				FILL: Silty sand, minor clay, dark grey, fine grained, moist to wet				
2				FILL: Silty clay. Dark brown, fine grained, soft, moist to wet				
				FILL: Silt. Black, sandy and moist				
				FILL: Crushed sandstone, orange/white, clay content, moist (wet at 2.4m) and odourless	020508-167-KW	Push Tube		
				SILTY SAND: NOTE: End depth was null so start depth was used instead. Dark brown, clay content with organic odour.				

Drill Company:	Macquarie Drilling	**Date Commenced:**	02/05/2008
Drill Model:		**Date Completed:**	02/05/2008
Hole Diameter (mm):	75	**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC

Project: Cooks Cove

Client: Boyd Cook Cove

Location: Cooks Cove

Easting: 6243083.702

Northing: 329934.986

Elevation:

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Environmental Log: BBH421

Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	WELL DETAIL
0	Direct Push			FILL: Grass over sandy topsoil, brown, fine grained, loose, dry with rootlets	300408-105-KW	Push Tube		
				FILL: Sand, pale grey, fine to medium grained, loose, dry with rootlets. Silty clay lenses at 0.3m, shells, moist and dense at 0.6m	300408-104-KW	Push Tube		
1				FILL: Silty clay, dark brown, fine grained and dense				
				FILL: Sand, pale grey, medium grained, moderately dense, shells and wet at 1.4m				
				SILTY CLAY: Silty clay, dark brown/grey, fine grained, soft, wet with H2S odour				
2				SILTY SAND: Silty sand, trace clay, dark grey, fine grained, moist with H2S odour				
				SILTY CLAY: Silty clay, dark grey, soft, moist to wet				
				SAND: Sand, pale grey, medium grained, dense, wet with shells				
				SILTY CLAY: Silty clay, dark grey, soft, moist to wet with trace sand				

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 30/04/2008

Date Completed: 30/04/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC **Easting:** 6243065.802

Project: Cooks Cove **Northing:** 329981.096

Client: Boyd Cook Cove **Elevation:**

Location: Cooks Cove

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Environmental Log: BBH422

Depth (m)	Method	Water	Description	Sample ID	Type
0–0.05	Direct Push		FILL: Grass over silty sand topsoil, brown, moist with rootlets		
0.14–0.4	Direct Push		FILL: Sand, yellow, fine to medium grained, moderately dense with gravels from 0.2-0.4m	300408-112-KW	Push Tube
0.4–1.3	Direct Push		FILL: Sand, pale grey, fine to medium grained, moderately dense, moist and shells		
1.3–1.4	Direct Push		FILL: Silty clay, dark grey, soft and moist to wet		
1.4–2.0	Direct Push		SAND: Sand, pale grey, fine to medium grained, moderately dense and moist		
2.0–2.6	Direct Push		SILTY CLAY: Silty clay, dark brown, soft and wet (saturated at 2.0-2.2m) and organic odour	300408-113-KW	Push Tube
2.6–2.8	Direct Push		SILTY SAND: Silty sand, fine to medium grained, brown with organic odour		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 30/04/2008

Date Completed: 30/04/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting: 6243077.14
Northing: 330027.905
Elevation:

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Environmental Log: BBH423

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, brown, fine grained, loose and moist				
				FILL: Weathered sandstone, orange/white, medium to coarse grained, moderately dense and moist	300408-81-KW	Push Tube		
				FILL: Sand, grey to dark grey, medium grained, moderately dense, moist, gravels and ash at 0.7-0.8m	300408-82-KW	Push Tube		
1				FILL: Sand, pale grey, silt layers, moist to wet at 1.3m				
				FILL: Silty sand, dark grey, fine to medium grained, dense, wet with H2S odour. Shells at 2.2m	300408-83-KW	Push Tube		
2				SAND: Sand, pale grey, trace silts, medium grained, dense, moist and odourless				

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 30/04/2008
Date Completed: 30/04/2008
Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243018.161
Project:	Cooks Cove	**Northing:**	329618.635
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH425

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0–0.2	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine grained, loose and moist				
0.2–1.1	Direct Push		FILL: Sand, yellow, fine to medium grained, loose, dry to moist, moderately dense with shells at 0.8-1.1m	290408-57-KW	Push Tube	0	
1.1–1.4	Direct Push		FILL: Clayey silt, black, moderately dense with organic odour	290408-58-KW	Push Tube	0	
1.4–2.8	Direct Push		SAND: Sand, pale grey, wet with numerous unbroken shells				

FID/PID scale: 0, 250, 500, 750

Drill Company:	Macquarie Drilling	**Date Commenced:**	29/04/2008
Drill Model:		**Date Completed:**	29/04/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC
Easting: 6243029.629
Project: Cooks Cove
Northing: 329677.034
Client: Boyd Cook Cove
Elevation:
Location: Cooks Cove

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Environmental Log: BBH426

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand topsoil, brown, medium grained, loose, dry to moist	290408-69-KW	Push Tube		
			FILL: Sand, yellow grading to pale grey with depth, dense and dry to moist	290408-70-KW	Push Tube		
1			FILL: Clayey silt, dark brown, soft. Wet at 1.5m				
			FILL: Silt, dark brown, soft with glass, gravel and roots	290408-71-KW	Push Tube		
2			FILL: Silty sand with trace clay, dark grey, wet and dense				
			SAND: Sand, pale grey, medium grained, dense, wet with shells				

FID/PID scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling
Date Commenced: 29/04/2008
Drill Model:
Date Completed: 29/04/2008
Hole Diameter (mm):
Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting: 6243015.816
Northing: 329761.281
Elevation:

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Environmental Log: BBH427

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine grained, loose and moist				
			FILL: Clayey sand, brown/orange with concrete rubble, gravels and shells. Some stiffer brown clay	290408-59-KW	Push Tube	0	
			FILL: Sand, yellow, medium grained	290408-60-KW	Push Tube	0	
1							
			FILL: Orange sand lenses	290408-61-KW	Push Tube	0	
2			CLAYEY SILT: Clayey silt, dark brown, stiff dense with shells				

FID/PID (ppm) scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 29/04/2008
Date Completed: 29/04/2008
Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting: 6243055.224
Northing: 329789.882
Elevation:

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Environmental Log: BBH428

Depth	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass over silty sand topsoil, brown, loose, dry, fine grained with roots	010508-162-KW	Push Tube
			FILL: Silty sand, brown, fine grained moist with gravels and roots		
			FILL: Sand, yellow/pale grey with orange mottles, shells and peat sections throughout	010508-163-KW	Push Tube
1					
			FILL: Silty clay, dark grey, moist and soft		
			FILL: Sand, grey, fine grained to medium grained, loose, wet with shells and peat layers		
			FILL: Silty clay, dark grey, wet with organic odour		
2			FILL: Sand, silt lenses, grey/orange, moist to wet and dense		
			FILL: Silty clay, dark grey, moist and soft		
			FILL: Silty sand, moist with gravels, glass and organic odour	010508-164-KW	Push Tube
			FILL: Silt clay, dark brown/black, soft with organic odour		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 01/05/2008
Date Completed: 01/05/2008
Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243040.823
Project:	Cooks Cove	**Northing:**	329870.154
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH429

Depth (m)	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass over silty clay topsoil, dark brown, roots and gravels	010508-152-KW	Push Tube
			FILL: Crushed sandstone (white)		
			FILL: Clayey sand, dark brown, moist, dense with gravels, silt lenses. Ash at 0.5m		
			FILL: Clay, dark grey/brown mottles, moist, stiff, roots and sand at 1.3m	010508-153-KW	Push Tube
1					
			FILL: Sand, grey, wet, fine grained with silt lenses		
2			FILL: Silty clay, dark grey, soft and wet with H2S odour		
			FILL: Sandy silt, black, roots, glass, plastic, moist to wet with gravels and H2S odour	010508-155-KW	Push Tube
			FILL: Sand with trace silts, grey, fine grained to moist, moderately dense, moist		
			FILL: Silty clay, dark brown, soft with H2S odour		
			End of borehole.		
3					

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company:	Macquarie Drilling	**Date Commenced:**	01/05/2008
Drill Model:		**Date Completed:**	01/05/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243044.653
Project:	Cooks Cove	**Northing:**	329936.013
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH430

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty clay topsoil, dark brown, moist, rootlets and minor sand				
			FILL: Sand, pale grey, fine to medium grained, moderately dense, moist with shells throughout	300408-106-KW	Push Tube		
			FILL: Silty peat layer at 0.6m (dark brown)				
			FILL: Orange/brown/grey mottles				
1			FILL: Silty clay, dark brown, soft and moist				
			FILL: Sand, pale grey, fine to medium grained, wet with shells. Grading to silty clay at 1.6m				
2			FILL: Silty clay, dark brown, stiff however soft due to moisture and organics				
			FILL: Silt, black with gravels and organic odour	300408-107-KW	Push Tube		
			FILL: Silty clay, dark brown, soft and moist				
			FILL: Sand, grey, fine to medium grained, moist and dense				

FID/PID scale: 0, 250, 500, 750

Drill Company:	Macquarie Drilling	**Date Commenced:**	30/04/2008
Drill Model:		**Date Completed:**	30/04/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting: 6243011.033
Northing: 329810.103
Elevation:

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Environmental Log: BBH431

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand topsoil, brown, rootlets, fine grained, loose and moist	300408-84-KW	Push Tube		
			FILL: Sand, medium grained, loose, dark grey grading to pale grey				
			FILL: Silty sand, dark grey, fine to medium grained, moist, loose with ash and gravels	300408-85-KW	Push Tube		
			FILL: Crushed sandstone, orange/white, course grained, moderately dense and moist				
1			FILL: Silty sand, pale to dark grey (lenses), moist, soft, organic odour and wet at 1.5m				
2			CLAYEY SAND: Clayey silty sand, grey, medium grained, dense, soft with organic odour. Shells at 2.1-2.2m. Grading to silty clay with trace sands at 2.5m	300408-86-KW	Push Tube		

FID/PID scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 30/04/2008
Date Completed: 30/04/2008
Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243019.116
Project:	Cooks Cove	**Northing:**	329848.468
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH433

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty clay topsoil, dark brown, fine grained, moist with roots				
				FILL: Sandy silt clay, brown with gravels, ceramic pieces, charcoal, moist and dense	010508-157-KW	Push Tube		
					010508-156-KW	Push Tube		
				FILL: Silty clay, brown, moist and hard				
				FILL: Sand (grey) lense at 0.75m				
1				FILL: Silty clay becoming soft and moist				
				FILL: Silty sand, grey, fine grained and wet				
2				FILL: Silty clay, dark grey, soft, moist to wet with organic odour				
				FILL: Silt, black, moist with glass, gravels and sand	010508-159-KW	Push Tube		
				FILL: Silty sand, grey, fine to medium grained, moderately dense and moist				
				FILL: Silty clay, dark brown, moist with H2S odour				

Drill Company:	Macquarie Drilling	**Date Commenced:**	01/05/2008
Drill Model:		**Date Completed:**	01/05/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC	**Easting:** 6243005.174		
Project: Cooks Cove	**Northing:** 329919.656		
Client: Boyd Cook Cove	**Elevation:**		
Location: Cooks Cove	**Environmental Log:**	**BBH434**	

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DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over sandy topsoil, dark brown, loose, dry to moist, rootlets with trace clays	300408-108-KW	Push Tube		
				FILL: Sand, yellow, fine to medium grained, concrete rubble and gravels at 0.4m. Ironstone gravels at 0.8m	300408-109-KW	Push Tube		
1				FILL: Sand, grey, fine to medium grained, moderately dense, moist with shells				
				FILL: Sand yellow, fine to medium grained, dense, wet with shells throughout				
				FILL: Sand, grey, fine to medium grained, dense, wet grading to moist at 1.9m, Increasing clay content with depth				
2				FILL: Clayey sand, grey, fine to medium grained and moist				
				FILL: Silty clay, dark brown/grey, moist, soft grading to stiff with depth				

Drill Company:	Macquarie Drilling	**Date Commenced:**	01/05/2008
Drill Model:		**Date Completed:**	01/05/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC
Easting: 6243031.649
Project: Cooks Cove
Northing: 329978.796
Client: Boyd Cook Cove
Elevation:
Location: Cooks Cove

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Environmental Log: BBH435

Depth (m)	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0 – 0.18	Direct Push			FILL: Grass over silty sand topsoil with trace clay, brown, moderately dense, dry to moist with rootlets				
0.18 – 0.32	Direct Push			FILL: Clayey silt sand, grey/brown, fine grained, dense, dry to moist	300408-110-KW	Push Tube	0	
0.32 – 2.0	Direct Push			FILL: Sand, yellow grading to grey at 1.0m, fine to medium grained, moderately dense, moist to wet at 1.4m	300408-111-KW	Push Tube	0	
2.0 – 2.6	Direct Push			FILL: Silty clay, dark brown/grey, stiff grading to soft with depth, moist to wet				
2.6 – 2.8	Direct Push			FILL: Silty sand, dark brown/grey, fine grained, moist to wet				

FID/PID (ppm) scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling
Date Commenced: 01/05/2008
Drill Model:
Date Completed: 01/05/2008
Hole Diameter (mm):
Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting: 6242995.182
Northing: 330012.116
Elevation:

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Environmental Log: BBH436

Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push			FILL: Grass over silty sand topsoil, fine grained, loose, moist with rootlets				
				FILL: Sand, pale grey, fine to medium grained, loose, moist with black gravels	300408-87-KW	Push Tube		
				FILL: Crushed sandtsone fill, white, coarse grained and slightly dense				
				FILL: Sand with trace silt and clay at 1.1m, brown/grey/orange, medium grained, dense, moist	300408-88-KW	Push Tube		
1								
				SAND: Sand, pale grey, medium grained, dense, wet at 1.6m				
2								
				SANDY CLAY: Sandy silty clay, dark grey, fine grained, moist with organic odour				

FID/PID (ppm) scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 30/04/2008
Date Completed: 30/04/2008
Logged/checked by: Jenkins/Weir

Sheet: 1 of 1

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting: 6242976.331
Northing: 329674.761
Elevation:

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Environmental Log: BBH438

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0.0–0.2	Direct Push		FILL: Grass over silty sand topsoil, brown, dry loose with rootlets				
0.2–0.7	Direct Push		FILL: Silty sand with trace clay, brown, dry to moist, dense with rootlets	290408-72-KW	Push Tube	0	
0.7–1.0	Direct Push		FILL: Sand, yellow, fine grained, dense, moist with shells				
1.0–1.4	Direct Push		FILL: Clayey silt, dark brown with brown clay lenses, shells, organics and moist				
1.4–1.7	Direct Push		FILL: Sand, yellow/pale grey, medium grained, dense, wet with shells				
1.7–1.8	Direct Push		FILL: Clayey silt, dark brown, soft and wet				
1.8–1.9	Direct Push		FILL: Slty clay, wet with ash and glass				
1.9–2.4	Direct Push		FILL: Clayey silt, dark brown, soft, dense and wet	290408-73-KW	Push Tube	0	
2.4–2.8	Direct Push		SAND: Sand, grey, moist to wet, dense with shells				

Depth scale: 0, 1, 2. FID/PID (ppm) scale: 0, 250, 500, 750.

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 30/04/2008
Date Completed: 30/04/2008
Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6242962.433
Project:	Cooks Cove	**Northing:**	329755.357
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH439

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand topsoil with trace clay, brown, fine grained, dry with roots	010508-133-KW	Push Tube		
			FILL: Sandy clay, brown sand with orange clay, black gravels, glass, dry and odourless	010508-134-KW	Push Tube		
			FILL: Silty sand, dark brown/orange with black gravels				
			FILL: Sand, yellow, fine to medium grained, loose, dry to moist. Shells at 1.0m with orange sand				
1							
			FILL: Silty clay sand, grey, moist, dense and odourless				
			FILL: Silty clay, dark grey, soft and wet				
2			FILL: Silty clay sand, dark grey, dense and moist to wet	010508-135-KW	Push Tube		
			FILL: Sand, grey, moist, fine to medium grained				
			SILTY CLAY: Silty clay, dark grey, moist and soft				

FID/PID (ppm) scale: 0, 250, 500, 750

Drill Company:	Macquarie Drilling	**Date Commenced:**	30/04/2008
Drill Model:		**Date Completed:**	30/04/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC **Easting:** 6242967.601

Project: Cooks Cove **Northing:** 329806.411

Client: Boyd Cook Cove **Elevation:**

Location: Cooks Cove

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Environmental Log: BBH440

Depth (m)	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 / 250 / 500 / 750	WELL DETAIL
0 – 0.1	Direct Push			FILL: Grass over silty sand topsoil, dark brown, moist fine grained, loose with roots				
0.1 – 1.3	Direct Push			FILL: Sand, yellow/pale grey with orange mottles throughout, shells throughout, moist and moderately dense	010508-148-KW	Push Tube		
					010508-149-KW	Push Tube		
1.3 – 1.8	Direct Push			FILL: Sand, grey with silty clay lenses (dark grey), very moist and dense with shells throughout				
1.8 – 2.8	Direct Push			FILL: Silty clay, dark grey/black, moist, soft with silt layer at 2.3-2.4m				

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 30/04/2008

Date Completed: 30/04/2008

Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6242971.259
Project:	Cooks Cove	**Northing:**	329862.301
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH441

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil, fine grained, dark brown, loose, dry with roots	010508-150-KW	Push Tube		
				FILL: Sand, yellow, fine grained, dry and loose				
				FILL: Silty sand, brown, dry with shells				
				FILL: Sand, pale grey, fine to medium grained, slightly dense, moist to wet with shells throughout				
1								
					010508-151-KW	Push Tube		
2				FILL: Sand, grey with silt lenses, fine to medium grained, dense and wet				
				FILL: Silty clay, dark grey, soft and wet				

Drill Company:	Macquarie Drilling	**Date Commenced:**	30/04/2008
Drill Model:		**Date Completed:**	30/04/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC **Easting:** 6243065.802

Project: Cooks Cove **Northing:** 329981.096

Client: Boyd Cook Cove **Elevation:**

Location: Cooks Cove

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Environmental Log: BBH442

Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 / 250 / 500 / 750	WELL DETAIL
0	Direct Push			FILL: Grass over silty clay topsoil with trace sand, dark brown, fine grained, moist with rootlets	300408-102-KW	Push Tube		
				FILL: Sand, brown/grey, fine to medium grained, loose, moist with shells	300408-101-KW	Push Tube		
1				FILL: Sand, pale grey, medium grained, moist, broken shells. Rock/gravels at 1.3m	300408-103-KW	Push Tube		
2				SILTY CLAY: Silty clay, dark brown, organic odour, moist and soft				

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 30/04/2008

Date Completed: 30/04/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC

Project: Cooks Cove

Client: Boyd Cook Cove

Location: Cooks Cove

Easting: 6242955.64

Northing: 330006.678

Elevation:

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Environmental Log: BBH443

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty clay topsoil, dark brown, fine grained, loose to firm, dry to moist with rootlets				
			FILL: Sand, trace clay, grey, fine grained, dense, moist to dry, gravels				
			FILL: Crushed sandstone, orange/white, coarse grained, dense, moist to dry with rock/gravels	300408-90-KW	Push Tube		
				300408-89-KW	Push Tube		
			FILL: Sand, dark grey, fine to medium grained, dense, trace clay, moist, grading to light grey with orange sand at 1.1m				
1			FILL: Silty clay, dark grey, minor medium grained sand, very dense with no odour				
			FILL: Sand, grey/orange, medium grained, moderately dense, wet at 1.5m				
			SILTY SAND: Silty sand, dark grey, fine grained, dense and moist to wet				
2							
			SILTY CLAY: Silty clay, dark grey, fine grained, dense and moist	300408-91-KW	Push Tube		

FID/PID (ppm) scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 30/04/2008

Date Completed: 30/04/2008

Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	
Project:	Cooks Cove	**Northing:**	
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH445

Depth (m)	Method	Water	Description	Sample ID	Type
0.0–0.2	Direct Push		FILL: Grass over silty sand topsoil, dark brown, loose, dry with roots	010508-138-KW	Push Tube
0.2–1.6	Direct Push		FILL: Sand, yellow, fine to medium grained, loose, dry. Brown silty lense at 1.2m	010508-137-KW; 010508-136-KW	Push Tube; Push Tube
1.6–1.8	Direct Push		FILL: Silty sand, grey, fine to medium grained, moist and dense		
1.8–2.0	Direct Push		FILL: Silty clay, dark brown, soft and wet	010508-139-KW	Push Tube
2.0–2.2	Direct Push		SAND: Sand with trace silt, grey, fine to medium grained, moderately dense, shells throughout		
	Direct Push		SILTY CLAY: Silty clay, dark grey, wet and soft with H2S odour		
	Direct Push		SILTY SAND: Silty sand, fine to medium grained, wet with shells and dense		
			SILTY CLAY: Silty clay, dark grey, moist and soft		
2.8			End of borehole.		
			SILTY SAND: Silty sand, grey, fine to medium grained, moist with H2S odour		
			SILTY CLAY: Silty clay, dark grey, soft wet with H2S odour		
			SILT: Silt, black, moist to dry, fine grained with H2S odour		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company:	Macquarie Drilling	**Date Commenced:**	01/05/2008
Drill Model:		**Date Completed:**	01/05/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting: 6242919.264
Northing: 329830.177
Elevation:

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Environmental Log: BBH446

Depth (m)	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass over silty clay topsoil, dark brown, moist with roots and gravels	010508-146-KW	Push Tube
			FILL: Sand, yellow, fine to medium grained layers, moist and loose		
			FILL: Silty clay, dark grey/brown mottles, moist and rootlets	010508-147-KW	Push Tube
			FILL: Sand, yellow, fine grained, loose and moist		
1			FILL: Silty clay, dark grey, moist and soft		
			FILL: Sand, white/pale grey, fine to medium grained, loose, moist to dry		
			FILL: Silty clay, dark grey, wet, soft with organic odour		
			SILTY SAND: Silty sand, grey, moist and dense		
			SILTY SAND: Silty sand, grey, moist to wet at 1.4m, dense with shells throughout		
2			SILTY CLAY: Silty clay, dark grey, wet, soft, H2S odour and shells at 2.7m		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 01/05/2008
Date Completed: 01/05/2008
Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6242925.015
Project:	Cooks Cove	**Northing:**	329881.732
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH447

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand topsoil, brown, fine grained, loose, dry and roots	010508-144-KW	Push Tube		
			FILL: Sand, yellow, fine to medium grained, loose, dry, becoming moist at 0.5m				
			FILL: Silty sand, dark brown, fine grained, rootlets, moderately dense and moist	010508-145-KW	Push Tube		
			FILL: Sand, pale grey, medium grained, moist, moderately dense, shells and gravels, brown silty clay lenses at 1.4m, moist to wet from 1.4m				
1							
			FILL: Silty clay, dark grey, minor sand, wet, soft with organic odour				
2			FILL: Sand, pale grey, fine to medium grained, wet and moderately dense				
			FILL: Soft clay, dark grey, wet, soft with organic odour				
			SAND: Sand, pale grey, dark grey, moderately dense, fine to medium grained, moist to wet with H2S odour				
			SILTY CLAY: Silty clay, dark grey, moist, soft with H2S odour				

FID/PID (ppm) scale: 0, 250, 500, 750

Drill Company:	Macquarie Drilling	**Date Commenced:**	01/05/2008
Drill Model:		**Date Completed:**	01/05/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC	**Easting:** 6242916.076		
Project: Cooks Cove	**Northing:** 329928.224		
Client: Boyd Cook Cove	**Elevation:**		
Location: Cooks Cove		**Environmental Log:**	**BBH448**

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DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty clay topsoil, brown, stiff, moist with rootlets				
				FILL: Sand, pale grey, fine to medium grained, loose to dense, moist. Shells at 0.3m	300408-98-KW	Push Tube		
				FILL: Silty clay, dark brown, shells, soft with organic odour	300408-99-KW	Push Tube		
				FILL: Sand, fine to medium grained, pale grey, and wet				
1					300408-100-KW	Push Tube		
				SILTY CLAY: Silty clay, soft, wet, brown with organic odour. Stiffer from 2.0m				
2								
				SILTY SAND: Silty sand, grey, fine grained, dense, moist with organic odour				
				SILTY CLAY: Silty clay, brown, stiff, moist with organic odour. Becoming stiffer with depth				

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 01/05/2008
Date Completed: 01/05/2008
Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6242777.469
Project:	Cooks Cove	**Northing:**	329955.331
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH450

Depth (m)	Method	Water	Lithology Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0–0.1	Direct Push		FILL: Grass over silty sand topsoil, brown, dry, loose with roots				
0.1–1.0	Direct Push		FILL: Sand, yellow, fine to medium grained, loose, dry to moist (increasing with depth), minor charcoal/coal fragments, from 0.1-0.8m. Crushed white sandstone at 0.8m	010508-140-KW	Push Tube		
				010508-141-KW	Push Tube		
1.0–2.0	Direct Push		FILL: Sand, yellow/pale grey, loose, moist to wet and shells throughout				
2.0–2.1	Direct Push		SILTY CLAY: Silty clay, dark grey, soft and wet				
2.1–2.4	Direct Push		SAND: Sand, dark grey, fine to medium grained, wet and dense with shells at silt lenses				
2.4–2.6	Direct Push		SILTY CLAY: Silty clay, dark grey, moist and soft				
2.6–2.8	Direct Push		SILTY CLAY: Sand with silt lenses, dark grey, fine to medium grained and moist				

FID/PID (ppm) scale: 0, 250, 500, 750

Drill Company:	Macquarie Drilling	**Date Commenced:**	01/05/2008
Drill Model:		**Date Completed:**	01/05/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6242875.203
Project:	Cooks Cove	**Northing:**	329862.954
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH451

DRILLING INFO. | LITHOLOGY | SAMPLING INFORMATION | WELL DETAIL

Method: Direct Push (0 – 2.8 m)

Symbol	Description	Sample ID	Type
Fill	FILL: Sand, yellow, fine to medium grained, moist and loose	010508-A1-KW	Grab
Fill	FILL: Silty clay, brown, moist and soft with roots	010508-142-KW	Push Tube
		010508-143-KW	Push Tube
Fill	FILL: Sand, pale grey with orange lenses		
Fill	FILL: Silty clay, dark brown, soft and wet		
Sand	SAND: Sand, grey fine to medium grained, dense with shells, silt lenses and H2S odour		
Silty clay	SILTY CLAY: Silty clay, dark grey, wet, soft with H2S odour		
Silty sand	SILTY SAND: Silty sand, grey, fine to medium grained, wet and dense with H2S odour		
Clayey sand	CLAYEY SAND: Clayey silty sand, grey, soft and wet with H2S odour		
Silty sand	SILTY SAND: Silty sand, grey, wet and dense with shells		
Silty clay	SILTY CLAY: Silty clay with trace sand, wet with shells and H2S odour		

FID/PID (ppm): 0, 250, 500, 750

Drill Company:	Macquarie Drilling	**Date Commenced:**	01/05/2008
Drill Model:		**Date Completed:**	01/05/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting: 6242877.696
Northing: 329916.604
Elevation:

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Environmental Log: BBH452

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine grained, loose, moist with rootlets and trace clays	300408-96-KW	Push Tube	0	
			FILL: Sandy clay, dark brown, fine grained, dense/stiff and moist				
			FILL: Sand, pale grey, fine to medium grained, loose and dense, moist with shells at 0.7-0.8m	300408-97-KW	Push Tube	0	
			FILL: Silty clay, brown/dark grey mottles, stiff and moist				
1			FILL: Silty clay, dark brown, stiff, moist with organic odour. Soft layer at 1.4m				
			FILL: Sand, aple grey, wet, fine to medium grained, loose with shells				
			SILTY CLAY: Silty clay, dark brown, soft and wet				
2			SILTY SAND: Silty sand with trace clay, dark grey, wet and soft with shells. Increasing clay content from 2.4m				

FID/PID scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 01/05/2008
Date Completed: 01/05/2008
Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC

Project: Cooks Cove

Client: Boyd Cook Cove

Location: Cooks Cove

Easting: 6242882.563

Northing: 329994.194

Elevation:

