

**TARGETED CONTAMINATION  
ASSESSMENT  
SYDNEY ADVENTIST HOSPITAL  
WAHROONGA NSW**

Prepared for:

Morris Bray Architects  
186-188 Willoughby Road  
Crows Nest NSW 2065

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Written/Submitted by:



Philip Hutson  
Environmental Scientist

Written/Submitted by:



Nalin De Silva  
Senior Associate

Reviewed/Approved by:



Gary Bagwell  
Principal

8 December 2010

Morris Bray Architects  
186-188 Willoughby Road  
Crows Nest NSW 2065

**Attention: Cameron Martin**

Dear Cameron

**RE: Targeted Contamination Assessment  
SAN Hospital, Wahroonga**

Coffey Pty Ltd (Coffey) is pleased to present the report on the Targeted Contamination Assessment within the SAN Hospital, Wahroonga. The assessment included review of existing contamination assessment data, soil and groundwater sampling within selected areas of the proposed development and assessment of the suitability of the proposed development areas for ongoing commercial and industrial land use.

We draw your attention to the enclosed sheet entitled "Important Information about Your Coffey Environmental Report" which should be read in conjunction with the report.

If you have any questions, please call the undersigned on (02) 8083 1600.

For and on behalf of Coffey Environments Australia Pty Ltd



Nalin De Silva  
Senior Associate

## RECORD OF DISTRIBUTION

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## ABBREVIATIONS

<b>AHD</b>	Australian Height Datum
<b>C6-C36</b>	Hydrocarbon chainlength fraction
<b>Bgs</b>	below ground surface
<b>BH</b>	Borehole
<b>BTEX</b>	Benzene, Toluene, Ethylbenzene and Xylenes
<b>COC</b>	Chain of Custody
<b>ID</b>	Identification
<b>HBSIL</b>	Health Based Soil Investigation Level
<b>LOR</b>	Limit of Reporting
<b>µg/L</b>	micrograms per litre
<b>mg/kg</b>	milligrams per kilogram
<b>NEHF</b>	National Environmental Health Forum
<b>NEPM</b>	National Environment Protection Measure
<b>NSW EPA</b>	Environment Protection Authority of New South Wales
<b>OCP</b>	Organochlorine Pesticide
<b>PAH</b>	Polycyclic Aromatic Hydrocarbon
<b>PCB</b>	Polychlorinated Biphenyl
<b>PID</b>	Photoionisation Detector
<b>Ppm</b>	parts per million
<b>PQL</b>	Practical Quantitation Limit
<b>QA</b>	Quality Assurance
<b>QC</b>	Quality Control

<b>RPD</b>	Relative Percent Difference
<b>SOP</b>	Standard Operating Procedures
<b>TPH</b>	Total Petroleum Hydrocarbon

## 1 INTRODUCTION

Coffey Environments Australia Pty Ltd (Coffey) was commissioned by Morris Bray Architects to conduct a targeted contamination assessment at identified portions of the Sydney Adventist Hospital (SAN Hospital) located at 185 Fox Valley Road in Wahroonga, NSW. This report presents the findings of the targeted contamination assessment.

### 1.1 Background

Coffey understands that:

- Morris Bray Architects are planning to submit a development application (DA) for the redevelopment of the SAN hospital;
- A number of contamination assessments, including desktop reviews and intrusive sampling, had been conducted on various portions of the SAN Hospital by Coffey and other consultants. Areas proposed to be developed and previously assessed areas including borehole locations are shown in the figure included in Appendix D;
- Limited contamination assessments conducted by Coffey (Coffey Environments, 2008) and EIS (EIS, 2009) in some of the areas where development was proposed indicated there was a low potential for widespread contamination in the areas that were assessed;
- A Phase 1 Contamination Assessment, conducted across the whole of the SAN Hospital property, by Douglas Partners in 2008 (DP, 2008) indicated the following potentially contaminating activities in areas of the site that are proposed to be developed, but had been previously assessed for contamination (refer to previous borehole location in Appendix D). The areas of concern are shown in the DP (2008) figure attached in Appendix E:
  - Maintenance workshops;
  - Storage of chemicals, flammable liquids and toxic liquids;
  - Existing underground storage tank in the south western corner of the operating theatre block;
  - Existing above ground storage tanks (2) to the west of the boiler house; and
  - Incinerator;
- DP (2008) recommended an intrusive assessment be conducted to assess the soil and groundwater contamination status in and around these areas of environmental concern;

Coffey understands that one of the planning conditions that must to be satisfied for the DA includes:

#### ***B13 Contamination***

***(1) A Phase 2 Detailed Site Contamination Assessment in accordance with State Environmental Planning Policy No 55 – Remediation of Land and associated guidelines is to be submitted for approval with the first project or development application for development in or adjacent to potentially affected areas identified in the Phase 1 Contamination Assessment.***

To satisfy the above planning condition, Coffey proposed an additional targeted contamination assessment, targeting areas that are proposed to be developed that have not been assessed previously:

- New CSB Expansion – Stage 1A;
- New CSB Expansion – Stage 1B;
- Education Centre – Stage 2;
- Roads from the main entrance – Stage 2; and
- Shannon Ward Building and Car park – Stage 3.

The additional assessment was limited to the assessment areas as shown in Figure 1.

## **1.2 Objectives**

The objectives of the contamination assessment were to:

- Review the previous contamination assessment reports by EIS, Coffey Environments and DP pertaining to various portions of the proposed development area;
- Assess the contamination status of soil and groundwater in the following proposed development areas:
  - New CBS Expansion – Stage 1A,
  - New CBS Expansion – Stage 1B,
  - Education Centre – Stage 2,
  - Roads from the main site entrance – Stage 2, and
  - Shannon Ward Building and Car Park – Stage 3; and
- Assess the likelihood of the proposed development areas being suitable for the proposed ongoing commercial and industrial land use.

### 1.3 Scope of Works

The following scope of works was undertaken to achieve the objectives detailed above:

- Desktop review of the contamination assessment reports<sup>1,2,3</sup> for the site that were made available to Coffey;
- Site walkover to assess current site conditions and areas of environmental concern identified by DP (2008);
- Development of a Sampling and Analytical Plan (SAP) for implementation during fieldwork;
- Drilling of sixteen (16) boreholes to depths ranging between 1.1m and 6.0m below ground surface (bgs) and conversion of three (3) of the boreholes into monitoring wells;
- Excavation of seven (7) test pits to depths between 1.0 and 1.2m bgs;
- Collection of four (4) surface soil samples;
- Collection of groundwater samples from the three (3) monitoring wells;
- Laboratory analysis of selected soil and groundwater samples for potential contaminants of concern identified from the review of the DP (2008) report, including:
  - Total petroleum hydrocarbons (TPH),
  - Benzene, toluene, ethylbenzene and xylene (BTEX),
  - Polycyclic aromatic hydrocarbons (PAH),
  - Metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn),
  - Organochlorine pesticides (OCP),
  - Polychlorinated biphenyls (PCB), and
  - Asbestos;
- Review of laboratory results and preparation of this report.

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<sup>1</sup> Coffey Environments (2008). Contamination Assessment, Sydney Adventist Hospital.

<sup>2</sup> Douglas Partners (2008). Phase 1 Contamination Assessment, Proposed Redevelopment Wairoonga Estate.

<sup>3</sup> Environmental Investigation Services (2009). Stage 1 Environmental Site Assessment Proposed Hospital Upgrade Redevelopment.

## 2 SITE DESCRIPTION

### 2.1 Site Identification and Surrounding Land Use

General site information pertaining to the entire SAN Hospital site is provided in Table 2.1.

**Table 2.1: Site Identification**

<b>Site Name:</b>	Sydney Adventist Hospital
<b>Site Address:</b>	185 Fox Valley Road, Wahroonga
<b>Current Zoning:</b>	5(a) Special Uses A – Hospital
<b>Current Land use:</b>	Hospital
<b>Adjoining Site Uses:</b>	Bushland to the north and west beyond The Comenarra Parkway.  Low density residential land use to east and south beyond The Comenarra Parkway and Fox Valley Road.  Childcare Centre to the southeast at the intersection of The Comenarra Parkway and Fox Valley Road.

### 2.2 Site Condition and Infrastructure

A site walkover was conducted on 24<sup>th</sup> and 25<sup>th</sup> of November 2010 by Nalin De Silva of Coffey to observe the general condition of the assessment areas and to observe the areas of potential contamination identified in the Phase 1 Contamination Assessment by DP (2008) (refer to Appendix E). This section provides a summary of the site observations made by Coffey during the site walkover. Anecdotal evidence obtained through conversations with SAN Hospital staff is also presented here. The site observations are presented separately for each of the proposed development areas as identified in Figure 1.

#### 2.2.1 Proposed CSB Expansion Area – Stage 1A and 1B

The proposed CSB expansion area consisted predominantly of grassed open area and a set of tennis courts (see Photograph 1). There was evidence of surface disturbance, possibly a demolished small structure, to the east of the tennis courts on the grassed area. An underground storage tank (UST) was located at the south western corner of the existing CSB block. An access port for the UST (shown on Photograph 1, in front of the bench and table) indicated that the top of the tank of approximately 1.2m below ground level. SAN Hospital staff indicated that the tank had a capacity of 12000L and was used to store diesel for the generator that was located in the adjacent CSB block.

The grass cover and vegetation on the proposed CSB expansion area were generally in good health and did not show evidence of die back. Evidence of contamination (odours, significant oil staining, asbestos containing materials) was not identified during the site walkover.



### **2.2.2 Proposed Education Centre – Stage 2**

This area consisted of three existing residential dwellings, currently used to accommodate hospital staff. The three brick buildings are proposed to be demolished to construct the new Education Centre.

The land outside of the residential dwellings was grassed. The grass and other vegetation in the area were in good condition and did not show evidence of dieback. Evidence of contamination (odours, significant oil staining, asbestos containing materials) was not identified during the site walkover.

### **2.2.3 Roads from the main entrance – Stage 2**

This area consisted of the existing roads allowing access into the hospital, the Fox Valley Community Centre and the adjacent church, as well as garden beds, nature strips and car park areas. The ground surface included asphalt, garden mulch and grassed areas. The vegetation appeared to be in good health and did not show evidence of die back. Evidence of contamination (odours, significant oil staining, asbestos containing materials) was not identified during the site walkover.

### **2.2.4 Shannon Ward Building and Car Park – Stage 3**

This area consisted of a number of buildings, asphalt surfaces including roadways and driveways, grassed areas and garden beds (see photographs 9 and 10). The buildings included the existing Shannon Building, the male residences, and maintenance workshops. Above ground infrastructure in this area is proposed to be demolished for construction of the proposed Shannon Building and car park.

The vegetation in this area varied in condition, with some areas well maintained and other areas in apparent neglect with tall grass and weed growth evident. However, the observed vegetation appeared healthy and did not show evidence of die back. Evidence of contamination (odours, significant oil staining, asbestos containing materials) was not identified during the site walkover.

The Phase 1 Contamination Assessment by DP (2008) indicated the presence of a number of areas of potential environmental concern in this area (refer to Appendix E), including:

- Maintenance workshops to the south west of the male residence;
- Two above ground storage tanks (AST) (one used to store diesel although its currently not in use, and the other used to store oil for the boiler) to the south west of the maintenance workshops. SAN Hospital staff indicated that there were also two underground storage tanks (UST) that had previously been decommissioned in this area, although the exact location of these USTs were not ascertained on site during the site walkover by Coffey; and
- A substation, a diesel generator room and an AST containing diesel to the north west of the Physio and Maternity buildings.

These areas of potential environmental concern identified by DP (2008) were observed by Coffey during the site walkover. The observations are summarised below.

#### **2.2.4.1 Maintenance workshops**

The maintenance workshops were brick buildings with concrete floors. They appeared to be well maintained (see photographs 2 and 3). Although some moderate oil stained areas were observed, significant cracks were not observed in the concrete slab in these areas (see photograph 4). As such,

the observed oil stains are unlikely to have caused significant contamination of soils and groundwater beneath.

A number of dangerous goods stores that were identified by DP (2008) were also observed by Coffey around the workshops. These dangerous goods stores were generally well maintained and fenced, with a concrete floor (refer to Photograph 5). Evidence of significant contamination was not observed in or around the dangerous goods stores.

#### 2.2.4.2 Above Ground Storage Tanks to the South West of Maintenance Workshops

An AST labelled diesel was observed by Coffey to the south west of the maintenance workshop. SAN Hospital staff indicated that this AST is currently empty and has not been used recently. The AST was bunded and was located on a concrete floor that did not appear to have significant cracks or oil staining. SAN Hospital staff indicated that there have not been any documented spills from this AST.

SAN Hospital staff indicated that there were two USTs (one petrol and one diesel) in this area, although the location was not ascertained during the site walkover by Coffey. The petrol tank is understood to have been removed and the diesel tank is understood to have been filled with sand/soil, although WorkCover documentation has indicated that appropriate procedures were not followed for the decommissioning (Coffey Environments, 2008). SAN Hospital staff indicated there was a report pertaining to the decommission of the tanks, but it could not be retrieved during this assessment.

#### 2.2.4.3 Substation, Diesel Generator and AST to North West of Physio and Maternity Building

A substation, a diesel generator and a diesel AST was located below the surrounding ground level, to the north west of the physio and maternity building (see photographs 7 and 8). The AST was bunded and was located on a concrete floor. Significant oil stains were not observed beneath the AST.

The generator and the substation were enclosed in a building structure, and could not be observed by Coffey. The area outside of the substation and generator did not have significant oil staining. The concrete floor was in good condition, and is thus unlikely to have caused significant contamination of soil and groundwater beneath.

## 2.3 Topography and Hydrology

A review of the *1:25,000 Hornsby Topographic Map* (9130-4-S) indicates that the site lies at an elevation of between approximately 160m and 170m above Australian Height Datum (AHD).

Coups Creek is located to the immediate northwest of the hospital grounds and flows in a broadly southwesterly direction, discharging to the Lane Cove River less than 500m to the west of the site.

### **3 GEOLOGY AND HYDROGEOLOGY**

#### **3.1 Regional Geology**

A review of the 1:1,000,000 Sydney Geological Series Sheet (9130) indicates that the site lies on the boundary of Hawkesbury Sandstone and Ashfield Shale of the Wianamatta Group.

Hawkesbury Sandstone typically comprises medium to coarse grained sandstone with minor shale and laminate lenses, while Ashfield Shale comprises black to dark grey shale and laminate.