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Environmental Log: BBH453

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Direct Push			FILL: Grass over silty sand topsoil with trace clay, brown, dense, fine grained and moist with rootlets				
				FILL: Crushed sandstone, orange/white, coarse grained and dry	300408-92-KW	Push Tube		
				FILL: Sand, brown, fine to medium grained, loose and dry				
				FILL: Clayey sand, brown, fine grained, dense and moist	300408-93-KW	Push Tube		
1				FILL: Silty clay with trace sand, dark brown, fine grained, soft and dense, moist with slight organic odour				
				SAND: Sand, grey, medium grained, dense and wet				
2				SILTY CLAY: Silty sandy clay, dark grey, fine grained, moist, soft and dense				
				SILT: Silt, black, moist with H2S odour				
				SAND: Sand with trace silt and clay, pale grey, medium grained, dense and moist				

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 01/05/2008

Date Completed: 01/05/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC

Project: Cooks Cove

Client: Boyd Cook Cove

Location: Cooks Cove

Easting: 6242816.885

Northing: 329876.016

Elevation:

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Environmental Log: BBH455

Depth	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand topsoil, fine grained, dry to moist with rootlets				
			FILL: Sand, light brown, fine to medium grained, loose, dry to moist	010508-120-KW	Push Tube		
			FILL: Silty sand, dark brown, fine grained, loose and dry to moist				
			FILL: Sand, yellow/pale grey, fine grained, loose, dry to moist	010508-121-KW	Push Tube		
			FILL: Silty clay, dark brown and dry				
			FILL: Sand, yellow, fine to medium grained, dense and moist				
1			SAND: Sand, pale grey, medium grained, dense, moist with shells				
2			SAND: Sand, dark grey, medium grained, dense, moist to wet with shells throughout				
			SILTY CLAY: Silty clay, dark grey, moist to wet with organic odour				
			SILTY SAND: Silty sand, dark grey, medium grained and moist				
			SILT: Silt, black, moist with organic odour				
			End of borehole.				
3							

FID/PID scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 01/05/2008

Date Completed: 01/05/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting:
Northing:
Elevation:

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Environmental Log: BBH456

Depth (m)	Method	Water	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine grain, dense, moist with rootlets				
			FILL: Sandy silt, brown, moist and dense	010508-118-KW	Push Tube	0	
			FILL: Sandy clay, brown with weathered/crushed sandstone (white/yellow)				
			FILL: Silty clay, brown/grey, moderately stiff				
			FILL: Sand, yellow, fine to medium grained, slightly dense, moist with shells				
1				010508-119-KW	Push Tube	0	
			SAND: Sand, pale grey, fine to medium grained, moderately dense, moist to wet at 1.4m				
2			SILTY SAND: Silty sand, grading to silty clay, wet from 1.9-2.2m				
			SILTY SAND: Silty sand, grey, fine grained, moist and dense				
			SILTY CLAY: Silty clay, dark grey, fine grained, soft, moist to wet				
			SILTY SAND: Silty sand, grey, fine grained, moist and dense				
			SILTY CLAY: Silty clay, grey, minor sand and moist to wet				

FID/PID scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm):

Date Commenced: 01/05/2008
Date Completed: 01/05/2008
Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6242838.899
Project:	Cooks Cove	**Northing:**	329986.908
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BBH457

Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 / 250 / 500 / 750	Well Detail
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, fine grained, loose, moist with rootlets				
				FILL: Sandy clay, brown, fine grained, soft, moist with rootlets				
				FILL: Sand, dry to moist, black with ash(black and white), crunchy and sharp	300408-94-KW	Push Tube		
				FILL: Crushed weathered sandstone with trace clay, white/orange, dense and dry to moist				
				SILTY CLAY: Silty clay, dark brown, fine grained, stiff, soft from 1.1m, shells at 1.3m and organic odour				
1					300408-95-KW	Push Tube		
2								

Drill Company:	Macquarie Drilling	**Date Commenced:**	30/04/2008
Drill Model:		**Date Completed:**	30/04/2008
Hole Diameter (mm):		**Logged/checked by:**	Jenkins/Weir

Sheet: 1 of 1

Project ID: CES050706-BCC | **Easting:** 6242800.902

Project: Cooks Cove | **Northing:** 329820.421

Client: Boyd Cook Cove | **Elevation:**

Location: Cooks Cove

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Environmental Log: BBH458

Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm)	Well Detail
0	Direct Push			FILL: Grass over silty sand topsoil, dark brown, loose, dry with rootlets	010508-124-KW	Push Tube		
				FILL: Sand pale grey, fine to medium grained, loose and dry. Interspersed silt layers. H2S odour at 2.6m. Moist to wet at 2.8m	010508-123-KW	Push Tube		
					010508-122-KW	Push Tube		
1					010508-125-KW	Push Tube		
2								
3								
				SILT: Silt with trace clay, black, moist with strong H2S odour				
				SILTY CLAY: Silty clay, dark grey, soft with strong H2S odour				
4				SILTY CLAY: Silty sandy clay, dark grey, dense with strong H2S odour				

FID/PID scale: 0, 250, 500, 750

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 01/05/2008

Date Completed: 01/05/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC

Project: Cooks Cove

Client: Boyd Cook Cove

Location: Cooks Cove

Easting:

Northing:

Elevation:

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Environmental Log: BBH460

Depth (m)	Method	Water	Description	Sample ID	Type
0	Direct Push		FILL: Grass over silty sand topsoil, dark brown, fine grained, moist with rootlets	010508-114-KW	Push Tube
			FILL: Sand, yellow, fine to medium grained, moderately dense, moist shells, silty clay, lenses at 0.8m	010508-115-KW	Push Tube
1			FILL: Sand, pale grey, fine to medium grained, moderately dense and moist		
			FILL: Silty clay, dark grey, soft, fine grained, moist to wet		
			SAND: Sand, pale grey, fine to medium grained, wet at 1.5m and shells		
2			SILTY SAND: Silty sand, dark grey, fine to medium grained, wet with shells		
			SILTY CLAY: Silty clay, dark grey, fine grained, soft to dense and wet		
			SILTY SAND: Silty sand, grey, medium grained, moist with shells		
			SANDY SILT: Sandy silt, black/dark grey, organic and H2S odour		

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm):

Date Commenced: 01/05/2008

Date Completed: 01/05/2008

Logged/checked by: Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243088.007
Project:	Cooks Cove	**Northing:**	329478.534
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BLG401

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Auger Solid Flight			FILL: Sandy clay, brown with concrete rubble and gravel, crushed sandstone and ironstone gravels	020508-185-KW	Push Tube		
				FILL: Clay, orange/grey/red mottled, gravels, shell, dry				
1				FILL: Sand, yellow, fine grained, dry to moist, gravels and clear plastic sheeting				
				FILL: Black gravels, sand and dry	020508-186-KW	Push Tube		
				FILL: Clay. Grey/orange/red, gravels, stiff and dry				
				FILL: Clayey sand, brown/grey/red, with brown gravels, glass at 1.9m, crushed brick/sandstone				
2								
				SAND: Grey, fine grained, dense, dry to moist with silt lenses				
				SAND: Pale grey, fine to medium grained, minor silt throughout, moist and dense. Becoming wet at 3.4m				
3								

Drill Company:	Macquarie Drilling	**Date Commenced:**	02/05/2008
Drill Model:		**Date Completed:**	02/05/2008
Hole Diameter (mm):	75	**Logged/checked by:**	Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243088.007
Project:	Cooks Cove	**Northing:**	329478.534
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BLG402

Depth	Method	Water	Description	Sample ID	Type
0	Auger Solid Flight		FILL: Grass over silty clay top soil, brown, fine grained, moist, loose with rootlets	020508-172-KW	Push Tube
			FILL: Silty sand clay, brown, dense, slightly moist, rootlets		
			FILL: Silty sand, light brown, fine grained, dense, moist and shells	020508-173-KW	Push Tube
			FILL: Sand, pale grey, medium grained, dense, moist, orange sand mottles		
			FILL: Silty clay, brown/orange/grey mottles, moist and stiff		
1			FILL: Silty sand, dark grey, fine grained, gravels, moist, wet at 1.7m. Minor clay content	020508-174-KW`	Push Tube
			SILTY SAND: Silty clay sand, dark grey/brown, fine grained, soft and wet		
2					

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm): 75

Date Commenced: 02/05/2008
Date Completed: 02/05/2008
Logged/checked by: Jenkins/Weir

Sheet: 1 of 1

Project ID:	CES050706-BCC	**Easting:**	6243088.007
Project:	Cooks Cove	**Northing:**	329478.534
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BLG403

Depth (m)	Method	Water	Description	Sample ID	Type
0 – 0.1	Auger Solid Flight		FILL: Sandstone rubble, orange/white, gravels and dry		
0.1 – 0.8	Auger Solid Flight		FILL: Silty sand, dark brown, fine to medium grained, loose and dry	020508-181-KW	Push Tube
0.8 – 2.8	Auger Solid Flight		SAND: Pale grey, fine grained, dense, dry to moist, silt lenses wet at 2.4m	020508-182-KW	Push Tube

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company:	Macquarie Drilling	**Date Commenced:**	02/05/2008
Drill Model:		**Date Completed:**	02/05/2008
Hole Diameter (mm):	75	**Logged/checked by:**	Jenkins/Weir

Project ID:	CES050706-BCC	**Easting:**	6243088.007
Project:	Cooks Cove	**Northing:**	329478.534
Client:	Boyd Cook Cove	**Elevation:**	
Location:	Cooks Cove		

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Environmental Log: BLG404

Depth	Method	Water	Description	Sample ID	Type
0	Auger Solid Flight		FILL: Silty sand top soil, brown, fine grained, dry and loose with gravels	020508-178-KW	Push Tube
			UNKNOWN: Coreless		
1			FILL: Sand, pale grey, fine grained, loose and dry. Silt layers interspersed, dark brown with ash	020508-179-KW	Push Tube
			SILTY SAND: Dark brown, fine grained, wet at 1.5m and shells		
2			SAND: Pale grey, fine to medium grained, wet and dense		
			SILTY SAND: Silty sand with clay content, dark grey and fine grained		
			SAND: Pale grey, fine to medium grained		
			SILTY CLAY: Dark brown, wet with H2S odour	020508-180-KW	Push Tube
			End of borehole.		