##### **3.1.1 Site Specific Geology**

The geology noted onsite during the fieldwork is consistent with the regional geology outlined above. Appendix B presents the borelogs for each of the investigation locations.

Where the ground surface was not covered by asphalt, topsoil described as dark-brown, medium to fine grained sand with rootlets was encountered at the majority of locations to a depth of up to 0.5m bgs.

Intrusive investigations in the CSB expansion area (Figure 2) encountered residual clay, orange-brown in colour, to a depth of approximately 2.0m to 3.0m bgs. The clay was followed by grey shale to a depth of approximately 4.9m to 5.6m bgs where bedrock was encountered.

A fill material, generally consisting of a dark brown, clayey sand was encountered at the majority of locations within the proposed area of the Shannon Ward Building and Car park (Figure 5) to a depth of up to 0.8m bgs. Residual clay, brown to orange in colour, was encountered extending to a depth of approximately 1.2m to 3.1m bgs underlain by shale. Sandstone was encountered in the deepest investigation point in the Shannon Ward Building and Car park area (MW112) at approximately 3.1m bgs.

Drilling in the area where new roads are proposed near the hospital entrance (Figure 4) encountered fill material generally described as grey gravelly sand at the majority of locations to a depth of up to 0.5m bgs. The fill material was followed by an orange brown clay and weathered shale. Sandstone was encountered at BH127 at approximately 1.2m bgs.

#### **3.2 Hydrogeology**

A search of groundwater bore licences was undertaken on 1 October 2010 using the NSW Natural Resources Atlas (NSW-NRA, <http://nratlas.nsw.gov.au>). The results of the search indicated that there is only one registered groundwater bore within 500m of the site. The bore is located on the northwestern side of Coups Creek and was installed to a depth of 180m below ground surface. The bore is authorised for use for recreational purposes.

The groundwater level noted onsite during sampling of the three (3) monitoring wells installed during the current assessment was between 2.427m and 2.998m bgs. The groundwater gauging results are presented in Table 3.

## 4 SITE HISTORY AND PREVIOUS ASSESSMENT WORKS

### 4.1 Site History Summary

The following site history summary is based on information presented in previous reports prepared for the site.

- It is suggested that the site has been used as a hospital since prior to 1951 and potentially as far back as 1903 (Coffey Environments, 2008).
- Aerial photographs indicate that extensive market gardens and orchards were historically present within the area immediately surrounding the site (EIS, 2009).
- Title certificates indicate that Sydney Sanitarium and Benevolent Associate was the registered proprietor of a portion of the site since 1903. Following this, ownership of the site was transferred to the Australasian Conference Association Limited who remains the registered proprietor (Coffey Environments, 2008).
- The NSW DECCW Contaminated Land Record website indicates that there are currently no notices issued for the site under the Environmentally Hazardous Chemicals Act 1985 or the Contaminated Land Management Act 1997 (Coffey Environments, 2008).
- The NSW DECCW public register for Licenses, Applications and Notices website indicates that the site has an EPA license for Hazardous, Industrial or Group A waste generation or storage (73) up to 100t under section 308 of the Protection of the Environment Operations Act 1997. No breaches or notices have been issued for the site under the license (Coffey Environments, 2008).
- A review of Licenses to Keep Dangerous Goods issued for the site by WorkCover indicated that a license exists (No.35/0174066) for the SAN Hospital to store a number of dangerous goods at various locations throughout the hospital grounds. The records indicate the following five stores for petroleum fuel were present on-site:
  - An aboveground 15,000L diesel tank located to the southwest of the existing maintenance workshop;
  - An aboveground 20,000L diesel tank located to the southwest of the existing maintenance workshop;
  - An underground 12,000L diesel tank located adjacent and to the southwest of the clinical services building;
  - An aboveground 2,500L diesel tank located adjacent and to the southeast of the tower building at the rear of the substation, with an additional two smaller tanks within the substation to fuel backup generators; and
  - A flammable goods cabinet located in the gardeners section of the maintenance workshop licensed to store 100L of petroleum.
- The records also cited a license for a 3,000L underground storage tank (UST) that was replaced by a tank with a similar capacity in 1971 (EIS, 2009).
- WorkCover documentation further indicated that appropriate procedures were not followed for the decommissioning of two 20,000L USTs that were located in the vicinity of the existing maintenance

workshop. The documentation indicated that a petrol tank was removed and a diesel tank was filled with sand/soil (Coffey Environments, 2008).

## **4.2 Previous Assessment Work**

Coffey has been provided with three previous contamination assessments conducted at the site. These assessments have targeted various areas where development was proposed, but has not assessed all of the proposed development areas. A summary of these is presented below.

### **4.2.1 Contamination Assessment, Sydney Adventist Hospital (Coffey Environments, 2008)**

This assessment was carried out in response to the proposed construction of four buildings within the hospital site and included a site history review and intrusive soil sampling within the proposed building footprints. This assessment also did not cover the proposed CSB extension, Shannon ward and car park, new roads and the education centre.

A total of 28 boreholes were drilled and up to 63 samples selected for analysis. The bore logs showed that fill was present to depths ranging from 0.2m bgs to a maximum recorded depth of 6.9m bgs.

All soil samples reported concentrations of heavy metals, TPH, BTEX, PAH, OCP and PCB either below the adopted assessment criteria and/or the laboratory limit of reporting. In addition, no asbestos was detected in the samples submitted for analysis.

The report concluded that the areas subject to assessment were considered suitable for the proposed commercial use.

### **4.2.2 Phase 1 Contamination Assessment, Proposed Redevelopment Wahroonga Estate (DP, 2008)**

The Wahroonga Estate is an irregular shaped area of land covering approximately 62 hectares and divided into two sections by Coups Creek. The DP phase 1 contamination assessment covered the entire SAN Hospital site.

The scope of work for this assessment included a site walkover and a site history review.

The results of the assessment identified the following areas of environmental concern associated with the hospital site:

- Footprints of buildings to be demolished, particularly timber or timber framed buildings;
- Areas of fill;
- ASTs / USTs;
- Pesticide stores; and
- Waste disposal areas.

The assessment concluded that there is likely to be a low potential for contamination of the soil and groundwater underlying the site. However, a phase 2 assessment with soil and groundwater assessment was recommended.

#### 4.2.3 Stage 1 Environmental Site Assessment, Proposed Hospital Upgrade Redevelopment (EIS, 2009)

The assessment was designed to assess the risk of widespread contamination of the investigation areas and the suitability for the proposed land use. This assessment also did not cover the proposed CSB extension, Shannon ward and car park, new roads and the education centre. The assessment included a site walkover, site history review and intrusive soil sampling.

The assessment was targeted to identify areas of concern associated with the hospital redevelopment including potentially contaminated imported fill material, areas where pesticides may have been historically used or stored and areas that may have been impacted by fuel storage and use.

A total of 18 soil bores were drilled across the two development areas and two monitoring wells were installed.

Soil samples reported concentrations of the identified contaminants of potential concern less than the adopted assessment criteria. In addition, no asbestos was detected in any of the samples submitted for analysis.

Groundwater was measured at a depth of between 2.94m and 4.47m bgs. All groundwater samples reported concentrations of the identified contaminants of potential concern that were less than the adopted assessment criteria with the exception of zinc in both wells, and lead and nickel in one well. It was considered likely that the slightly elevated heavy metal concentrations are representative of naturally occurring regional factors.

The assessment concluded that major contamination of the assessment areas was not apparent. EIS concluded that based on their scope of works that the site is suitable for the proposed development provided regular inspections are undertaken during the development works.

### 4.3 Contaminants of Potential Concern

Based on a review of previous assessment reports, together with knowledge obtained from a site walkover, a summary of the proposed development areas and associated potential chemicals of concern for the site are presented in Table 4.2.

**Table 4.2: Identified Contaminants of Potential Concern**

Proposed Development Areas	Potential Chemicals of Concern (soil)
CBS Expansion – Stage 1A CBS Expansion – Stage 1B	Surface soils / fill: heavy metals, PAH, TPH, BTEX, asbestos Deeper soils: heavy metals, PAH
Education Centre – Stage 2	Surface soils / fill: heavy metals, PAH, OCP, asbestos
Roads from the main entrance – Stage 2	Surface soils / fill: heavy metals, PAH, OCP, asbestos Deeper soils: heavy metals, PAH
Shannon Ward Building Car Park	Surface soils / fill: heavy metals, PAH, TPH, BTEX, asbestos

Proposed Development Areas	Potential Chemicals of Concern (soil)
– Stage 3	Deeper soils: heavy metals, PAH, TPH, BTEX

Note: Heavy metals include arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc.

Groundwater from monitoring wells installed on-site will be analysed for heavy metals (filtered), PAH, TPH and BTEX.

## 5 SAMPLING AND ANALYSIS PLAN

### 5.1 Data Quality Objectives

Data quality objectives (DQOs) for the contamination assessment have been developed in general accordance with the seven step process outlined in NSW DEC (2006) and the decision-making process for assessing urban redevelopment sites provided as Appendix I in NSW DEC (2006).

#### Step 1: State the Problem

The primary objective is to assess whether the proposed development areas are suitable for the proposed ongoing commercial/industrial land use.

The main problems are:

- How many soil and groundwater samples should be collected?
- At what depth should soil samples be collected?
- What sample layout should be used to achieve the above objectives?
- What are the contaminants of potential concern?

#### Step 2: Identify the Decision

The decisions that are to be made include:

- Is the data suitable for assessing the suitability of the site for the proposed land use?
- Are the site soils and underlying groundwater suitable for the proposed land use?
- Are there any potential aesthetic issues including visual or olfactory evidence of contamination in surface soils?
- Are contaminants present at concentrations that are likely to impact the surrounding environment?

#### Step 3: Identify Inputs to the Decision

The primary inputs to assessing the above include:

- Review of previous environmental reports prepared for the site.
- Data collected during site investigation works, including field measurements, observations, and soil and groundwater laboratory results.
- Outcome of the quality assessment of available data.

- Relevant legislation and regulatory guidelines.

#### **Step 4: Define the Study Boundaries**

The study boundaries are defined by the footprints of the following proposed developments:

- New CBS Expansion – Stage 1A;
- New CBS Expansion – Stage 1B;
- Education Centre – Stage 2;
- Roads from the main site entrance – Stage 2; and
- Shannon Ward Building and Car park - Stage 3.

Assessment areas are identified on Figure 1.

#### **Step 5: Develop a Decision Rule**

Are all QA/QC samples within the required range?

- *If Yes*; then data is considered suitable and reliable for the purpose of the investigation.
- *If No*; then data is not considered suitable and reliable for the purpose of the investigation. In this case:
  - Assess, if identified, any anomalies are due to heterogeneous nature of the sample, reported contaminant concentrations (i.e. close to laboratory limit of reporting), or poor field or laboratory techniques and, based on this, assess the suitability of the results for inclusion in the data set.
  - If an anomaly is considered to be a result of laboratory error, request re-analysis of the sample in question by the project laboratory or a secondary laboratory.
  - Where data is considered suitable and reliable for the purpose of the investigation, do the contaminant concentrations exceed the proposed assessment criteria?
- *If Yes*; then further investigation may be necessary to delineate the vertical and lateral extent of the impact. Remediation or on-going management may also be required.
- *If No*; then the site is considered suitable for the proposed land use.

#### **Step 6: Specify Limits of Decision Errors**

There are two types of decision errors:

- Sampling errors, which occur when the samples collected are not representative of the conditions within the investigation area; and
- Measurement errors, which occur during sample collection, handling, preparation, analysis and data reduction.

The null hypotheses for this study are:

- 1) Contaminant concentrations within soil and groundwater underlying the site are considered suitable for the proposed ongoing land use.

These errors may lead the decision maker to make the following errors:

- Deciding that the subsurface conditions are suitable for the proposed site use when they are actually not; and



- Deciding that the subsurface conditions are not suitable for the proposed site use when they actually are.

An assessment will be made as to the likelihood of a decision error being made based on the results of a QA/QC assessment and the closeness of the data to assessment criteria. Additionally, statistical methods may be utilised, where applicable, such as 95% Upper Confidence Limit calculations,

#### **Step 7: Optimise the Design for Obtaining Data**

In an attempt to achieve maximum efficiency, the targeted nature of the scope of works precludes the omission of any part of the investigation process. However, maintaining all works within the designated study boundaries (at the discretion of the Project Manager) and use of laboratory data known to be accurate through the implementation of QA/QC screening will ensure that the objectives of the investigation are satisfactorily achieved whilst still conforming with the prescribed scope of works.

## **5.2 Soil Sampling Methodology**

Soil sampling was undertaken to meet the data quality objectives in accordance with the soil sampling methodology summarised in Table 5.1.

**Table 5.1: Soil Sampling Methodology**

<b>Activity</b>	<b>Detail / Comments</b>
Soil Logging	<p>Soil logging in general accordance with Coffey Standard operating Procedure (SOP) was undertaken by a suitably qualified and experienced environmental scientist.</p> <p>The presence or absence of potential asbestos containing material or fibres was also noted on the logs.</p>
Soil Sampling	<p>Drilling of soil bores was undertaken both mechanically and manually.</p> <p>Mechanical drilling was carried out by Epoca Environmental under the supervision of a Coffey environmental scientist. The drill rig employed direct push tube methods to retrieve continuous soil samples from the boreholes. The continuous soil samples were retrieved in Teflon casings, allowing ready observation and collection of discrete samples at desired depth intervals (see Photograph 11).</p> <p>Hand auguring and soil sampling was undertaken by the same Coffey staff member. Soil samples were collected directly from the hand auger which was decontaminated between sample locations.</p> <p>Some soil samples from the CSB area were also collected from test pits, excavated using a small (5 tonne) excavator, with a 300mm bucket. Samples were collected directly off the centre of the excavator bucket to minimise potential for cross contamination.</p> <p>Representative soil samples were collected from fill or surface soils from approximately 0-0.2m below ground surface (bgs), and then from deeper in-situ soils at approximately 0.5m bgs, 1.0m bgs and every metre thereafter.</p>

Activity	Detail / Comments
	<p>Soil samples were transferred to laboratory supplied sample containers for chemical analysis. Where samples were submitted for asbestos analysis, a portion of the soil sample was placed in a zip-lock bag for analysis.</p> <p>The sample containers/bags clearly identified the site details, sampling location and sample depth. The samples were transferred to an ice chilled cooler.</p>
Soil Screening	<p>A portion of the sample was placed inside a sealed plastic bag for soil screening and for asbestos analysis. Soil samples were screened using a Photoionisation Detector (PID) which was calibrated at the start of the day to 100ppm isobutylene calibration gas.</p> <p>The PID readings, together with other field observations, were used to assess which samples should be analysed for volatile contaminants (BTEX and TPH C<sub>6</sub>-C<sub>9</sub>). The field screening results are included on the logs.</p>
QA/QC Samples	<p>Intra-laboratory duplicate soil samples and inter-laboratory triplicate samples were collected. The target rate of Intra-laboratory duplicates and Inter-laboratory triplicates is approximately 10% and 5% of the total number of primary samples respectively.</p> <p>The QA/QC samples were analysed for the contaminants of potential concern.</p>
Sample Handling and Transportation	<p>Sample collection, storage and transport were conducted according to the Coffey SOP. Soil samples were immediately placed into laboratory supplied jars, with Teflon lined seals to limit volatile loss and placed into an ice chilled cooler. The samples were dispatched to NATA accredited laboratories (SGS Australia as the primary laboratory and MGT as the secondary laboratory) under chain of custody control.</p>
Decontamination of sampling equipment	<p>The hand auger was decontaminated with approximately 5% Decon 90 solution in potable water and rinsed with potable water between investigation locations.</p>
Disposal of soil cuttings	<p>Soil cuttings were backfilled in the auger holes.</p>
Number of sampling locations	<p>CSB Expansion - 10 locations</p> <p>Education Centre - 4 locations</p> <p>Roadway - 5 locations</p> <p>Shannon Building and Car park - 8 locations</p>

### 5.3 Groundwater Sampling Methodology

Groundwater sampling was undertaken to meet the data quality objectives in accordance with the groundwater sampling methodology summarised in Table 5.2.

**Table 5.2: Groundwater Sampling Methodology**

Activity	Detail / Comments
Well Gauging	Monitoring wells were gauged using an oil/water interface probe (IP) to assess the depth to groundwater and the presence of any phase separated hydrocarbon (PSH).  The IP was decontaminated between each measurement.
Well Purging	Groundwater was purged from each monitoring well using a disposable bailer in general accordance with Coffey SOP.
Sampling Method	Groundwater sampling was conducted following recharge of the wells after being purged dry.  Groundwater field quality results were recorded for each monitoring well.  Groundwater samples were collected using disposable bailers. A new bailer was used for each well.  Sample collection, storage and transport were conducted according to Coffey SOP.
QA/QC Samples	Intra-laboratory duplicate groundwater samples and inter-laboratory triplicate samples were collected. The target rate of Intra-laboratory duplicate groundwater samples and inter-laboratory triplicate samples was approximately 10% and 5% of the total number of primary samples respectively.  The QA/QC samples were analysed for the contaminant of potential concern.
Sample Handling and Transportation	Samples were placed in laboratory supplied bottles containing appropriate preservatives with minimal headspace. Samples collected for metals filtering to 0.45µm. Samples containers were immediately capped and placed in an esky with ice. The samples were dispatched to NATA accredited laboratories (SGS Australia as the primary laboratories, and MGT as the secondary laboratory) under chain of custody documentation.
Decontamination of sampling equipment	Water sampling equipment (i.e. water quality meter, IP) was decontaminated with approximately 5% Decon 90 solution in potable water and rinsed with potable water between sampling locations.
Number of monitoring wells	CSB Expansion - 2 monitoring wells  Shannon Ward and Car park - 1 monitoring well

## 6 ASSESSMENT CRITERIA

### 6.1 Soil Assessment Criteria

The soil assessment criteria presented in the following references are generally the primary criteria used in NSW when setting acceptance criteria for chemical contaminants in soil:

- Guidelines for the NSW Auditor Scheme (Second Edition) (NSW DEC, 2006); and
- *Guidelines for Assessing Service Station Sites* (NSW EPA, 1994).

For assessing contamination levels in soil in urban settings, the *Guidelines for the NSW Site Auditor Scheme* (NSW DEC, 2006) present health based investigation levels (HILs) for different land uses (e.g. industrial/commercial, residential, recreational etc.) as well as provisional phytotoxicity-based investigation levels or ecology-based investigation levels (EILs).

Based on the understanding that the site is to be used for ongoing commercial and industrial purposes, the HILs for commercial/industrial land use are considered the most applicable acceptance criteria to the site for the protection of human health.

NSW DEC (2006) guidelines do not provide levels for volatile petroleum hydrocarbon compounds. The *Guidelines for Assessing Service Station Sites* (NSW EPA, 1994) provide an indication of acceptable levels for sensitive land use for petroleum hydrocarbons compounds. The NSW DECC has advised that these guidelines should also be used without multiplication for less sensitive land uses. For semi-volatile petroleum hydrocarbons (C16–C35 and >C35) investigation levels are provided in the NSW DEC (2006) Guidelines, however, these are based on the NEPC (1999) health-based investigation levels, which require the laboratory analysis to unequivocally differentiate between aromatic and aliphatic compounds. The relevant values in NSW EPA service station guidelines will be applied in the first instance as broad criteria to assess TPH concentrations. If TPH impacts are identified in soil, then aromatic/aliphatic investigation levels from NSW DEC (2006) may be utilised to assess the aromatic/aliphatic speciation of TPH if considered necessary.

Currently there are no set guidelines in NSW for the assessment of asbestos in soils. A criterion of “no asbestos detected” will be adopted as a screening level for assessing soil asbestos analytical results.

A summary of the adopted soil remediation acceptance criteria is presented in Table 6.1.

**Table 6.1: Summary of Soil Assessment Criteria**

Analyte	Health-based Investigation Levels (HILs) (mg/kg) <sup>(1)</sup> HIL F	Sensitive Land Use (mg/kg) <sup>(2)</sup>	Adopted Soil Assessment Criteria (mg/kg)
<b>METALS / METALLOIDS</b>			
Arsenic (total)	500	-	500
Cadmium	100	-	100
Chromium (III)	60,000	-	60,000
Copper	5,000	-	5,000
Lead	1,500	-	1,500
Mercury (inorganic)	75	-	75
Nickel	3,000	-	3,000

Analyte	Health-based Investigation Levels (HILs) (mg/kg) <sup>(1)</sup> HIL F	Sensitive Land Use (mg/kg) <sup>(2)</sup>	Adopted Soil Assessment Criteria (mg/kg)
Zinc	35,000	-	35,000
<b>ORGANICS</b>			
Aldrin + Dieldrin	50	-	50
Chlordane	250	-	250
DDT + DDD + DDE	1,000	-	1,000
Heptachlor	50	-	50
Total PAHs	100	-	100
Benzo(a)pyrene	5	-	5
Phenol	42,500	-	42,500
PCBs (Total)	50	-	50
TPH C <sub>6</sub> -C <sub>9</sub>	-	65	65
TPH C <sub>10</sub> -C <sub>40</sub>	-	1,000	1,000
Benzene	-	1	1
Toluene	-	1.4	1.4
Ethylbenzene	-	3.1	3.1
Xylenes	-	14	14
Asbestos	-	-	No Asbestos Detected

1. NSW DEC (2006) *Guidelines for the NSW Site Auditor Scheme* (2<sup>nd</sup> Edition).

2. NSW EPA (1994) *Guidelines for Assessing Service Station Sites*.

## 6.2 Groundwater Assessment Criteria

The adoption of the Australian Drinking Water Guidelines (NHMRC & NRMCC, 2004)) has been considered for the site, however as the site is not located in an area defined as a high priority for drinking water, and because reticulated drinking water is readily available in this area, the adoption of these guidelines is not considered appropriate for the site. For the purposes of this investigation the groundwater at the site has been assessed against the following criteria:

- ANZECC/ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Protection of Aquatic Ecosystems. Freshwater trigger values for protection of 95% of species.
- ANZECC/ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Low Reliability Freshwater trigger values for Protection of Aquatic Ecosystems.

ANZECC (2000) advocates a site-specific approach to developing guideline trigger values based on such factors as local biological affects data, the current level of disturbance of the ecosystem, etc. The guidelines present 'low risk guidelines trigger values' which are defined as concentrations of key performance parameters below which there is a low risk that adverse biological effects will occur. It is important to note that these are not threshold values at which an environmental problem is likely to occur if exceeded. Rather, if the trigger values are exceeded, then further action is required which may include either additional site-specific investigations to assess whether or not there is an actual problem, or the implementation of management / remedial actions.

Low risk trigger values are provided for the protection of 80-99% of species in freshwater (presented in Table 3.4.1 of the guidelines), with the trigger value depending on the health of the receiving waters.

It is understood that the DECC's policy is that the trigger values for the protection of 95% of aquatic ecosystems should be used except where contaminants are potentially bioaccumulative in which case the trigger values for protection of 99% of species should be used. Therefore, we have selected trigger values for protection of 95% of freshwater species for the majority of contaminants, and 99% of freshwater species for bioaccumulative contaminants for comparison purposes.

ANZECC (2000) states that there is currently insufficient data to derive high reliability trigger values for various contaminants. For these contaminants, low reliability trigger values have been adopted as indicative interim working levels only.

ANZECC (2000) states that there is currently insufficient data to derive a high reliability trigger value for TPH but propose a low reliability trigger value for TPH of 7µg/L. This guideline is generally considered by industry to be overly conservative and is also well below the TPH detection limit that most laboratories can achieve. Therefore the laboratory limit of reporting (LOR) is adopted as an appropriate screening trigger for TPH assessment (NSW DECC, 2007).

NSW DECC (2007) *Guidelines for the Assessment and Management of Groundwater Contamination* states that where the generic groundwater investigation level (GIL) is below the laboratory LOR, the LOR should be used instead of the existing generic GIL.

A summary of the adopted groundwater assessment criteria is presented in Table 4.2.

**Table 4.2: Summary of Groundwater Investigation Levels (GILs)**

Analyte	Laboratory Limit of Reporting	ANZECC 2000 95% Trigger Values <sup>(1)</sup> (µg/L)	Adopted GIL (µg/L)
Arsenic	-	24	24
Cadmium	-	0.2	0.2
Chromium	-	1	1
Copper	-	1.4	1.4
Lead	-	3.4	3.4
Mercury	-	0.6	0.6
Nickel	-	11	11
Zinc	-	8	8
Total PAHs	-	-	-
Benzo(a)pyrene	0.5	0.1 <sup>(LR*)</sup>	0.5 <sup>(a)</sup>
Naphthalene	-	16	16
Anthracene	0.5	0.01 <sup>(LR)</sup>	0.5 <sup>(a)</sup>
Phenanthrene	0.5	0.6 <sup>(LR*)</sup>	0.6
Fluoranthene	0.5	1 <sup>(LR*)</sup>	1
TPH C <sub>6</sub> -C <sub>9</sub>	40	-	40 <sup>(b)</sup>
TPH C <sub>10</sub> -C <sub>14</sub>	100	-	100 <sup>(b)</sup>
TPH C <sub>15</sub> -C <sub>28</sub>	200	-	200 <sup>(b)</sup>
TPH C <sub>29</sub> -C <sub>36</sub>	200	-	200 <sup>(b)</sup>
Benzene	-	950	950
Toluene	-	180 <sup>(LR)</sup>	180
Ethylbenzene	-	80 <sup>(LR)</sup>	80
Xylenes	-	75 <sup>(LR)</sup>	75

(1) Australian and New Zealand Environment and Conservation (2000) *National Water Quality Management Strategy - Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Trigger values under the 95% protection level for freshwater – where biological or chemical data has not been gathered for a slightly to moderately disturbed ecosystem.

- (LR) Low Reliability trigger values for 95% protection level, due to its potential bioaccumulation effects, recommended by ANZECC/ARMCANZ (2000). To be used as an indicative interim working level only.
- (LR\*) Low Reliability trigger values for 99% protection level, due to its potential bioaccumulation effects, recommended by ANZECC/ARMCANZ (2000) for slightly to moderately disturbed systems. To be used as an indicative interim working level only.
- (a) As the practical limit of reporting is above the nominated GIL for this analyte, the laboratory limit of reporting will be used as the GIL (NSW DECC, 2007).
- (b) In the absence of a nominated guideline value, the laboratory LOR has been taken as the nominal trigger value for the presence of TPH compounds in groundwater as will be used as the GIL (NSW DECC, 2007).

## **7 FIELDWORK**

Fieldwork for the investigation was carried out between 25 November and 2 December 2010 by an experienced Coffey scientist. Soil and groundwater samples were dispatched to the laboratory under standard Chain of Custody documentation for analysis.

### **7.1 CSB Expansion- Stage 1A and 1B**

Three (3) boreholes were drilled and seven (7) test pits were excavated in the planned area of the CSB Expansion Stage 1A and Stage 1B on 25 and 26 November 2010 (Figure 2). Monitoring wells were installed in two (2) of the boreholes, MW101 and MW102, to a depth of 6.0m and 5.3m bgs, respectively. Testpits were excavated to a depth of 1.0 to 1.2m bgs.

Groundwater samples were collected from MW101 and MW102 on the 30 November 2010.

### **7.2 Education Centre- Stage 2**

Four (4) surface soil samples were collected from the planned area of the Education Centre, Stage 2, on 2 December 2010 (Figure 3). The samples were collected from approximately the top 0.05m of soil using a hand trowel.

### **7.3 Roads from the main entrance- Stage 2**

Four (4) boreholes were drilled on the side of the roadways leading from the main entrance to the hospital on 29 November 2010 (Figure 4). The boreholes were drilled to depths ranging between 1.4 to 2.0m bgs.

### **7.4 Shannon Ward Building and Car park- Stage 3**

Eight (8) boreholes were drilled in the planned development area of the Shannon Ward Building and car park, Stage 3, on 25 and 29 November 2010 (Figure 5). A monitoring well was installed at MW112 at a depth of 3.7m bgs. The remaining boreholes were drilled to depths between 1.1 and 2.3m bgs.

A groundwater sample was collected from MW112 on the 30 November 2010, however insufficient water remained in the well following purging to fill sample bottles required for the full analyte suite. Coffey returned to the site on 2 December and collected a further sample from the well to enable remaining planned analytes to be analysed.

Given that the substation, generator and AST to the north west of the Physiotherapy and Maternity building was below the surrounding ground level, intrusive sampling could not be conducted in this area.