SAMPLING INFORMATION — FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company:	Macquarie Drilling	**Date Commenced:**	02/05/2008
Drill Model:		**Date Completed:**	02/05/2008
Hole Diameter (mm):	75	**Logged/checked by:**	Jenkins/Weir

Project ID: CES050706-BCC
Project: Cooks Cove
Client: Boyd Cook Cove
Location: Cooks Cove

Easting: 6243174.979
Northing: 329414.632
Elevation:

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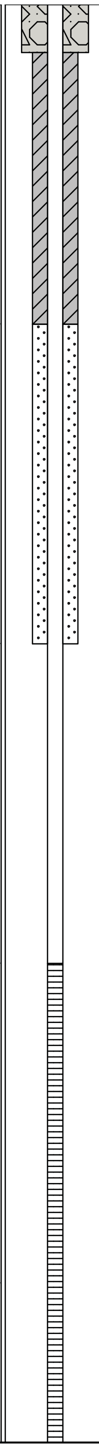
Environmental Log: BMW401

Drilling method: Auger Solid Flight (0 – approx. 4.5 m)

Depth	Symbol	Description	Sample ID	Type
0		TOPSOIL: Grass over silty sand, brown, dry, loose, rootlets with gravels.	020508-187-KW	Push Tube
		CONCRETE: Concrete rubble		
		FILL: Crushed weathered sandstone		
		FILL: Clayey sand fill, brown, fine grained, dry, large gravels.	020508-A2-KW	Push Tube
1		FILL: Crushed sandstone fill, white, dry.		
		FILL: Clay fill with brown/orange sand, dry with black gravels. Asbestos fragments at 0.7m.		
		FILL: Crushed sandstone, coarse grained, orange.	020508-188-LJ	Push Tube
2		FILL: Fill. Clay, brown/orange, stiff, dry, gravels, crushed sandstone, sandy clay with ash at 1.3m.		
3		SAND: Sand. Dark grey grading to pale grey. Fine grained, moist and loose. Becoming wet at 3.4m. Silt lenses throughout at depth.		
4				

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL



Drill Company: Macquarie Drilling
Drill Model:
Hole Diameter (mm): 75

Date Commenced: 02/05/2008
Date Completed: 02/05/2008
Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC

Project: Cooks Cove

Client: Boyd Cook Cove

Location: Cooks Cove

Easting: 6243090.111

Northing: 329732.258

Elevation:

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Environmental Log: BMW402

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Auger Solid Flight			FILL: Grass over silty sand top soil, dark brown, fine grained, loose, moist with roots				
				FILL: Sand, yellow, fine grained to grained. Moderately dense, moist with shells				
1				FILL: Silty clay, dark brown. Fine grained sand, dense, moist with organinc odour				
				FILL: Sand. Pale grey, fine to medium grained, moist to wet, moderately dense with silt lenses. Wet at 1.6m				
				FILL: Silty sand, minor clay, dark grey, fine grained, moist to wet				
2				FILL: Silty clay. Dark brown, fine grained, soft, moist to wet				
				FILL: Silt. Black, sandy and moist				
				FILL: Crushed sansdtone, orange/white, clay content, moist (wet at 2.4m) and odourless				
				SILTY SAND: Dark brown, clay content with organic odour				

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm): 75

Date Commenced: 02/05/2008

Date Completed: 02/05/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC

Project: Cooks Cove

Client: Boyd Cook Cove

Location: Cooks Cove

Easting: 6242940.504

Northing: 329616.3

Elevation:

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Environmental Log: BMW403

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION			WELL DETAIL
Depth	Method	Water	Symbol	Description	Sample ID	Type	FID/PID (ppm) 0 250 500 750	
0	Auger Solid Flight			FILL: Silty sand top soil, brown, fine grained, moist with rootlets				
				FILL: Clay, orange/brown/grey, dry, rootlets and gravels				
				FILL: Silty sand, brown, fine grained, dry to moist and dense				
				SAND: Yellow grading to grey, fine to medium grained, dense moist. Silt lenses throught from 1.4 to 2.8				
1								
2				SAND: Pale grey with minor silt throughout, dense and moist. Becoming wet at 3.4m				
3								
4								

Drill Company: Macquarie Drilling

Drill Model:

Hole Diameter (mm): 75

Date Commenced: 02/05/2008

Date Completed: 02/05/2008

Logged/checked by: Jenkins/Weir

Project ID: **Easting:**

Project: **Northing:**

Client: **Elevation:**

Location:

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Environmental Log:

Depth (m)	Method	Description	Sample ID	Type
0	Auger Solid Flight	FILL: Grass over silty sand top soil, brown, dry, loose with roots	020508-175-KW	Push Tube
		FILL: Crushed sandstone, white, coarse grained, gravels and ceramics		
		FILL: Sand, brown, fine grained, loose, dry, black gravels with silt inclusions	020508-176-KW	Push Tube
		FILL: Sand, black, dry with black as gravels		
		UNKNOWN: Core loss		
1		SAND: Sand, yellow, fine to medium grained, loose, dry to moist		
		UNKNOWN: Core loss		
2		SAND: Sand, grey, fine to medium grained, silt lenses, dry to moist	020508-177-KW	Push Tube
3				

FID/PID (ppm): 0, 250, 500, 750

WELL DETAIL

Drill Company: **Date Commenced:**

Drill Model: **Date Completed:**

Hole Diameter (mm): **Logged/checked by:**

Sheet:

Appendix 6
Summary of 95% UCL Calculation

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Data Sets with Non-Detects											
2												
3	User Selected Options											
4	Date/Time of Computation			ProUCL 5.122/02/2023 6:05:32 PM								
5	From File			WorkSheet.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10												
11	B(a)P TEQ											
12												
13	General Statistics											
14	Total Number of Observations					86	Number of Distinct Observations					28
15							Number of Missing Observations					0
16	Minimum					0.244	Mean					0.636
17	Maximum					5.755	Median					0.244
18	SD					1.022	Std. Error of Mean					0.11
19	Coefficient of Variation					1.607	Skewness					3.612
20												
21	Normal GOF Test											
22	Shapiro Wilk Test Statistic					0.445	Shapiro Wilk GOF Test					
23	5% Shapiro Wilk P Value					0	Data Not Normal at 5% Significance Level					
24	Lilliefors Test Statistic					0.351	Lilliefors GOF Test					
25	5% Lilliefors Critical Value					0.0957	Data Not Normal at 5% Significance Level					
26	Data Not Normal at 5% Significance Level											
27												
28	Assuming Normal Distribution											
29	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
30	95% Student's-t UCL					0.82	95% Adjusted-CLT UCL (Chen-1995)					0.864
31							95% Modified-t UCL (Johnson-1978)					0.827
32												
33	Gamma GOF Test											
34	A-D Test Statistic					14.43	Anderson-Darling Gamma GOF Test					
35	5% A-D Critical Value					0.779	Data Not Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic					0.309	Kolmogorov-Smirnov Gamma GOF Test					
37	5% K-S Critical Value					0.0989	Data Not Gamma Distributed at 5% Significance Level					
38	Data Not Gamma Distributed at 5% Significance Level											
39												
40	Gamma Statistics											
41	k hat (MLE)					1.155	k star (bias corrected MLE)					1.122
42	Theta hat (MLE)					0.551	Theta star (bias corrected MLE)					0.567
43	nu hat (MLE)					198.6	nu star (bias corrected)					193
44	MLE Mean (bias corrected)					0.636	MLE Sd (bias corrected)					0.601
45							Approximate Chi Square Value (0.05)					161.9
46	Adjusted Level of Significance					0.0472	Adjusted Chi Square Value					161.4
47												
48	Assuming Gamma Distribution											
49	95% Approximate Gamma UCL (use when n>=50))					0.759	95% Adjusted Gamma UCL (use when n<50)					0.761
50												
51	Lognormal GOF Test											
52	Shapiro Wilk Test Statistic					0.649	Shapiro Wilk Lognormal GOF Test					

	A–E	F	G–K	L
53	5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
54	Lilliefors Test Statistic	0.315	**Lilliefors Lognormal GOF Test**	
55	5% Lilliefors Critical Value	0.0957	Data Not Lognormal at 5% Significance Level	
56	**Data Not Lognormal at 5% Significance Level**			
57				
58	**Lognormal Statistics**			
59	Minimum of Logged Data	-1.411	Mean of logged Data	-0.944
60	Maximum of Logged Data	1.75	SD of logged Data	0.794
61				
62	**Assuming Lognormal Distribution**			
63	95% H-UCL	0.637	90% Chebyshev (MVUE) UCL	0.685
64	95% Chebyshev (MVUE) UCL	0.754	97.5% Chebyshev (MVUE) UCL	0.851
65	99% Chebyshev (MVUE) UCL	1.041		
66				
67	**Nonparametric Distribution Free UCL Statistics**			
68	**Data do not follow a Discernible Distribution (0.05)**			
69				
70	**Nonparametric Distribution Free UCLs**			
71	95% CLT UCL	0.818	95% Jackknife UCL	0.82
72	95% Standard Bootstrap UCL	0.816	95% Bootstrap-t UCL	0.913
73	95% Hall's Bootstrap UCL	0.833	95% Percentile Bootstrap UCL	0.832
74	95% BCA Bootstrap UCL	0.866		
75	90% Chebyshev(Mean, Sd) UCL	0.967	95% Chebyshev(Mean, Sd) UCL	1.117
76	97.5% Chebyshev(Mean, Sd) UCL	1.325	99% Chebyshev(Mean, Sd) UCL	1.733
77				
78	**Suggested UCL to Use**			
79	95% Chebyshev (Mean, Sd) UCL	1.117		
80				
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
82	Recommendations are based upon data size, data distribution, and skewness.			
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
85				