## **8 DATA VALIDATION AND QUALITY ASSURANCE / QUALITY CONTROL**

The analytical results provided by the laboratory were validated to assess the suitability for use for the purpose of this contamination assessment. The data validation results are presented in Appendix C. The data validation indicated that:

- Sample handling is considered satisfactory. The samples were received by the laboratory in good condition and were analysed within the required holding times.
- Precision and accuracy of the Laboratory reports is considered satisfactory.
- Field QA/QC procedures including the number and type of QA/QC samples collected is considered satisfactory. The number of inter-laboratory duplicates for soils was marginally under the target, however it is not considered to have affected the suitability of the data for the assessment objectives.
- Laboratory internal quality control procedures were considered satisfactory.

The analysis of primary and duplicate field samples showed relative percent differences (RPDs) within the control limits (50% for organics and 30% for metals/inorganics) with the exception of RPDs for soil metal results. Minor RPD exceedences were seen for arsenic, cadmium, chromium, copper, nickel and zinc. All soil metal results are below the relevant adopted investigation levels and the RPD exceedences are expected to be a result of the heterogeneity of the soil.

The RPDs for other duplicates analysed were within the control limits. Table 5 and 6 summarises the RPD analysis of the intra and inter-laboratory duplicates.

Given the above, the low number of RPD exceedences for the field duplicates are not considered to affect the usability of the data or the conclusions of the report.

Review of the data validation and QA/QC indicates that the data quality objectives have been met and that the data is suitable for the current objectives.

## **9 RESULTS**

### **9.1 Soil**

The laboratory results for the soil samples are presented in Table 1 and 2. Laboratory reports are presented in Appendix A.

- Reported soil concentrations for total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCP), metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) and polychlorinated biphenyls (PCB) were either below the laboratory limit of reporting or below the adopted soil investigation criteria.
- Asbestos was detected at two locations within the CSB expansion area:
  - TP104-02; and
  - TP106-0.2.

### **9.2 Groundwater**

The laboratory results for the groundwater samples are presented in Table 4.

- Reported groundwater concentrations for total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAH) and metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) were either below the laboratory limit of reporting or below the adopted groundwater investigation criteria with the exception of the following:
- Copper detected in MW101, MW102 and MW112 at 0.002, 0.003 and 0.002 mg/L, respectively;
- Zinc detected in MW101, MW102 and MW112 at 0.32, 0.27 and 0.026 mg/L, respectively;
- TPH C<sub>6</sub>-C<sub>9</sub> detected in MW112 at 780 µg/L; and
- PAH compounds were detected in all three monitoring wells, however the concentrations were either below the adopted groundwater investigation level or no guidelines value was nominated for the compound due to a lack of a reliable guideline.

## **10 DISCUSSION**

### **10.1 CSB Expansion- Stage 1A and 1B**

Asbestos was detected in shallow soil (approximately 0.2m bgs) at two (2) of the nine (9) sample locations in the proposed CSB expansion area (TP104 and TP106). The reported asbestos was in the form of chrysotile asbestos fibre bundles of 1-4mm length and an 8mm by 8mm cement sheet fragment. Asbestos containing materials was not observed during the excavation of test pits. Mr. Jordan Roddy of Sydney Adventist Hospital indicated the asbestos impact could be associated with a small structure that was demolished in that area.

Coffey understands that the CSB expansion will require excavation of soil. It is likely that the asbestos impacted soils identified in this area will require excavation as part of the construction works. The asbestos impacted soils will need to be appropriately managed during the redevelopment works to ensure the asbestos impacted soil does not pose a risk to the workers during the redevelopment and to the future occupiers of the site. The asbestos impacted soils would require disposal offsite (following waste classification) or containment on site to be appropriately managed. A qualified environmental consultant should be engaged to advise on managing the asbestos impacted soils during redevelopment.

Copper and zinc concentrations were detected above the adopted investigation level for both MW101 and MW102. As with previous investigations, Coffey considers the slightly elevated heavy metal concentrations to be representative of naturally occurring regional factors and do not affect the suitability of the site for ongoing commercial and industrial land use.

PAH compounds were detected in MW101 and MW102 at concentrations either below the adopted investigation level or no guidelines were nominated for the compound. Coffey considers these concentrations of PAH are unlikely to affect the suitability of the site for ongoing commercial and industrial land use.

### **10.2 Education Centre- Stage 2**

The analytical results indicated that the concentration of contaminants in soil were less than the adopted soil investigation levels.

### **10.3 Roads from the main entrance- Stage 2**

The analytical results indicated that the concentration of contaminants in soil were less than the adopted soil investigation levels.

### **10.4 Shannon Ward Building and Car park- Stage 3**

The analytical results indicated that the concentration of contaminants in soil were less than the adopted soil investigation levels.

TRH C<sub>6</sub>-C<sub>9</sub> was detected in MW112 at 780 µg/L, exceeding the adopted GIL. BTEX compounds were also reported at concentrations below the adopted GILs. It is possible that the TRH C<sub>6</sub>-C<sub>9</sub> and BTEX compounds that were detected in the well MW112 is attributable to the petrol UST that has been previously decommissioned (refer to Section 2.2.4.2 and Section 4.1 of this report). WorkCover records indicate that appropriate procedures had not been conducted during the decommissioning works of these UST, and it is possible that there is residual soil contamination in this area causing groundwater

contamination. It is also possible that the groundwater was contaminated by the UST or other sources, prior to removal of the UST.

PAH compounds were also reported at concentrations below the adopted GILs for some of the PAH compounds. PAH compounds that did not have an adopted GIL were also reported in the groundwater. The source of the PAH impact in the groundwater is unknown at this stage, but could include leakage of oils from maintenance workshops and the ASTs, or leaching of contaminated fill material.

Due to the uncertainty about the extent of groundwater contamination (only one monitoring well installed as part of this assessment) and the evidence that the decommissioning of the two USTs may not have followed appropriate procedure, Coffey recommends an additional groundwater assessment in this area to:

- Further assess the extent of groundwater contamination in this area;
- Assess the potential for contaminated groundwater to impact the proposed construction work (design of basements to manage vapour intrusion and seepage of contaminated groundwater, treatment of dewatered contaminated water, health risks posed by contaminated groundwater to construction workers etc);
- Assess potential for contaminated water to pose a health risk to the future site occupants including the occupants at the adjacent child care centre; and
- Assess management options for the contaminated groundwater, if required.

The groundwater assessment should be conducted by a suitably qualified environmental consultant.

## **11 CONCLUSION**

Given that appropriate steps are taken to manage the asbestos detected in shallow fill material Coffey considers that the CSB Expansion area is likely to be suitable for the proposed ongoing commercial and industrial land use based on the contamination assessment results.

Coffey recommends an additional groundwater assessment in the vicinity of MW112 to assess the extent of identified TPH, BTEX and PAH impact in the groundwater, and to assess likely impacts of contaminated groundwater to construction works and to the health of future occupants of the site including occupants of the adjoining child care centre. At this stage, Coffey does not consider the identified groundwater contamination will affect the suitability of the proposed Shannon Building area for ongoing commercial industrial land use. Coffey considers that based on the current contamination assessment results and the review of previous investigations that the areas for the planned redevelopment of the Education centre and the roads near the main entrance to the hospital are likely to be suitable for the proposed ongoing commercial and industrial land use.

## 12 REFERENCES

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## Important information about your **Coffey** Environmental Report

Uncertainties as to what lies below the ground on potentially contaminated sites can lead to remediation costs blow outs, reduction in the value of the land and to delays in the redevelopment of land. These uncertainties are an inherent part of dealing with land contamination. The following notes have been prepared by Coffey to help you interpret and understand the limitations of your report.

### **Your report has been written for a specific purpose**

Your report has been developed on the basis of a specific purpose as understood by Coffey and applies only to the site or area investigated. For example, the purpose of your report may be:

- To assess the environmental effects of an on-going operation.
- To provide due diligence on behalf of a property vendor.
- To provide due diligence on behalf of a property purchaser.
- To provide information related to redevelopment of the site due to a proposed change in use, for example, industrial use to a residential use.
- To assess the existing baseline environmental, and sometimes geological and hydrological conditions or constraints of a site prior to an activity which may alter the sites environmental, geological or hydrological condition.

For each purpose, a specific approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible, quantify risks that both recognised and unrecognised contamination pose to the proposed activity. Such risks may be both financial (for example, clean up costs or limitations to the site use) and physical (for example, potential health risks to users of the site or the general public).

### **Scope of Investigations**

The work was conducted, and the report has been prepared, in response to specific instructions from the client to whom this report is addressed, within practical time and budgetary constraints, and in reliance on certain data and information made available to Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on those instructions, requirements, data or information, and they could change if such instructions etc. are in fact inaccurate or incomplete.

### **Subsurface conditions can change**

Subsurface conditions are created by natural processes and the activity of man and may change with time.

For example, groundwater levels can vary with time, fill may be placed on a site and pollutants may migrate with time.

Because a report is based on conditions which existed at the time of the subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time.

Consult Coffey to be advised how time may have impacted on the project and/or on the property.

### **Interpretation of factual data**

Environmental site assessments identify actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from indirect field measurements and sometimes other reports on the site are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Actual conditions may differ from those inferred to exist, because no professional, no matter how well qualified, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of Coffey through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other problems encountered on site.

### **Your report will only give preliminary recommendations**

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area.

This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered with redevelopment or on-going use of the site. If another party undertakes the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Coffey cannot be held responsible for such misinterpretation.

## Important information about your **Coffey** Environmental Report

### **Your report is prepared for specific purposes and persons**

To avoid misuse of the information contained in your report it is recommended that you confer with Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. In particular, a due diligence report for a property vendor may not be suitable for satisfying the needs of a purchaser. Your report should not be applied for any purpose other than that originally specified at the time the report was issued.

### **Interpretation by other professionals**

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Coffey to work with other professionals who are affected by the report. Have Coffey explain the report implications to professionals affected by them and then review plans and specifications produced to see how they have incorporated the report findings.

### **Data should not be separated from the report**

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel), field testing and laboratory evaluation of field samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

### **Contact Coffey for additional assistance**

Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to land development and land use. It is common that not all approaches will be necessarily dealt with in your environmental site assessment report due to concepts proposed at that time. As a project progresses through planning and design toward construction and/or maintenance, speak with Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

### **Responsibility**

Environmental reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in contracts, reports and other documents.

Responsibility clauses do not transfer appropriate liabilities from Coffey to other parties but are included to identify where Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Coffey closely and do not hesitate to ask any questions you may have.



# Tables

**Targeted Contamination Assessment  
SAN Hospital, Wahroonga NSW**

Method_Type	ChemName	Units	LOR	Adopted Soil Assessment Criteria																												
TRH in soil with C6-C9	TPH C6 - C9	mg/kg	20	65	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20				
	TPH C10 - C14	mg/kg	20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20				
	TPH C15 - C28	mg/kg	50		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	110	<50				
	TPH C29 - C36	mg/kg	50		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	71	<50				
	TPH+C10 - C36 (Sum of total)	mg/kg		1000	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	191	<120			
BTEX in Soil	Benzene	mg/kg	0.1	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
	Ethylbenzene	mg/kg	0.1	3.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
	Toluene	mg/kg	0.1	1.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
	Xylene Total	mg/kg	0.3	14	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3			
Metals in Soil	Arsenic	mg/kg	3	500	6	9	7	7	5	6	170	16	<3	5	7	5	9	4	<3	<3	7	8	4	18	4	5						
	Cadmium	mg/kg	0.3	100	0.4	<0.3	0.4	0.6	0.6	1.3	0.7	0.5	<0.3	0.3	0.7	<0.3	0.4	<0.3	<0.3	0.5	0.5	0.4	0.5	0.4	<0.3	0.4						
	Chromium (III+VI)	mg/kg	0.3	600,000	13	5.6	17	13	15	13	20	12	4.7	9.3	17	15	13	22	5.7	64	19	11	20	7.8	11	18						
	Copper	mg/kg	0.5	5000	24	40	8.3	27	40	280	36	21	11	16	35	13	31	13	6	33	18	17	13	28	25	18						
	Lead	mg/kg	1	1500	75	18	45	130	130	1100	28	64	26	82	46	24	31	17	17	6	56	25	19	16	43	23						
	Mercury	mg/kg	0.05	75	0.11	<0.05	0.21	0.16	0.17	0.37	<0.05	0.13	0.15	0.25	0.15	<0.05	<0.05	<0.05	<0.05	<0.05	0.15	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
	Nickel	mg/kg	0.5	3000	5.1	0.98	2.8	6.6	5.3	11	2	6.1	2.7	3.2	5.5	2.2	3.5	11	1.6	82	4.3	7.5	5.3	3.3	5.4	6.5						
	Zinc	mg/kg	0.5	35000	120	8.2	46	92	190	720	27	130	27	45	140	66	10	32	19	34	58	60	26	17	21	52	23					
	OC Pesticides in Soil	Total OCP	-	-	<LOR	-	<LOR	<LOR	<LOR	<LOR	-	<LOR	<LOR	-	<LOR	-	-	<LOR	<LOR	-	<LOR	<LOR	-	-	<LOR	-	-	<LOR	-			
OP Pesticides in Soil	Total OPP	-	-	-	-	-	-	-	<LOR	<LOR	-	-	-	-	-	-	<LOR	<LOR	-	-	-	-	-	-	-	-	-	-				
PAHs in Soil	Acenaphthene	mg/kg	0.1		<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
	Acenaphthylene	mg/kg	0.1		<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
	Anthracene	mg/kg	0.1		0.11	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
	Benzo(a)anthracene	mg/kg	0.1		0.3	-	<0.1	0.17	0.18	0.31	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
	Benzo(a) pyrene	mg/kg	0.1	5	0.29	-	<0.1	0.21	0.2	0.26	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.39	<0.1				
	Benzo(b)fluoranthene	mg/kg	0.1		0.3	-	<0.1	0.2	0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	<0.1				
	Benzo(g,h,i)perylene	mg/kg	0.1		0.2	-	<0.1	0.14	0.15	0.14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.28	<0.1					
	Benzo(k)fluoranthene	mg/kg	0.1		0.17	-	<0.1	0.13	0.12	0.14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.21	<0.1					
	Chrysene	mg/kg	0.1		0.26	-	<0.1	0.16	0.17	0.23	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.32	<0.1				
	Dibenz(a,h)anthracene	mg/kg	0.1		<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
	Fluoranthene	mg/kg	0.1		0.62	-	<0.1	0.24	0.29	0.54	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.88	<0.1				
	Fluorene	mg/kg	0.1		<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.1		0.14	-	<0.1	<0.1	0.1	0.12	<0.1	<0.1	<0.1	<0.1	<0.1	<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				
	Naphthalene	mg/kg	0.1		<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
	PAHs (Sum of total)	mg/kg	1.6	100	<3.86	-	<1.6	<2.35	<2.47	<3.44	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.63	<1.61	<1.6	<1.6	<1.6	<1.6	<4.93	<1.6	<1.6				
	Phenanthrene	mg/kg	0.1		0.31	-	<0.1	<0.1	0.13	0.21	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.42	<0.1				
	Pyrene	mg/kg	0.1		0.61	-	<0.1	0.26	0.31	0.55	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	<0.1	<0.1	<0.1	<0.1	0.76	<0.1	<0.1				
	PCBs in Soil	PCBs (Sum of total)	mg/kg	0.9	50	-	-	-	-	<0.9	<0.9	-	-	-	-	-	-	-	<0.9	<0.9	-	-	-	-	-	-	-	-	-			
	VOCs in Soil	Total VOC	-	-	-	-	-	-	-	<LOR	<LOR	-	-	-	-	-	-	-	<LOR	<LOR	-	-	-	-	-	-	-	-	-			