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.17/03/2023 10:01:13 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

B(a)P

General Statistics			
Total Number of Observations	88	Number of Distinct Observations	16
		Number of Missing Observations	0
Minimum	0.05	Mean	0.249
Maximum	1.4	Median	0.205
SD	0.233	Std. Error of Mean	0.0248
Coefficient of Variation	0.936	Skewness	3.292
Normal GOF Test			
Shapiro Wilk Test Statistic	0.573	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.37	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0946	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.29	95% Adjusted-CLT UCL (Chen-1995)	0.299
		95% Modified-t UCL (Johnson-1978)	0.291
Gamma GOF Test			
A-D Test Statistic	7.781	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.763	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.315	**Kolmogorov-Smirnov Gamma GOF Test**	
5% K-S Critical Value	0.0964	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	2.221	k star (bias corrected MLE)	2.153
Theta hat (MLE)	0.112	Theta star (bias corrected MLE)	0.115
nu hat (MLE)	391	nu star (bias corrected)	379
MLE Mean (bias corrected)	0.249	MLE Sd (bias corrected)	0.169
		Approximate Chi Square Value (0.05)	334.9
Adjusted Level of Significance	0.0473	Adjusted Chi Square Value	334.2
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	0.281	95% Adjusted Gamma UCL (use when n<50)	0.282

	A–E	F	G–K	L
51	**Lognormal GOF Test**			
52	Shapiro Wilk Test Statistic	0.852	**Shapiro Wilk Lognormal GOF Test**	
53	5% Shapiro Wilk P Value	2.222E-12	Data Not Lognormal at 5% Significance Level	
54	Lilliefors Test Statistic	0.276	**Lilliefors Lognormal GOF Test**	
55	5% Lilliefors Critical Value	0.0946	Data Not Lognormal at 5% Significance Level	
56	**Data Not Lognormal at 5% Significance Level**			
57				
58	**Lognormal Statistics**			
59	Minimum of Logged Data	-2.996	Mean of logged Data	-1.633
60	Maximum of Logged Data	0.336	SD of logged Data	0.647
61				
62	**Assuming Lognormal Distribution**			
63	95% H-UCL	0.276	90% Chebyshev (MVUE) UCL	0.294
64	95% Chebyshev (MVUE) UCL	0.319	97.5% Chebyshev (MVUE) UCL	0.353
65	99% Chebyshev (MVUE) UCL	0.419		
66				
67	**Nonparametric Distribution Free UCL Statistics**			
68	**Data do not follow a Discernible Distribution (0.05)**			
69				
70	**Nonparametric Distribution Free UCLs**			
71	95% CLT UCL	0.29	95% Jackknife UCL	0.29
72	95% Standard Bootstrap UCL	0.289	95% Bootstrap-t UCL	0.307
73	95% Hall's Bootstrap UCL	0.307	95% Percentile Bootstrap UCL	0.293
74	95% BCA Bootstrap UCL	0.303		
75	90% Chebyshev(Mean, Sd) UCL	0.323	95% Chebyshev(Mean, Sd) UCL	0.357
76	97.5% Chebyshev(Mean, Sd) UCL	0.404	99% Chebyshev(Mean, Sd) UCL	0.496
77				
78	**Suggested UCL to Use**			
79	95% Chebyshev (Mean, Sd) UCL	0.357		
80				
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
82	Recommendations are based upon data size, data distribution, and skewness.			
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
85				

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.16/03/2023 5:23:16 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Cu

General Statistics

Total Number of Observations	156	Number of Distinct Observations	90
Number of Detects	141	Number of Non-Detects	15
Number of Distinct Detects	89	Number of Distinct Non-Detects	2
Minimum Detect	1.1	Minimum Non-Detect	1
Maximum Detect	260	Maximum Non-Detect	5
Variance Detects	1531	Percent Non-Detects	9.615%
Mean Detects	22.62	SD Detects	39.13
Median Detects	9.9	CV Detects	1.73
Skewness Detects	3.925	Kurtosis Detects	17.87
Mean of Logged Detects	2.365	SD of Logged Detects	1.16

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.53	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.291	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.075	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	20.55	KM Standard Error of Mean	3.022
KM SD	37.61	95% KM (BCA) UCL	25.84
95% KM (t) UCL	25.55	95% KM (Percentile Bootstrap) UCL	25.68
95% KM (z) UCL	25.52	95% KM Bootstrap t UCL	27.51
90% KM Chebyshev UCL	29.62	95% KM Chebyshev UCL	33.73
97.5% KM Chebyshev UCL	39.43	99% KM Chebyshev UCL	50.62

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	5.291	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.794	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.176	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.0819	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.789	k star (bias corrected MLE)	0.777
Theta hat (MLE)	28.68	Theta star (bias corrected MLE)	29.13
nu hat (MLE)	222.5	nu star (bias corrected)	219.1
Mean (detects)	22.62		

	A–E	F	G–K	L
51				
52	**Gamma ROS Statistics using Imputed Non-Detects**			
53	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
54	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
55	For such situations, GROS method may yield incorrect values of UCLs and BTVs			
56	This is especially true when the sample size is small.			
57	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
58	Minimum	0.01	Mean	20.45
59	Maximum	260	Median	8.5
60	SD	37.79	CV	1.848
61	k hat (MLE)	0.483	k star (bias corrected MLE)	0.478
62	Theta hat (MLE)	42.36	Theta star (bias corrected MLE)	42.8
63	nu hat (MLE)	150.6	nu star (bias corrected)	149.1
64	Adjusted Level of Significance (β)	0.0485		
65	Approximate Chi Square Value (149.06, α)	121.8	Adjusted Chi Square Value (149.06, β)	121.6
66	95% Gamma Approximate UCL (use when n>=50)	25.02	95% Gamma Adjusted UCL (use when n<50)	25.06
67				
68	**Estimates of Gamma Parameters using KM Estimates**			
69	Mean (KM)	20.55	SD (KM)	37.61
70	Variance (KM)	1415	SE of Mean (KM)	3.022
71	k hat (KM)	0.299	k star (KM)	0.297
72	nu hat (KM)	93.17	nu star (KM)	92.71
73	theta hat (KM)	68.82	theta star (KM)	69.16
74	80% gamma percentile (KM)	31.45	90% gamma percentile (KM)	60.69
75	95% gamma percentile (KM)	94.31	99% gamma percentile (KM)	181.8
76				
77	**Gamma Kaplan-Meier (KM) Statistics**			
78	Approximate Chi Square Value (92.71, α)	71.51	Adjusted Chi Square Value (92.71, β)	71.34
79	95% Gamma Approximate KM-UCL (use when n>=50)	26.65	95% Gamma Adjusted KM-UCL (use when n<50)	26.71
80				
81	**Lognormal GOF Test on Detected Observations Only**			
82	Shapiro Wilk Approximate Test Statistic	0.967	**Shapiro Wilk GOF Test**	
83	5% Shapiro Wilk P Value	0.03	Detected Data Not Lognormal at 5% Significance Level	
84	Lilliefors Test Statistic	0.0841	**Lilliefors GOF Test**	
85	5% Lilliefors Critical Value	0.075	Detected Data Not Lognormal at 5% Significance Level	
86	**Detected Data Not Lognormal at 5% Significance Level**			
87				
88	**Lognormal ROS Statistics Using Imputed Non-Detects**			
89	Mean in Original Scale	20.53	Mean in Log Scale	2.113
90	SD in Original Scale	37.74	SD in Log Scale	1.356
91	95% t UCL (assumes normality of ROS data)	25.53	95% Percentile Bootstrap UCL	25.7
92	95% BCA Bootstrap UCL	26.95	95% Bootstrap t UCL	27.59
93	95% H-UCL (Log ROS)	27.45		
94				
95	**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**			
96	KM Mean (logged)	2.142	KM Geo Mean	8.517
97	KM SD (logged)	1.296	95% Critical H Value (KM-Log)	2.498
98	KM Standard Error of Mean (logged)	0.104	95% H-UCL (KM -Log)	25.58
99	KM SD (logged)	1.296	95% Critical H Value (KM-Log)	2.498
100	KM Standard Error of Mean (logged)	0.104		

	A	B	C	D	E	F	G	H	I	J	K	L
101												
102	**DL/2 Statistics**											
103	**DL/2 Normal**						**DL/2 Log-Transformed**					
104	Mean in Original Scale					20.51	Mean in Log Scale					2.081
105	SD in Original Scale					37.75	SD in Log Scale					1.411
106	95% t UCL (Assumes normality)					25.51	95% H-Stat UCL					29.22
107	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
108												
109	**Nonparametric Distribution Free UCL Statistics**											
110	**Data do not follow a Discernible Distribution at 5% Significance Level**											
111												
112	**Suggested UCL to Use**											
113	95% KM (Chebyshev) UCL					33.73						
114												
115	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
116	Recommendations are based upon data size, data distribution, and skewness.											
117	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
118	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
119												

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Data Sets with Non-Detects											
2												
3	User Selected Options											
4	Date/Time of Computation			ProUCL 5.122/02/2023 3:45:06 PM								
5	From File			WorkSheet.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10	Lead											
11												
12	General Statistics											
13	Total Number of Observations					157	Number of Distinct Observations					91
14	Number of Detects					151	Number of Non-Detects					6
15	Number of Distinct Detects					89	Number of Distinct Non-Detects					2
16	Minimum Detect					1.1	Minimum Non-Detect					1
17	Maximum Detect					1200	Maximum Non-Detect					5
18	Variance Detects					19471	Percent Non-Detects					3.822%
19	Mean Detects					63.45	SD Detects					139.5
20	Median Detects					26	CV Detects					2.199
21	Skewness Detects					5.963	Kurtosis Detects					41.82
22	Mean of Logged Detects					3.158	SD of Logged Detects					1.441
23												
24	Normal GOF Test on Detects Only											
25	Shapiro Wilk Test Statistic					0.422	Normal GOF Test on Detected Observations Only					
26	5% Shapiro Wilk P Value					0	Detected Data Not Normal at 5% Significance Level					
27	Lilliefors Test Statistic					0.327	Lilliefors GOF Test					
28	5% Lilliefors Critical Value					0.0725	Detected Data Not Normal at 5% Significance Level					
29	Detected Data Not Normal at 5% Significance Level											
30												
31	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
32	KM Mean					61.08	KM Standard Error of Mean					10.96
33	KM SD					136.9	95% KM (BCA) UCL					80.13
34	95% KM (t) UCL					79.22	95% KM (Percentile Bootstrap) UCL					79.91
35	95% KM (z) UCL					79.11	95% KM Bootstrap t UCL					93.6
36	90% KM Chebyshev UCL					93.97	95% KM Chebyshev UCL					108.9
37	97.5% KM Chebyshev UCL					129.5	99% KM Chebyshev UCL					170.2
38												
39	Gamma GOF Tests on Detected Observations Only											
40	A-D Test Statistic					3.062	Anderson-Darling GOF Test					
41	5% A-D Critical Value					0.808	Detected Data Not Gamma Distributed at 5% Significance Level					
42	K-S Test Statistic					0.119	Kolmogorov-Smirnov GOF					
43	5% K-S Critical Value					0.08	Detected Data Not Gamma Distributed at 5% Significance Level					
44	Detected Data Not Gamma Distributed at 5% Significance Level											
45												
46	Gamma Statistics on Detected Data Only											
47	k hat (MLE)					0.62	k star (bias corrected MLE)					0.612
48	Theta hat (MLE)					102.4	Theta star (bias corrected MLE)					103.7
49	nu hat (MLE)					187.1	nu star (bias corrected)					184.7
50	Mean (detects)					63.45						
51												
52	Gamma ROS Statistics using Imputed Non-Detects											

53	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
54	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
55	For such situations, GROS method may yield incorrect values of UCLs and BTVs			
56	This is especially true when the sample size is small.			
57	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
58	Minimum	0.01	Mean	61.03
59	Maximum	1200	Median	25
60	SD	137.4	CV	2.251
61	k hat (MLE)	0.507	k star (bias corrected MLE)	0.502
62	Theta hat (MLE)	120.4	Theta star (bias corrected MLE)	121.7
63	nu hat (MLE)	159.2	nu star (bias corrected)	157.5
64	Adjusted Level of Significance (β)	0.0485		
65	Approximate Chi Square Value (157.48, α)	129.5	Adjusted Chi Square Value (157.48, β)	129.2
66	95% Gamma Approximate UCL (use when n>=50)	74.23	95% Gamma Adjusted UCL (use when n<50)	74.36
67				
68	**Estimates of Gamma Parameters using KM Estimates**			
69	Mean (KM)	61.08	SD (KM)	136.9
70	Variance (KM)	18744	SE of Mean (KM)	10.96
71	k hat (KM)	0.199	k star (KM)	0.199
72	nu hat (KM)	62.5	nu star (KM)	62.64
73	theta hat (KM)	306.9	theta star (KM)	306.2
74	80% gamma percentile (KM)	80.38	90% gamma percentile (KM)	184.7
75	95% gamma percentile (KM)	314.9	99% gamma percentile (KM)	673.5
76				
77	**Gamma Kaplan-Meier (KM) Statistics**			
78	Approximate Chi Square Value (62.64, α)	45.43	Adjusted Chi Square Value (62.64, β)	45.3
79	95% Gamma Approximate KM-UCL (use when n>=50)	84.21	95% Gamma Adjusted KM-UCL (use when n<50)	84.46
80				
81	**Lognormal GOF Test on Detected Observations Only**			
82	Shapiro Wilk Approximate Test Statistic	0.972	**Shapiro Wilk GOF Test**	
83	5% Shapiro Wilk P Value	0.0863	Detected Data appear Lognormal at 5% Significance Level	
84	Lilliefors Test Statistic	0.0711	**Lilliefors GOF Test**	
85	5% Lilliefors Critical Value	0.0725	Detected Data appear Lognormal at 5% Significance Level	
86	**Detected Data appear Lognormal at 5% Significance Level**			
87				
88	**Lognormal ROS Statistics Using Imputed Non-Detects**			
89	Mean in Original Scale	61.08	Mean in Log Scale	3.037
90	SD in Original Scale	137.3	SD in Log Scale	1.546
91	95% t UCL (assumes normality of ROS data)	79.22	95% Percentile Bootstrap UCL	81.09
92	95% BCA Bootstrap UCL	86.5	95% Bootstrap t UCL	93.25
93	95% H-UCL (Log ROS)	96.96		
94				
95	**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**			
96	KM Mean (logged)	3.046	KM Geo Mean	21.03
97	KM SD (logged)	1.519	95% Critical H Value (KM-Log)	2.741
98	KM Standard Error of Mean (logged)	0.122	95% H-UCL (KM -Log)	93.01
99	KM SD (logged)	1.519	95% Critical H Value (KM-Log)	2.741
100	KM Standard Error of Mean (logged)	0.122		
101				
102	**DL/2 Statistics**			
103	**DL/2 Normal**		**DL/2 Log-Transformed**	
104	Mean in Original Scale	61.07	Mean in Log Scale	3.031

	A	B	C	D	E	F	G	H	I	J	K	L
105	SD in Original Scale					137.4	SD in Log Scale					1.558
106	95% t UCL (Assumes normality)					79.21	95% H-Stat UCL					98.64
107	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
108												
109	**Nonparametric Distribution Free UCL Statistics**											
110	**Detected Data appear Lognormal Distributed at 5% Significance Level**											
111												
112	**Suggested UCL to Use**											
113	KM H-UCL					93.01						
114												
115	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
116	Recommendations are based upon data size, data distribution, and skewness.											
117	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
118	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
119												

	A–E	F	G–K	L
1	UCL Statistics for Data Sets with Non-Detects			
2				
3	User Selected Options			
4	Date/Time of Computation	ProUCL 5.16/03/2023 1:43:51 PM		
5	From File	WorkSheet.xls		
6	Full Precision	OFF		
7	Confidence Coefficient	95%		
8	Number of Bootstrap Operations	2000		
9				
10	**Ni**			
11				
12	**General Statistics**			
13	Total Number of Observations	155	Number of Distinct Observations	63
14	Number of Detects	125	Number of Non-Detects	30
15	Number of Distinct Detects	62	Number of Distinct Non-Detects	3
16	Minimum Detect	1	Minimum Non-Detect	1
17	Maximum Detect	59	Maximum Non-Detect	5
18	Variance Detects	77.61	Percent Non-Detects	19.35%
19	Mean Detects	6.552	SD Detects	8.81
20	Median Detects	3.4	CV Detects	1.345
21	Skewness Detects	3.574	Kurtosis Detects	15.55
22	Mean of Logged Detects	1.37	SD of Logged Detects	0.949
23				
24	**Normal GOF Test on Detects Only**			
25	Shapiro Wilk Test Statistic	0.606	**Normal GOF Test on Detected Observations Only**	
26	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
27	Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**	
28	5% Lilliefors Critical Value	0.0796	Detected Data Not Normal at 5% Significance Level	
29	**Detected Data Not Normal at 5% Significance Level**			
30				
31	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
32	KM Mean	5.49	KM Standard Error of Mean	0.659
33	KM SD	8.174	95% KM (BCA) UCL	6.695
34	95% KM (t) UCL	6.581	95% KM (Percentile Bootstrap) UCL	6.62
35	95% KM (z) UCL	6.574	95% KM Bootstrap t UCL	7.018
36	90% KM Chebyshev UCL	7.468	95% KM Chebyshev UCL	8.364
37	97.5% KM Chebyshev UCL	9.607	99% KM Chebyshev UCL	12.05
38				
39	**Gamma GOF Tests on Detected Observations Only**			
40	A-D Test Statistic	4.033	**Anderson-Darling GOF Test**	
41	5% A-D Critical Value	0.78	Detected Data Not Gamma Distributed at 5% Significance Level	
42	K-S Test Statistic	0.137	**Kolmogorov-Smirnov GOF**	
43	5% K-S Critical Value	0.0853	Detected Data Not Gamma Distributed at 5% Significance Level	
44	**Detected Data Not Gamma Distributed at 5% Significance Level**			
45				
46	**Gamma Statistics on Detected Data Only**			
47	k hat (MLE)	1.118	k star (bias corrected MLE)	1.097
48	Theta hat (MLE)	5.858	Theta star (bias corrected MLE)	5.973
49	nu hat (MLE)	279.6	nu star (bias corrected)	274.2
50	Mean (detects)	6.552		