Table 1  
Soil Laboratory Results Table

Field_ID	BH132-1.0	MW101-0.2	MW101-1.5	MW102-0.2	MW102-0.5	MW102-1.5	MW112-0.2	MW112-0.5	MW112-1.0	MW112-3.0	SS123	SS124	SS125	SS126	TP104-0.2	TP104-0.5	TP105-0.2	TP105-0.5	TP106-0.2	TP106-0.5	TP106-1.0	TP107-0.2
LocCode	BH132-1.0	MW101-0.2	MW101-1.5	MW102-0.2	MW102-0.5	MW102-1.5	MW112-0.2	MW112-0.5	MW112-1.0	MW112-3.0	SS123	SS124	SS125	SS126	TP104-0.2	TP104-0.5	TP105-0.2	TP105-0.5	TP106-0.2	TP106-0.5	TP106-1.0	TP107-0.2
Sample_Depth_Range	1	0.2	1.5	0.2	0.5	1.5	0.2	0.5	1	3	0.05	0.05	0.05	0.05	0.2	0.5	0.2	0.5	0.2	0.5	1	0.2
Sampled_Date-Time	29/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010	2/12/2010	2/12/2010	2/12/2010	2/12/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Matrix_Description																						
SDG	SE83596	SE83544	SE83544	SE83544	SE83544	SE83544	SE83596	SE83596	SE83596	SE83596	SE83722	SE83722	SE83722	SE83722	SE83545	SE83545	SE83545	SE83545	SE83545	SE83545	SE83545	SE83545

Method_Type	ChemName	Units	LOR	Adopted Soil Assessment Criteria																								
TRH in soil with C6-C9	TPH C6 - C9	mg/kg	20	65	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	-	
	TPH C10 - C14	mg/kg	20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	25	<20	<20	<20	<20	<20	<20	<20	<20	-	
	TPH C15 - C28	mg/kg	50		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	140	<50	<50	<50	<50	<50	<50	<50	<50	-	
	TPH C29 - C36	mg/kg	50		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	130	<50	<50	<50	<50	<50	<50	<50	<50	-	
	TPH+C10 - C36 (Sum of total)	mg/kg		1000	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	295	<120	<120	<120	<120	<120	<120	<120	<120	-	
BTEx in Soil	Benzene	mg/kg	0.1	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	
	Ethylbenzene	mg/kg	0.1	3.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	
	Toluene	mg/kg	0.1	1.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	
	Xylene Total	mg/kg	0.3	14	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-	
Metals in Soil	Arsenic	mg/kg	3	500	6	<3	10	4	8	4	5	7	7	8	<3	4	<3	5	10	12	7	12	10	11	<3	10		
	Cadmium	mg/kg	0.3	100	0.6	<0.3	0.6	<0.3	0.5	0.4	0.4	0.4	0.3	0.4	<0.3	<0.3	<0.3	0.4	0.8	0.5	0.5	0.4	0.5	0.4	<0.3	0.5		
	Chromium (III+VI)	mg/kg	0.3	600,000	18	2.7	15	11	20	6.8	29	16	15	21	6.3	11	7.6	8.6	24	25	25	22	20	23	6.1	18		
	Copper	mg/kg	0.5	5000	28	2.3	38	15	29	13	24	15	14	10	8.4	18	10	23	32	19	35	14	24	11	4.1	24		
	Lead	mg/kg	1	1500	23	4	26	42	71	18	53	37	54	23	36	51	36	83	48	26	31	23	26	20	27	24		
	Mercury	mg/kg	0.05	75	<0.05	<0.05	<0.05	0.08	0.15	<0.05	0.08	<0.05	<0.05	<0.05	0.06	0.07	0.07	0.1	0.17	<0.05	0.07	<0.05	0.06	<0.05	<0.05	<0.05		
	Nickel	mg/kg	0.5	3000	1.4	1.9	2.9	5.4	5.5	17	25	4.3	3.2	3.2	2.3	2.9	2.2	3.8	6.3	1.7	9.7	1.4	3.8	1.1	<0.5	1.7		
	Zinc	mg/kg	0.5	35000	11	11	17	81	140	70	55	56	55	27	34	57	50	110	130	11	86	6.9	83	5.4	1.3	17		
OC Pesticides in Soil	Total OCP	-	-	-	-	<LOR	-	<LOR	-	-	<LOR	<LOR	-	-	-	-	-	<LOR	-	<LOR	-	<LOR	-	-	<LOR			
OP Pesticides in Soil	Total OPP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
PAHs in Soil	Acenaphthene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
	Acenaphthylene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
	Anthracene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
	Benzo(a)anthracene	mg/kg	0.1		<0.1	<0.1	<0.1	0.12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
	Benzo(a) pyrene	mg/kg	0.1	5	<0.1	<0.1	<0.1	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
	Benzo(b)fluoranthene	mg/kg	0.1		<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
	Benzo(k)fluoranthene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
	Chrysene	mg/kg	0.1		<0.1	<0.1	<0.1	0.12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
	Dibenz(a,h)anthracene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
	Fluoranthene	mg/kg	0.1		<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.14	<0.1	<0.1	0.12	<0.1	<0.1	<0.1	<0.1		
	Fluorene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.53	<0.1	<0.1	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
	Naphthalene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
	PAHs (Sum of total)	mg/kg	1.6	100	<1.6	<1.6	<1.6	<2.22	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<2.2	<1.6	<1.6	<1.63	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	
	Phenanthrene	mg/kg	0.1		<0.1	<0.1	<0.1	0.21	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
	Pyrene	mg/kg	0.1		<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.14	<0.1	<0.1	0.11	<0.1	<0.1	<0.1	<0.1	<0.1	
PCBs in Soil	PCBs (Sum of total)	mg/kg	0.9	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
VOCs in Soil	Total VOC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Table 1  
Soil Laboratory Results Table

Field ID	TP107-0.5	TP108-0.2	TP108-0.5	TP108-1.0	TP109-0.2	TP109-0.5	TP110-0.2	TP110-0.5
LocCode	TP107-0.5	TP108-0.2	TP108-0.5	TP108-1.0	TP109-0.2	TP109-0.5	TP110-0.2	TP110-0.5
Sample Depth Range	0.5	0.2	0.5	1	0.2	0.5	0.2	0.5
Sampled Date-Time	26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Matrix Description								
SDG	SE83545	SE83545	SE83545	SE83545	SE83545	SE83545	SE83545	SE83545

Method Type	ChemName	Units	LOR	Adopted Soil Assessment Criteria								
TRH in soil with C6-C9	TPH C6 - C9	mg/kg	20	65	-	<20	<20	<20	<20	<20	<20	<20
	TPH C10 - C14	mg/kg	20		-	<20	<20	<20	<20	<20	<20	<20
	TPH C15 - C28	mg/kg	50		-	<50	<50	<50	<50	<50	<50	<50
	TPH C29 - C36	mg/kg	50		-	<50	<50	<50	<50	<50	<50	<50
	TPH+C10 - C36 (Sum of total)	mg/kg		1000	-	<120	<120	<120	<120	<120	<120	<120
BTEX in Soil	Benzene	mg/kg	0.1	1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Ethylbenzene	mg/kg	0.1	3.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Toluene	mg/kg	0.1	1.4	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Xylene Total	mg/kg	0.3	14	-	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Metals in Soil	Arsenic	mg/kg	3	500	13	8	9	9	9	12	11	10
	Cadmium	mg/kg	0.3	100	0.5	0.4	0.6	<0.3	0.5	0.3	0.7	0.3
	Chromium (III+VI)	mg/kg	0.3	600,000	22	14	23	22	21	18	25	16
	Copper	mg/kg	0.5	5000	20	15	27	4.9	14	13	36	15
	Lead	mg/kg	1	1500	27	39	37	20	40	22	96	23
	Mercury	mg/kg	0.05	75	<0.05	0.07	0.08	<0.05	<0.05	<0.05	0.18	<0.05
	Nickel	mg/kg	0.5	3000	1.8	3.8	5.7	1.4	3.2	1	13	2.2
	Zinc	mg/kg	0.5	35000	17	78	130	7.8	16	5.1	150	15
	Total OCP	-	-		-	<LOR	<LOR	-	<LOR	-	<LOR	-
OC Pesticides in Soil	Total OCP	-	-		-	-	-	-	-	-	-	-
OP Pesticides in Soil	Total OPP	-	-		-	-	-	-	-	-	-	-
PAHs in Soil	Acenaphthene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Anthracene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.33	<0.1
	Benz(a)anthracene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.77	<0.1
	Benzo(a) pyrene	mg/kg	0.1	5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.68	<0.1
	Benzo(b)fluoranthene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.9	<0.1
	Benzo(g,h,i)perylene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.45	<0.1
	Benzo(k)fluoranthene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.31	<0.1
	Chrysene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.65	<0.1
	Dibenz(a,h)anthracene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluoranthene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.5	<0.1
	Fluorene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.12	<0.1
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.34	<0.1
	Naphthalene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.55	<0.1
	PAHs (Sum of total)	mg/kg	1.6	100	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<9.25	<1.6
	Phenanthrene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	<0.1
	Pyrene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	<0.1
PCBs in Soil	PCBs (Sum of total)	mg/kg	0.9	50	-	-	-	-	-	-	-	-
VOCs in Soil	Total VOC	-	-		-	-	-	-	-	-	-	-

**Table 2**  
**Soil Asbestos Results**

Sample ID	Asbestos
MW101-0.2	ND
MW102-0.2	ND
BH103-0.2	ND
BH116-0.2	ND
BH115-0.2	ND
TP110-0.2	ND
TP104-0.2	Chrysotile asbestos detected
TP105-0.2	ND
TP106-0.2	Chrysotile asbestos detected
TP106-0.5	ND
TP107-0.2	ND
TP109-0.2	ND
TP108-0.2	ND
TP108-0.5	ND
MW112-0.2	ND
MW112-0.5	ND
BH111-0.2	ND
BH111-0.5	ND
BH113-0.2	ND
BH113-0.5	ND
BH113-1.0	ND
BH122-0.2	ND
BH120-0.2	ND
BH120-0.5	ND
BH130-0.2	ND
BH130-0.5	ND
BH132-0.2	ND
BH131-0.2	ND
BH129-0.2	ND
SS123	ND
SS124	ND
SS125	ND
SS126	ND

ND: Asbestos not detected

**TABLE 3**  
**GROUNDWATER GAUGING DATA**

Well ID	Date Measured	Total Depth* (m)	Depth to Water* (m)	Depth to PSH* (m)	PSH Thickness
MW 101	30/11/2010	6.00	2.727	NO	NA
MW 102	30/11/2010	5.17	2.427	NO	NA
MW 112	30/11/2010	3.68	2.998	NO	NA

**Notes:**

\* below top of well casing

ID = identification

PSH = Phase Separated Hydrocarbon

m = metres

NO - Not Observed

NA - Not Applicable

**Field Equipment Used:**

Solinist 30m Interface Probe

**Table 4**  
**Groundwater Laboratory Results Table**

<b>Field_ID</b>	MW101	MW102	MW112	MW112
<b>LocCode</b>	MW101	MW102	MW112	MW112
<b>WellCode</b>				
<b>Sampled_Date-Time</b>	30/11/2010	30/11/2010	30/11/2010	2/12/2010

Method_Type	ChemName	Units	LOR	Adopted GIL				
Metals	Arsenic	mg/L	0.001	0.024	<0.001	<0.001	-	<0.001
	Cadmium	mg/L	0.0001	0.0002	<0.0001	<0.0001	-	<0.0001
	Chromium (III+VI)	mg/L	0.001	0.001	<0.001	<0.001	-	<0.001
	Copper	mg/L	0.001	0.0014	0.002	0.003	-	0.002
	Lead	mg/L	0.001	0.0034	<0.001	<0.001	-	<0.001
	Nickel	mg/L	0.001	0.011	0.007	0.005	-	0.009
	Zinc	mg/L	0.001	0.008	0.32	0.27	-	0.026
	Mercury	mg/L	0.0001	0.0006	<0.0001	<0.0001	-	<0.0001
BTEX	Benzene	µg/L	0.5	950	<0.5	<0.5	1	0.9
	Ethylbenzene	µg/L	0.5	80	<0.5	<0.5	<0.5	73
	Toluene	µg/L	0.5	180	<0.5	<0.5	0.9	2
	Xylene Total	µg/L	1.5	75	<1.5	<1.5	<1.5	50
PAH	Acenaphthene	µg/L	0.01		0.03	0.06	-	0.03
	Acenaphthylene	µg/L	0.01		<0.01	<0.01	-	<0.01
	Anthracene	µg/L	0.01	0.5	0.02	0.02	-	0.07
	Benzo(a)anthracene	µg/L	0.01		<0.01	<0.01	-	0.02
	Benzo(a) pyrene	µg/L	0.01	0.5	<0.01	<0.01	-	0.01
	Benzo(b)fluoranthene	µg/L	0.01		<0.01	<0.01	-	0.03
	Benzo(g,h,i)perylene	µg/L	0.01		<0.01	<0.01	-	0.01
	Benzo(k)fluoranthene	µg/L	0.01		<0.01	<0.01	-	0.01
	Chrysene	µg/L	0.01		<0.01	<0.01	-	0.01
	Dibenz(a,h)anthracene	µg/L	0.01		<0.01	<0.01	-	<0.01
	Fluoranthene	µg/L	0.01	1	0.01	0.01	-	0.07
	Fluorene	µg/L	0.01		0.06	0.08	-	0.06
	Indeno(1,2,3-c,d)pyrene	µg/L	0.01		<0.01	<0.01	-	0.01
	Naphthalene	µg/L	0.02	16	<0.02	0.03	-	0.02
	PAHs (Sum of total)	µg/L	0.16		<0.3	<0.37	-	<0.61
Phenols	Phenanthrene	µg/L	0.01	0.6	0.06	0.08	-	0.19
	Pyrene	µg/L	0.01		<0.01	<0.01	-	0.05
Phenols	Phenolics Total	µg/L	10		<10	<10	-	-
TRH	TPH C6 - C9	µg/L	40	40	<40	<40	<40	780
	TPH C10 - C14	µg/L	100	100	<100	<100	-	<100
	TPH C15 - C28	µg/L	200	200	<200	<200	-	<200
	TPH C29 - C36	µg/L	200	200	<200	<200	-	<200