	A–E	F	G–K	L
51				
52	**Gamma ROS Statistics using Imputed Non-Detects**			
53	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
54	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
55	For such situations, GROS method may yield incorrect values of UCLs and BTVs			
56	This is especially true when the sample size is small.			
57	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
58	Minimum	0.01	Mean	5.286
59	Maximum	59	Median	2.4
60	SD	8.32	CV	1.574
61	k hat (MLE)	0.446	k star (bias corrected MLE)	0.441
62	Theta hat (MLE)	11.86	Theta star (bias corrected MLE)	11.98
63	nu hat (MLE)	138.1	nu star (bias corrected)	136.8
64	Adjusted Level of Significance (β)	0.0485		
65	Approximate Chi Square Value (136.80, α)	110.8	Adjusted Chi Square Value (136.80, β)	110.6
66	95% Gamma Approximate UCL (use when n>=50)	6.528	95% Gamma Adjusted UCL (use when n<50)	6.54
67				
68	**Estimates of Gamma Parameters using KM Estimates**			
69	Mean (KM)	5.49	SD (KM)	8.174
70	Variance (KM)	66.81	SE of Mean (KM)	0.659
71	k hat (KM)	0.451	k star (KM)	0.447
72	nu hat (KM)	139.9	nu star (KM)	138.5
73	theta hat (KM)	12.17	theta star (KM)	12.29
74	80% gamma percentile (KM)	8.956	90% gamma percentile (KM)	15.19
75	95% gamma percentile (KM)	21.95	99% gamma percentile (KM)	38.74
76				
77	**Gamma Kaplan-Meier (KM) Statistics**			
78	Approximate Chi Square Value (138.49, α)	112.3	Adjusted Chi Square Value (138.49, β)	112.1
79	95% Gamma Approximate KM-UCL (use when n>=50)	6.771	95% Gamma Adjusted KM-UCL (use when n<50)	6.784
80				
81	**Lognormal GOF Test on Detected Observations Only**			
82	Shapiro Wilk Approximate Test Statistic	0.935	**Shapiro Wilk GOF Test**	
83	5% Shapiro Wilk P Value	4.3615E-6	Detected Data Not Lognormal at 5% Significance Level	
84	Lilliefors Test Statistic	0.0982	**Lilliefors GOF Test**	
85	5% Lilliefors Critical Value	0.0796	Detected Data Not Lognormal at 5% Significance Level	
86	**Detected Data Not Lognormal at 5% Significance Level**			
87				
88	**Lognormal ROS Statistics Using Imputed Non-Detects**			
89	Mean in Original Scale	5.399	Mean in Log Scale	0.973
90	SD in Original Scale	8.252	SD in Log Scale	1.204
91	95% t UCL (assumes normality of ROS data)	6.496	95% Percentile Bootstrap UCL	6.565
92	95% BCA Bootstrap UCL	6.704	95% Bootstrap t UCL	6.782
93	95% H-UCL (Log ROS)	6.902		
94				
95	**Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution**			
96	KM Mean (logged)	1.114	KM Geo Mean	3.045
97	KM SD (logged)	1	95% Critical H Value (KM-Log)	2.208
98	KM Standard Error of Mean (logged)	0.0808	95% H-UCL (KM -Log)	5.999
99	KM SD (logged)	1	95% Critical H Value (KM-Log)	2.208
100	KM Standard Error of Mean (logged)	0.0808		

	A–E	F	G–K	L
101				
102	**DL/2 Statistics**			
103	**DL/2 Normal**		**DL/2 Log-Transformed**	
104	Mean in Original Scale	5.406	Mean in Log Scale	0.999
105	SD in Original Scale	8.248	SD in Log Scale	1.152
106	95% t UCL (Assumes normality)	6.503	95% H-Stat UCL	6.562
107	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
108				
109	**Nonparametric Distribution Free UCL Statistics**			
110	**Data do not follow a Discernible Distribution at 5% Significance Level**			
111				
112	**Suggested UCL to Use**			
113	95% KM (Chebyshev) UCL	8.364		
114				
115	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
116	Recommendations are based upon data size, data distribution, and skewness.			
117	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
118	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
119				

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Data Sets with Non-Detects											
2												
3	User Selected Options											
4	Date/Time of Computation			ProUCL 5.16/03/2023 11:50:11 AM								
5	From File			WorkSheet.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10	Zn											
11												
12	General Statistics											
13	Total Number of Observations					156	Number of Distinct Observations					94
14	Number of Detects					153	Number of Non-Detects					3
15	Number of Distinct Detects					93	Number of Distinct Non-Detects					1
16	Minimum Detect					2.1	Minimum Non-Detect					1
17	Maximum Detect					540	Maximum Non-Detect					1
18	Variance Detects					5913	Percent Non-Detects					1.923%
19	Mean Detects					55.95	SD Detects					76.9
20	Median Detects					32	CV Detects					1.374
21	Skewness Detects					3.362	Kurtosis Detects					14.41
22	Mean of Logged Detects					3.373	SD of Logged Detects					1.186
23												
24	Normal GOF Test on Detects Only											
25	Shapiro Wilk Test Statistic					0.643	Normal GOF Test on Detected Observations Only					
26	5% Shapiro Wilk P Value					0	Detected Data Not Normal at 5% Significance Level					
27	Lilliefors Test Statistic					0.242	Lilliefors GOF Test					
28	5% Lilliefors Critical Value					0.072	Detected Data Not Normal at 5% Significance Level					
29	Detected Data Not Normal at 5% Significance Level											
30												
31	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
32	KM Mean					54.89	KM Standard Error of Mean					6.127
33	KM SD					76.28	95% KM (BCA) UCL					64.79
34	95% KM (t) UCL					65.03	95% KM (Percentile Bootstrap) UCL					65.12
35	95% KM (z) UCL					64.97	95% KM Bootstrap t UCL					68.26
36	90% KM Chebyshev UCL					73.28	95% KM Chebyshev UCL					81.6
37	97.5% KM Chebyshev UCL					93.16	99% KM Chebyshev UCL					115.9
38												
39	Gamma GOF Tests on Detected Observations Only											
40	A-D Test Statistic					1.862	Anderson-Darling GOF Test					
41	5% A-D Critical Value					0.788	Detected Data Not Gamma Distributed at 5% Significance Level					
42	K-S Test Statistic					0.105	Kolmogorov-Smirnov GOF					
43	5% K-S Critical Value					0.0783	Detected Data Not Gamma Distributed at 5% Significance Level					
44	Detected Data Not Gamma Distributed at 5% Significance Level											
45												
46	Gamma Statistics on Detected Data Only											
47	k hat (MLE)					0.898	k star (bias corrected MLE)					0.885
48	Theta hat (MLE)					62.32	Theta star (bias corrected MLE)					63.25
49	nu hat (MLE)					274.7	nu star (bias corrected)					270.7
50	Mean (detects)					55.95						

Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	54.88
Maximum	540	Median	32
SD	76.54	CV	1.395
k hat (MLE)	0.761	k star (bias corrected MLE)	0.75
Theta hat (MLE)	72.13	Theta star (bias corrected MLE)	73.13
nu hat (MLE)	237.4	nu star (bias corrected)	234.1
Adjusted Level of Significance (β)	0.0485		
Approximate Chi Square Value (234.12, α)	199.7	Adjusted Chi Square Value (234.12, β)	199.4
95% Gamma Approximate UCL (use when n>=50)	64.33	95% Gamma Adjusted UCL (use when n<50)	64.43
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	54.89	SD (KM)	76.28
Variance (KM)	5819	SE of Mean (KM)	6.127
k hat (KM)	0.518	k star (KM)	0.512
nu hat (KM)	161.6	nu star (KM)	159.8
theta hat (KM)	106	theta star (KM)	107.2
80% gamma percentile (KM)	90.24	90% gamma percentile (KM)	147.8
95% gamma percentile (KM)	209.1	99% gamma percentile (KM)	359.5
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (159.81, α)	131.6	Adjusted Chi Square Value (159.81, β)	131.3
95% Gamma Approximate KM-UCL (use when n>=50)	66.67	95% Gamma Adjusted KM-UCL (use when n<50)	66.79
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Approximate Test Statistic	0.974	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	0.127	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0626	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.072	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	54.9	Mean in Log Scale	3.314
SD in Original Scale	76.52	SD in Log Scale	1.248
95% t UCL (assumes normality of ROS data)	65.04	95% Percentile Bootstrap UCL	65.75
95% BCA Bootstrap UCL	66.97	95% Bootstrap t UCL	67.18
95% H-UCL (Log ROS)	76.62		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	3.308	KM Geo Mean	27.34
KM SD (logged)	1.259	95% Critical H Value (KM-Log)	2.46
KM Standard Error of Mean (logged)	0.101	95% H-UCL (KM -Log)	77.44
KM SD (logged)	1.259	95% Critical H Value (KM-Log)	2.46
KM Standard Error of Mean (logged)	0.101		

	A	B	C	D	E	F	G	H	I	J	K	L
101												
102	DL/2 Statistics											
103	DL/2 Normal						DL/2 Log-Transformed					
104	Mean in Original Scale					54.88	Mean in Log Scale					3.295
105	SD in Original Scale					76.53	SD in Log Scale					1.301
106	95% t UCL (Assumes normality)					65.02	95% H-Stat UCL					81.7
107	DL/2 is not a recommended method, provided for comparisons and historical reasons											
108												
109	Nonparametric Distribution Free UCL Statistics											
110	Detected Data appear Lognormal Distributed at 5% Significance Level											
111												
112	Suggested UCL to Use											
113	KM H-UCL					77.44						
114												
115	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
116	Recommendations are based upon data size, data distribution, and skewness.											
117	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
118	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
119												