Table 5  
Soil RPD Result Table

				SDG	SE83544	SE83544		SE83544	SE83544		SE83544	SE83544		SE83545	SE83545		SE83596	SE83596		SE83596	284105		SE83596	SE83596		SE83722	SE83722	
				Field_ID	MW101-1.5	QC1	RPD	MW101-1.5	QC1A	RPD	MW102-0.5	QC2	RPD	TP108-0.5	QC6	RPD	BH132-1.0	QC9	RPD	BH132-1.0	QC9A	RPD	BH131-2.0	QC10	RPD	SS123	QC12	RPD
				Sampled_Date-Time	25/11/2010	25/11/2010		25/11/2010	25/11/2010		25/11/2010	25/11/2010		26/11/2010	26/11/2010		29/11/2010	29/11/2010		29/11/2010	29/11/2010		29/11/2010	29/11/2010		2/12/2010	2/12/2010	
Method_Type	ChemName	Units	LOR																									
BTEx in Soil	Benzene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Toluene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Xylene Total	mg/kg	0.3	<0.3	<0.3	0	<0.3	<0.3	0	<0.3	<0.3	0	<0.3	<0.3	0	<0.3	<0.3	0	<0.3	<0.15	0	<0.3	<0.3	0	<0.3	<0.3	0	
Metals in Soil	Arsenic	mg/kg	3	10.0	7.0	35	10.0	9.0	11	8.0	9.0	12	9.0	9.0	0	6.0	5.0	18	6.0	3.9	42	18.0	27.0	40	<3.0	<3.0	0	
	Cadmium	mg/kg	0.3	0.6	0.7	15	0.6	0.92	42	0.5	0.6	18	0.6	0.6	0	0.6	0.6	0	0.6	<0.5		0.4	0.3	29	<0.3	<0.3	0	
	Chromium (III+VI)	mg/kg	0.3	15.0	17.0	13	15.0	22.0	38	20.0	23.0	14	23.0	21.0	9	18.0	16.0	12	18.0	6.3	96	7.8	7.7	1	6.3	6.3	0	
	Copper	mg/kg	0.5	38.0	40.0	5	38.0	55.0	37	29.0	27.0	7	27.0	28.0	4	28.0	30.0	7	28.0	11	87	28.0	26.0	7	8.4	8.2	2	
	Lead	mg/kg	1	26.0	23.0	12	26.0	24.0	8	71.0	70.0	1	37.0	36.0	3	23.0	22.0	4	23.0	18	24	16.0	17.0	6	36.0	36.0	0	
	Mercury	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	0.15	0.14	7	0.08	0.08	0	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	0.06	0.06	0	
	Nickel	mg/kg	0.5	2.9	1.7	52	2.9	3.4	16	5.5	6.7	20	5.7	5.1	11	1.4	4.7	108	1.4	<5	139	3.3	4.3	26	2.3	2.3	0	
	Zinc	mg/kg	0.5	17.0	16.0	6	17.0	26.0	42	140.0	140.0	0	130.0	140.0	7	11.0	16.0	37	11.0	<5	191	21.0	31.0	38	34.0	35.0	3	
OC Pesticides in Soil	Total OCP	-	-										<LOR	<LOR	0													
PAHs in Soil	Acenaphthene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Acenaphthylene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Anthracene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Benz(a)anthracene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Benzo(a) pyrene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Benzo(b)fluoranthene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Chrysene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Dibenz(a,h)anthracene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Fluoranthene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Fluorene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Naphthalene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	PAHs (Sum of total)	mg/kg	1.6	<1.6	<1.6	0	<1.6	<1.6	0	<1.6	<1.6	0	<1.6	<1.6	0	<1.6	<1.6	0	<1.6	<1.6	0	<1.6	<1.6	0	<1.6	<1.6	0	
Phenanthrene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0		
Pyrene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0		
TRH in soil	TPH C6 - C9	mg/kg	20	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	
	TPH C10 - C14	mg/kg	20	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	<20.0	<20.0	0	
	TPH C15 - C28	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<100.0	0	<50.0	<50.0	0	<50.0	<50.0	0	
	TPH C29 - C36	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<100.0	0	<50.0	<50.0	0	<50.0	<50.0	0	

\*RPDs have only been considered where a concentration is greater than 5 times the EQL.

\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (5-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL) for organic, 30 (5-10 x EQL); 30 (10-30 x EQL); 30 (> 30 x EQL) for metals )

\*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



**Table 6**  
**Groundwater RPD Result Table**

			SDG	SE83644	SE83644		SE83644	284283	
			Field_ID	MW101	QC1	RPD	MW101	QC1A	RPD
			Sampled_Date-Time	30/11/2010	30/11/2010		30/11/2010	30/11/2010	
Method_Type	ChemName	Units	LOR						
Metals	Arsenic	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Cadmium	mg/l	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0002	0
	Chromium (III+VI)	mg/l	0.001	<0.001	<0.001	0	<0.001	0.0001	133
	Copper	mg/l	0.001	0.002	0.002	0	0.002	0.002	0
	Lead	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Mercury	mg/l	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
	Nickel	mg/l	0.001	0.007	0.007	0	0.007	0.007	0
	Zinc	mg/l	0.001	0.32	0.37	14	0.32	0.36	12
BTEX	Benzene	µg/L	0.5	<0.5	<0.5	0	<0.5	<1	0
	Ethylbenzene	µg/L	0.5	<0.5	<0.5	0	<0.5	<1	0
	Toluene	µg/L	0.5	<0.5	<0.5	0	<0.5	<1	0
	Xylene Total	µg/L	1.5	<1.5	<1.5	0	<1.5	<3	0
PAH	Acenaphthene	µg/L	0.01	0.03	0.04	29	0.03	<0.2	0
	Acenaphthylene	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.2	0
	Anthracene	µg/L	0.01	0.02	0.02	0	0.02	0.2	0
	Benz(a)anthracene	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.2	0
	Benzo(a) pyrene	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.2	0
	Benzo(b)fluoranthene	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.2	0
	Benzo(g,h,i)perylene	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.2	0
	Benzo(k)fluoranthene	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.2	0
	Chrysene	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.2	0
	Dibenz(a,h)anthracene	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.2	0
	Fluoranthene	µg/L	0.01	0.01	<0.01	0	0.01	<0.2	67
	Fluorene	µg/L	0.01	0.06	0.07	15	0.06	0.2	
	Indeno(1,2,3-c,d)pyrene	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.2	0
	Naphthalene	µg/L	0.02	<0.02	0.02	0	<0.02	<0.2	0
	PAHs (Sum of total)	µg/L	0.16	<0.3	<0.32	0	<0.3	0.4	190
	Phenanthrene	µg/L	0.01	0.06	0.07	15	0.06	<0.2	169
	Pyrene	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.2	0
Phenols	Phenolics Total	µg/l	10	<10.0	<10.0	0	<10.0	<LOR	0
TRH	TPH C6 - C9	µg/L	40	<40.0	<40.0	0	<40.0	<20	0
	TPH C10 - C14	µg/L	100	<100.0	<100.0	0	<100.0	<50	0
	TPH C15 - C28	µg/L	200	<200.0	<200.0	0	<200.0	<100	0
	TPH C29 - C36	µg/L	200	<200.0	<200.0	0	<200.0	<100	0

\*RPDs have only been considered where a concentration is greater than 5 times the EQL.

\*\*High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (5-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL) )  
30 (5-10 x EQL); 30 (10-30 x EQL); 30 (> 30 x EQL) for metals )

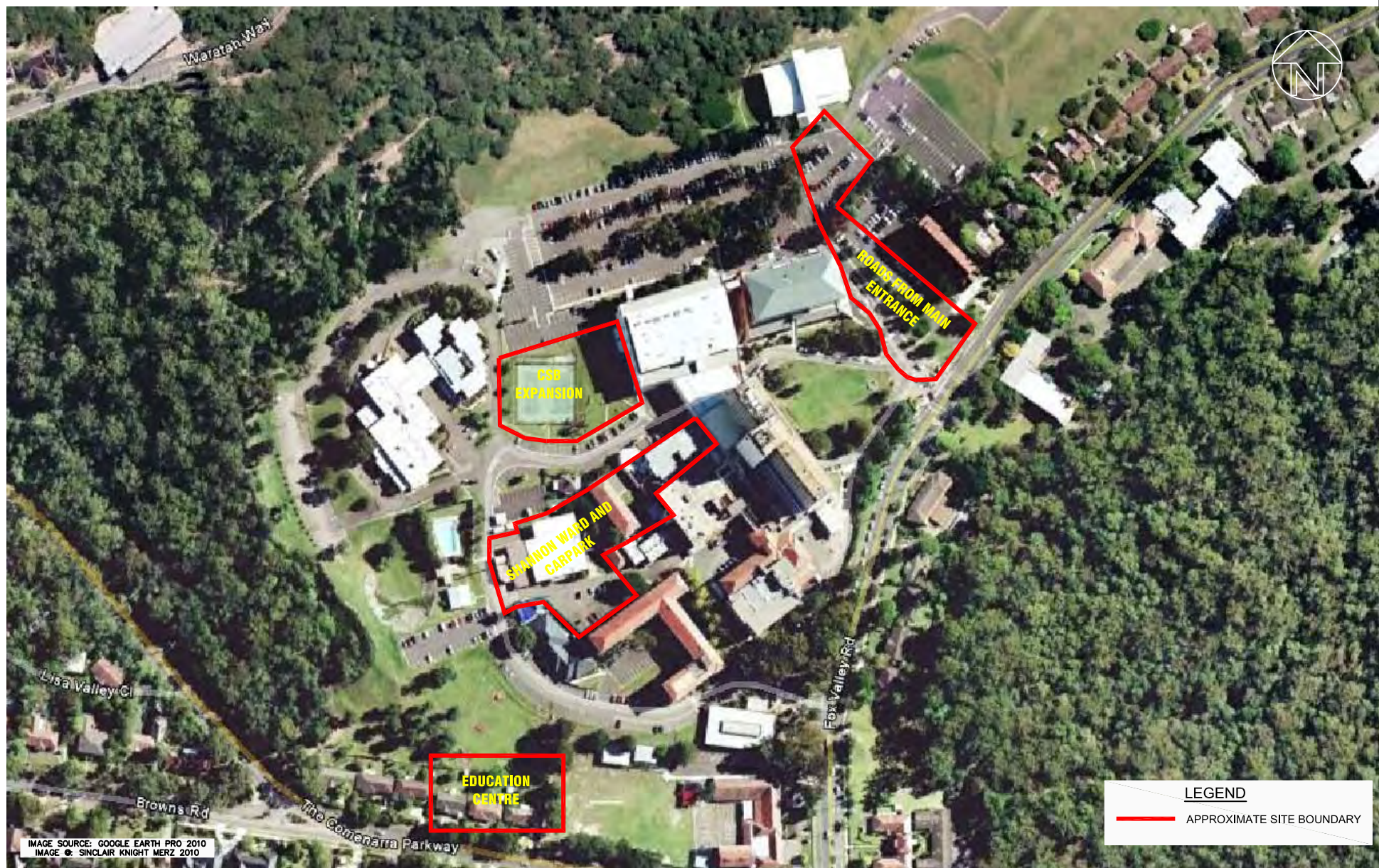
\*\*\*Interlab Duplicates are matched on a per compound basis as methods vary between laboratories.

Any methods in the row header relate to those used in the primary laboratory

# Figures

**Targeted Contamination Assessment  
SAN Hospital, Wahroonga NSW**





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SPECIALISTS IN ENVIRONMENTAL,  
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Level 1, 3 Rider Boulevard  
Rhodes NSW 2138  
Ph: (02) 8083 1600  
Fax: (02) 8765 0762

A	07.12.10		MV
Rev	Date	Revision Details	Dm

Client:

MORRIS BRAY ARCHITECTS

Project:

SYDNEY ADVENTIST HOSPITAL WAHROONGA  
PHASE 2 CONTAMINATION ASSESSMENT

Location:

185 FOX VALLEY ROAD  
WAHROONGA, NEW SOUTH WALES

Drawing Title:

**SITE LOCATION PLAN**

Drawn

MV

Project - Drawing No.  
ENAHURHOD04083AB-D01

Date

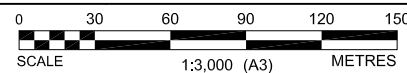
07.12.10

Figure No.

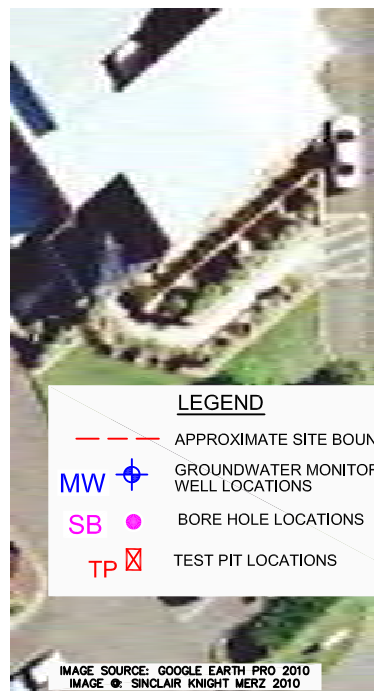
1

Rev.

A







LEGEND	
	APPROXIMATE SITE BOUNDARY
MW	GROUNDWATER MONITORING WELL LOCATIONS
SB	BORE HOLE LOCATIONS
TP	TEST PIT LOCATIONS

IMAGE SOURCE: GOOGLE EARTH PRO 2010  
IMAGE ©: SINCLAIR KNIGHT MERZ 2010



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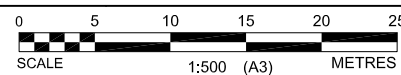
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Level 1, 3 Rider Boulevard  
Rhodes NSW 2138  
Ph: (02) 8083 1600  
Fax: (02) 8765 0762

A	07.12.10		MV
Rev	Date	Revision Details	Dm

Client:

MORRIS BRAY ARCHITECTS



Project:

SYDNEY ADVENTIST HOSPITAL WAHROONGA  
PHASE 2 CONTAMINATION ASSESSMENT

Location:

185 FOX VALLEY ROAD  
WAHROONGA, NEW SOUTH WALES

Drawing Title:

**CSB EXPANSION - STAGE 1A & 1B**

Drawn

MV

Project - Drawing No.  
ENAUHOD04083AB-D01

Date

07.12.10

Figure No.

2

Rev.



A



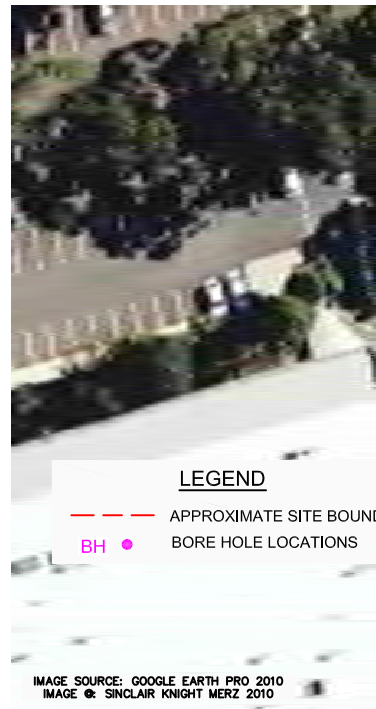
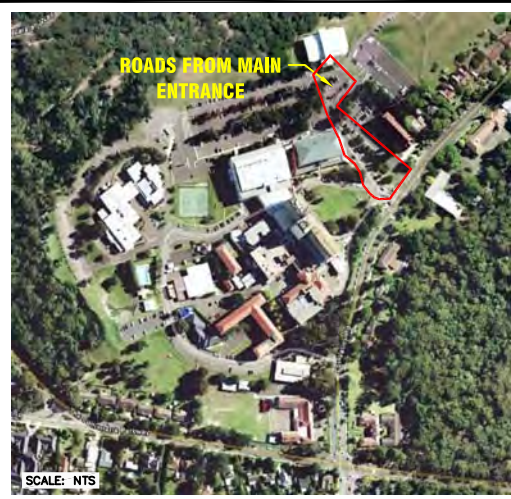
**LEGEND**

SS<sup>x</sup> SOIL SAMPLE LOCATIONS

IMAGE SOURCE: GOOGLE EARTH PRO 2010  
 IMAGE ©: SINCLAIR KNIGHT MERZ 2010

<div> coffey environments</div> <div>SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE</div>					Client:  MORRIS BRAY ARCHITECTS	Project:  SYDNEY ADVENTIST HOSPITAL WAHROONGA PHASE 2 CONTAMINATION ASSESSMENT	Drawing Title:  EDUCATION CENTRE		
Level 1, 3 Rider Boulevard Rhodes NSW 2138 Ph: (02) 8083 1600 Fax: (02) 8765 0762	A	07.12.10		MV	 SCALE 0 4 8 12 16 20 1:400 (A3) METRES	Location:  185 FOX VALLEY ROAD WAHROONGA , NEW SOUTH WALES	Drawn MV	Date 07.12.10	
Rev	Date	Revision Details		Dm			Project - Drawing No. ENAHURHOD04083AB-D01	Figure No. 3	Rev. A





# LEGEND

- APPROXIMATE SITE BOUNDARY
- BH • BORE HOLE LOCATIONS

IMAGE SOURCE: GOOGLE EARTH PRO 2010  
IMAGE ©: SINCLAIR KNIGHT MERZ 2010

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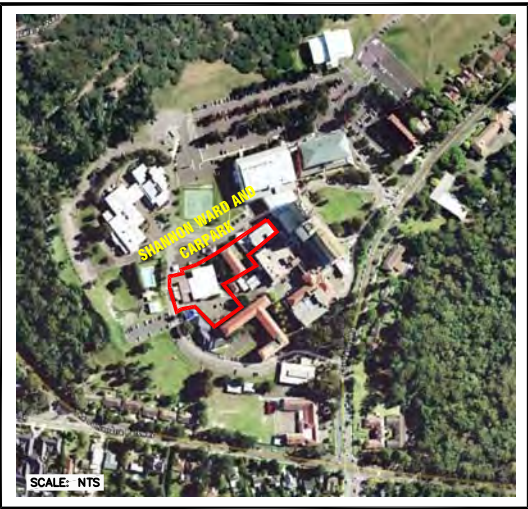
Level 1, 3 Rider Boulevard  
Rhodes NSW 2138  
Ph: (02) 8083 1600  
Fax: (02) 8765 0762

A	07.12.10		MV
Rev	Date	Revision Details	Dm

Client:	MORRIS BRAY ARCHITECTS
Project:	SYDNEY ADVENTIST HOSPITAL WAHROONGA PHASE 2 CONTAMINATION ASSESSMENT
Location:	185 FOX VALLEY ROAD WAHROONGA, NEW SOUTH WALES
<p>0 9 18 27 36 45 SCALE 1:900 (A3) METRES</p>	

Drawing Title:	ROADS FROM MAIN ENTRANCE
Drawn	MV
Project - Drawing No.	ENAHURHOD04083AB-D01
Date	07.12.10
Figure No.	4
Rev.	A





**LEGEND**

--- APPROXIMATE SITE BOUNDARY

MW + GROUNDWATER MONITORING WELL LOCATIONS

BH • BORE HOLE LOCATIONS

IMAGE SOURCE: GOOGLE EARTH PRO 2010  
 IMAGE © SINCLAIR KNIGHT MERZ 2010

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 Rhodes NSW 2138  
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 Fax: (02) 8765 0762

A	07.12.10		MV
Rev	Date	Revision Details	Dm

Client: MORRIS BRAY ARCHITECTS

0 8 16 24 32 40  
 SCALE 1:800 (A3) METRES

Project: SYDNEY ADVENTIST HOSPITAL WAHROONGA  
 PHASE 2 CONTAMINATION ASSESSMENT

Location: 185 FOX VALLEY ROAD  
 WAHROONGA, NEW SOUTH WALES

Drawing Title: SHANNON WARD AND CARPARK		
Drawn MV	Date 07.12.10	
Project - Drawing No. ENAURHOD04083AB-D01	Figure No. 5	Rev. A

# Appendix A: Laboratory Reports

**Targeted Contamination Assessment  
SAN Hospital, Wahroonga NSW**



CO received 26/11/00 @ 12:31pm  
CO completed by NPB at 12.15 pm.  
26/11/00

(P1)

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92003

coffey environment

MR GREEN

Philippines: ☐ 3rd Floor, AMT Bldg, ADB Ave, Ortigas Ctr, Pasig City, Metro Manila  
ACT: ☐ 25/4 Northbourne Ave, Canberra ACT 2601  
NSW: ☒ Level 1, 3 Rider Blvd, Rhodes NSW 2138  
☐ Lot 101, 19 Warabrook Blvd, Warabrook NSW 2304  
☐ 11222 Berkeley Rd, Mandurah NSW 2506

QLD: ☐ 47 Doggett St, Newstead QLD 4006  
SA: ☐ Level 1, 2-3 Greenhill Rd, Mawville SA 5034  
TAS: ☐ Coffey Business Centre, 2 Melville St, Hobart TAS 7000  
VIC: ☐ 126 Trenary Cres, Ashburton VIC 3067  
☐ Level 1, 23 West Pyrmont St, Newtown VIC 3220  
WA: ☐ 61 Duke St, Albany WA 6530  
☐ Suite 2, 53 Burswood Rd, Burswood WA 6100  
☐ Suite 3 & 4, 236 Naturaliste Tce, Dunsborough WA 6201

Project No: ENVA000004-083AB

Task No:

Project Name: SYDNEY ADVENTIST HOSPITAL

Laboratory: SGS

Samplers Name: JOSH GREEN

Project Manager: NATHAN DE SILVA

Special Instructions:

Results Needed by 30 December  
no demand with given

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil, etc)	Container Type & Preservative*	T-A-T (Specify)
1	MW101-0.2	MW101	0.2	25/11/00		Soil	16 + Bag	
2	MW101-0.5	"	0.5	"		"	"	
3	MW101-1.0	"	1.0	"		"	"	
4	MW101-1.5	"	1.5	"		"	"	
5	MW101-2.0	"	2.0	"		"	"	
6	MW101-3.0	"	3.0	"		"	"	
7	MW101-4.0	"	4.0	"		"	"	
8	MW102-0.2	MW102	0.2	"		"	"	
9	MW102-0.5	"	0.5	"		"	"	
10	MW102-1.0	"	1.0	"		"	"	
11	MW102-1.5	"	1.5	"		"	"	
12	MW102-2.0	"	2.0	"		"	"	
13	MW102-2.5	"	2.5	"		"	"	
14	MW102-3.0	"	3.0	"		"	"	
15	MW103-0.2	MW103	0.2	"		"	"	

RELINQUISHED BY:

RECEIVED BY:

Signature: *Josh Green* Date: *26/11/00*  
Company: Coffey Env. Time: *9am*  
Signature: *Chris* Date: *26/11/00*  
Company: SGS Time: *9am*  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Company: \_\_\_\_\_ Time: \_\_\_\_\_

\* Container Type & Preservation Codes: P - Plastic, G - Solvent Washed Acid Rinsed Glass Bottle, V - Vial, N - Nitric Acid Preserved  
C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice

CHAIN OF CUSTODY AND ANALYSIS REQUEST

ISSUE 3

ISSUE DATE: 10/07/00

Analysis Request Section

BTEX / TPH  
METALS (Specify)  
PAHs (Specify)  
OCs (Specify)  
VOC  
SVOC  
Asbestos

NOTED  
received 26/11/00  
Samples intact  
Cooler Pack  
Temperature on Recd  
Storage Location  
SGS Ref No. SC23544

Sample Receipt Advice: (Lab Use Only)

All Samples Received in Good Condition  
All Documentation is in Proper Order  
Samples Received Properly Chilled  
Lab. Ref/Batch No. SC23544



# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92004



Philippines: ☐ 3rd floor, JMT Bldg, ADB Ave, Ortigas Ctr, Pasig City, Metro Manila, Philippines Tel (+63) (2) 638 9888 Fax (+63) (2) 657 3518  
 ACT: ☐ 2/54 Northbourne Ave, Canberra ACT 2601 Tel (02) 6248 7366 Fax (02) 6248 7157  
 NSW: ☐ Level 1, 3 Elder Blvd, Rhodes NSW 2138 Tel (02) 8083 1600 Fax (02) 8766 0762  
☐ Lot 101, 19 Warabrook Blvd, Warabrook NSW 2304 Tel (02) 4016 2300 Fax (02) 4016 2380  
☐ 1/222 Barker Rd, Unanderra NSW 2526 Tel (02) 4272 6071 Fax (02) 4272 6075

QLD: ☐ 47 Doggett St, Newstead QLD 4006 Tel (07) 3608 2500 Fax (07) 3652 2805  
 SA: ☐ Level 1, 2-3 Greenhill Rd, Whyville SA 5034 Tel (08) 7221 3500 Fax (08) 8172 1958  
 TAS: ☐ Coffey Business Centre, 2 Maxwell St, Hobart TAS 7000 Tel (03) 6108 0100 Fax (03) 6108 0199  
 VIC: ☐ 126 Trenerry Cres, Abbotsford VIC 3067 Tel (03) 9473 1400 Fax (03) 9473 1450  
☐ Level 1, 23 West Plains St, Newtown VIC 3220 Tel (03) 5215 4600 Fax (03) 5224 1358  
 WA: ☐ 61 Duke St, Albany WA 6330 Tel (08) 9392 6400 Fax (08) 9392 6444  
☐ Suite 2, 53 Burnwood Rd, Burnwood WA 6100 Tel (08) 9355 7100 Fax (08) 9355 7111  
☐ Suite 3 & 4, 236 Melville St, Dunstons WA 6281 Tel (08) 9756 7809 Fax (08) 9756 8878

Project No: ENVKRM0204083AB

Task No:

Project Name:

Laboratory: SCS

Samplers Name: GOSH Grevin

Project Manager: NALIN DE SILVA

Special Instructions:

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil, etc)	Container Type & Preservative	T-A-T (Specify)
16	GM103-0.5	GM103	0.5	25/11/10		Soil	16 + Bag	
17	GM103-1.0	"	1.0	"	"	"	"	
18	GM103-1.5	"	1.5	"	"	"	"	
19	GM103-2.0	"	2.0	"	"	"	"	
20	GM103-2.7	"	2.7	"	"	"	"	
21	GM102-4.0	MW102	4.0	"	"	"	"	
22	GM116-0.2	GM116	0.2	"	"	"	"	
23	GM116-0.5	"	0.5	"	"	"	"	
24	GM116-1.0	"	1.0	"	"	"	"	
25	GM116-1.5	"	1.5	"	"	"	"	
26	GM116-2.0	"	2.0	"	"	"	"	
27	GM116-2.3	"	2.3	"	"	"	"	
28	TR1	N/A	N/A	"	"	"	"	
29	GM102-5.3	MW102	5.3	"	"	"	"	
30	GM115-0.2	GM115	0.2	"	"	"	"	

RELINQUISHED BY:

RECEIVED BY:

Signature: *[Signature]* Date: *26/11/10*  
 Company: Coffey ENV, Time: *5:00*  
 Signature: *[Signature]* Date: *26/11/10*  
 Company: SCS, Time: *9am*

\* Container Type & Preservation Codes: P - Plastic, G - Solvent Washed Acid Rinsed Glass Bottle, V - Vial, N - Nitric Acid Preserved  
 C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice

CHAIN OF CUSTODY AND ANALYSIS REQUEST

ISSUE: 3

ISSUE DATE: 10/07/08

Sample Receipt Advice: (Lab Use Only)  
 All Samples Received in Good Condition ☒  
 All Documentation is in Proper Order ☒  
 Samples Received Properly Chilled ☒  
 Lab. Ref/Batch No. *SC83544*

Analysis Request Section  
 BTEX / TPH  
 METALS (Specify)  
 PAHs  
 OCs  
 VOC  
 SVOC  
 Asbestos  
 HCB

NOTES



# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92005



Philippines: 33rd Floor, JMT Bldg, ADB Ave, Ortigas Ctr, Pasig City, Metro Manila, Philippines  
 ACT: 3254 Northbourne Ave, Canberra ACT 2601  
 NSW: Lot 101, 19 Warabrook Blvd, Warabrook NSW 2304  
 1222 Berkeley Rd, Urmahanga NSW 2526

QLD: 47 Doggett St, Newstead QLD 4006  
 SA: Level 1, 2-3 Greenhill Rd, Whyville SA 5034  
 TAS: Coffey Business Centre, 2 Melville St, Hobart TAS 7000  
 VIC: 126 Trenerry Cres, Abbotsford VIC 3067  
 WA: Level 1, 23 West Fyans St, Newtown VIC 3220  
 61 Duke St, Albany WA 6330  
 53 Dunswood Rd, Dunswood WA 6100  
 Suite 3 & 4, 236 Naturaliste Tce, Dunsborough WA 6281

Tel (06) 638 9696 Fax (06) 637 3518  
 Tel (02) 6248 7368 Fax (02) 6248 7157  
 Tel (02) 8003 1600 Fax (02) 8765 0782  
 Tel (02) 4016 2300 Fax (02) 4016 2380  
 Tel (02) 4272 6071 Fax (02) 4272 6075

Project No: EN/AV/RH0204033A

Task No:

Project Name:

Laboratory: SPS

Samplers Name: JOSH GRAYN

Project Manager: NAGN DE SILVA

Special Instructions:

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil, etc)	Container Type & Preservative*	T-A-T (Specify)	NOTES
31	BH15-0.5	BH15	0.5	25/11/10		Soil	16 + Bag		
32	BH15-1.0	"	1.0	"		"	"		
33	BH14-0.2	BH14	0.2	"		"	"		
34	BH14-0.5	"	0.5	"		"	"		
35	BH14-1.0	"	1.0	"		"	"		
36	BH14-1.5	"	1.5	"		"	"		
37	BH14-2.0	"	2.0	"		"	"		
38	QC1	"	"	"		"	"		
39	QC1A	"	"	"		"	"		
40	QC2	"	"	"		"	"		
41	QC3	"	"	"		"	"		
42	BH127-0.2	BH127	0.2	"		"	"		
43	BH127-0.5	"	0.5	"		"	"		
44	BH127-1.0	"	1.0	"		"	"		
45	BH127-1.6	"	1.6	"		"	"		

RELINQUISHED BY:

RECEIVED BY:

Signature: J. GRAYN Date: 26/11/10  
 Company: COFFEY ENV Time:  
 Signature: C. DE SILVA Date:  
 Company: SPS Time:

\* Container Type & Preservation Codes: P - Plastic, G - Solvent Washed Acid Flined Glass Bottle, V - Vial, N - Nitric Acid Preserved  
 C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice

Sample Receipt Advice: (Lab Use Only)

All Samples Received in Good Condition...  
 All Documentation is in Proper Order...  
 Samples Received Properly Chilled...  
 Lab. Ref/Batch No.

SC-63544



## AU.SampleReceipt.Sydney (Sydney)

---

**From:** Nalin De Silva [Nalin\_DeSilva@coffey.com]  
**Sent:** Friday, 26 November 2010 12:46 PM  
**To:** AU.SampleReceipt.Sydney (Sydney)  
**Subject:** FW: Completed COC for ENAURHOD04083AB, COC:925003-5  
**Attachments:** img-Y261232-0001.pdf

Emily, I meant to say 30 November in the email below.

**NALIN DE SILVA**  
Senior Environmental Engineer/Industrial Projects Leader  
**Coffey Environments**  
Level 1, 3 Rider Boulevard Rhodes NSW 2138 Australia  
T +61 2 8083 1600 F +61 2 8765 0762 M +61 420 962 552  
[coffey.com](http://coffey.com)

---

**From:** Nalin De Silva  
**Sent:** Friday, 26 November 2010 12:31 PM  
**To:** 'AU.SampleReceipt.Sydney (Sydney)'  
**Subject:** Completed COC for ENAURHOD04083AB, COC:925003-5

Emily,  
Please find attached the completed COC for this urgent job.  
Please note that I don't need 24hr TAT on this batch as the drilling started earlier than expected. If I can have the results by COB next Tuesday (30<sup>th</sup> Dec) that would be great. The rest of the batches from Monday and Tuesday will require 24 hr TAT.

**NALIN DE SILVA**  
Senior Environmental Engineer/Industrial Projects Leader  
**Coffey Environments**  
Level 1, 3 Rider Boulevard Rhodes NSW 2138 Australia  
T +61 2 8083 1600 F +61 2 8765 0762 M +61 420 962 552  
[coffey.com](http://coffey.com)

---

**From:** AU.SampleReceipt.Sydney (Sydney) [mailto:AU.SampleReceipt.Sydney@sgs.com]  
**Sent:** Friday, 26 November 2010 10:05 AM  
**To:** Nalin De Silva  
**Subject:** ENAURHOD04083AB, COC:925003-5  
**Importance:** High

Dear Nalin,

SGS has received these samples. Field notes attached.

Kind Regards

**Emily Yin**  
**Environmental Services**  
Sample Administration Officer

**SGS Australia Pty Ltd**  
Unit 16, 33 Maddox St  
Alexandria, NSW, 2015

Phone: +61 (0)2 8594 0400

26/11/2010

## Client Details

Requested By : **Nalin De Silva**  
 Client : Coffey Environments Pty Ltd  
 Contact : Nalin De Silva  
 Address : Level 1, 3 Rider Boulevard  
 RHODES NSW 2138

Email : Nalin\_DeSilva@coffey.com  
 Telephone : 02 8083 1600  
 Facsimile : 02 8765 0762

Project : ENAURHOD04083AB - Sydney Adventist Hospital  
 Order Number : 92003-5  
 Samples : 45 Soils, 1 Water

## Laboratory Details

Laboratory : SGS Environmental Services  
 Manager : Edward Ibrahim  
 Address : Unit 16, 33 Maddox Street  
 Alexandria NSW 2015

Email : au.samplereceipt.sydney@sgs.com  
 Telephone : 61 2 8594 0400  
 Facsimile : 61 2 8594 0499

Report No : **SE83544**  
 No. of Samples : 46  
 Due Date : 30/11/2010

Date Instructions Received : 26/11/2010  
 Sample Receipt Date : 26/11/10

Samples received in good order : YES  
 Samples received without headspace : YES  
 Upon receipt sample temperature : Cool  
 Sample containers provided by : SGS  
 Turnaround time requested : 2 Days

Samples received in correct container : YES  
 Sufficient quantity supplied : YES  
 Cooling Method : Ice  
 Samples clearly Labelled : YES  
 Completed documentation received : YES

Samples will be held for 1 month for water samples and 3 months for soil samples from date of receipt of samples, unless otherwise instructed.

## Comments

Unlabelled sample received to be placed on hold

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

**The signed chain of custody will be returned to you with the original report.**



**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83544  
Project : ENAURHOD04083AB - Sydney Adventist Hospital

**Summary of Samples and Requested Analysis**

The table below represents SGS Environmental Service's understanding and interpretation of the customer supplied sample request.

Please indicate ASAP if your request differs from these details.

Testing shall commence immediately as per this table, unless the customer intervenes with a correction prior to testing.

Note that a small X in the table below indicates some testing has not been requested in the package.

Sample No.	Description	Metals Prep, soil, water, TCLP	VOCs in Soil-SGS Nat. 72 List	BTEX in Soil	TRH in soil with .C6-C9 by P/T	PAHs in Soil	OC Pesticides in Soil	OP Pesticides in Soil by GCMS	PCBs in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	Asbestos ID in soil	BTEX in Water (µg/L)	TRH C6-C9 by P/T ONLY Y-in water	Hold sample-NO test required	Moisture
1	MW101-0.2	X		X	X	X	X			X	X	X				X
2	MW101-0.5														X	
3	MW101-1.0														X	
4	MW101-1.5	X		X	X	X				X	X					X
5	MW101-2.0														X	
6	MW101-3.0														X	
7	MW101-4.0														X	
8	MW102-0.2	X		X	X	X	X			X	X	X				X
9	MW102-0.5	X		X	X	X				X	X					X
10	MW102-1.0														X	
11	MW102-1.5	X		X	X	X				X	X					X
12	MW102-2.0														X	
13	MW102-2.5														X	
14	MW102-3.0														X	
15	BH103-0.2	X		X	X	X	X			X	X	X				X
16	BH103-0.5														X	
17	BH103-1.0														X	
18	BH103-1.5														X	



**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83544  
 Project : ENAURHOD04083AB - Sydney Adventist Hospital

Sample No.	Description	Metals Prep, soil, water, TCLP	VOCs in Soil-SGS Nat. 72 List	BTEX in Soil	TRH in soil with: C6-C9 by P/T	PAHs in Soil	OC Pesticides in Soil	OP Pesticides in Soil by GCMS	PCBs in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	Asbestos ID in soil	BTEX in Water (µg/L)	TRH C6-C9 by P/T ONLY in water	Hold sample-NO test required	Moisture
19	BH103-2.0														X	
20	BH103-2.7	X		X	X					X	X					X
21	MW102-4.0														X	
22	BH116-0.2	X		X	X	X	X			X	X	X				X
23	BH116-0.5	X		X	X	X				X	X					X
24	BH116-1.0														X	
25	BH116-1.5														X	
26	BH116-2.0														X	
27	BH116-2.3														X	
28	TB1												X	X		
29	MW102-5.3														X	
30	BH115-0.2	X		X	X	X	X			X	X	X				X
31	BH115-0.5														X	
32	BH115-1.0														X	
33	BH114-0.2	X	X		X	X	X	X	X	X	X					X
34	BH114-0.5	X	X		X	X	X	X	X	X	X					X
35	BH114-1.0	X		X	X	X				X	X					X
36	BH114-1.5														X	
37	BH114-2.0														X	
38	QC1	X		X	X	X				X	X					X
39	QC1A	X		X	X	X				X	X					X
40	QC2	X		X	X	X				X	X					X
41	QC3														X	
42	BH127-0.2	X	X		X	X	X	X	X	X	X					X



**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83544  
 Project : ENAURHOD04083AB - Sydney Adventist Hospital

Sample No.	Description	Metals Prep, soil, water, TCLP	VOCs in Soil-SGS Nat. 72 List	BTEX in Soil	TRH in soil with . C6-C9 by P/T	PAHs in Soil	OC Pesticides in Soil	OP Pesticides in Soil by GCMS	PCBs in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	Asbestos ID in soil	BTEX in Water (µg/L)	TRH C6-C9 by P/T ONLY-in water	Hold sample-NO test required	Moisture
43	BH127-0.5	X	X		X	X	X	X	X	X	X					X
44	BH127-1.0														X	
45	BH127-1.6														X	
46	unlabelled bag														X	

Sample No.	Description
1	MW101-0.2
2	MW101-0.5
3	MW101-1.0
4	MW101-1.5
5	MW101-2.0
6	MW101-3.0
7	MW101-4.0
8	MW102-0.2
9	MW102-0.5
10	MW102-1.0
11	MW102-1.5
12	MW102-2.0
13	MW102-2.5
14	MW102-3.0
15	BH103-0.2





**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83544  
Project : ENAURHOD04083AB - Sydney Adventist Hospital

---

Sample No.	Description
16	BH103-0.5
17	BH103-1.0
18	BH103-1.5
19	BH103-2.0
20	BH103-2.7
21	MW102-4.0
22	BH116-0.2
23	BH116-0.5
24	BH116-1.0
25	BH116-1.5
26	BH116-2.0
27	BH116-2.3
28	TB1
29	MW102-5.3
30	BH115-0.2
31	BH115-0.5
32	BH115-1.0
33	BH114-0.2
34	BH114-0.5
35	BH114-1.0
36	BH114-1.5
37	BH114-2.0
38	QC1
39	QC1A
40	QC2
41	QC3
42	BH127-0.2
43	BH127-0.5
44	BH127-1.0



**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83544  
Project : ENAURHOD04083AB - Sydney Adventist Hospital

---

Sample No.	Description
45	BH127-1.6
46	unlabelled bag



## ANALYTICAL REPORT

30 November 2010

**Coffey Environments Pty Ltd**

Level 1, 3 Rider Boulevard

RHODES

NSW 2138

**Attention:** Nalin De Silva

Your Reference: ENAURHOD04083AB - Sydney Adventist Hospital

Our Reference: SE83544

Samples: 45 Soils, 1 Water

Received: 26/11/10

Preliminary Report Sent: Not Issued

These samples were analysed in accordance with your written instructions.

For and on Behalf of:

SGS ENVIRONMENTAL SERVICES

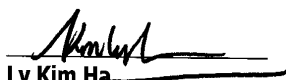
Sample Receipt: Angela Mamalicos

AU.SampleReceipt.Sydney@sgs.com

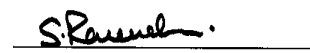
Production Manager: Huong Crawford

Huong.Crawford@sgs.com

*Results Approved and/or Authorised by:*

  
Ly Kim Ha  
Organics Signatory

  
Huong Crawford  
Metals Signatory

  
Ravee Sivasubramaniam  
Asbestos Signatory



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Page 1 of 39

WORLD RECOGNISED  
ACCREDITATION

SGS Australia Pty Ltd  
ABN 44 000 964 278

Environmental Services Unit 16/33 Maddox Street Alexandria NSW 2015 Australia  
t +61 (0)2 8594 0400 f + 61 (0)2 8594 0499 www.au.sgs.com

VOCs in Soil - 72 List					
Our Reference:	UNITS	SE83544-3	SE83544-3	SE83544-4	SE83544-4
Your Reference	-----	3	4	2	3
Sample Matrix	-----	BH114-0.2	BH114-0.5	BH127-0.2	BH127-0.5
Date Sampled		Soil	Soil	Soil	Soil
Depth		25/11/2010	25/11/2010	25/11/2010	25/11/2010
Location		0.2	0.5	0.2	0.5
		BH114	BH114	BH127	BH127
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Dichlorodifluoromethane (CFC-12)	mg/kg	<1	<1	<1	<1
Chloromethane	mg/kg	<1	<1	<1	<1
Vinyl Chloride (chloroethene)	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromomethane	mg/kg	<1	<1	<1	<1
Chloroethane	mg/kg	<1	<1	<1	<1
Trichlorofluoromethane	mg/kg	<1	<1	<1	<1
Acetone (2-propanone)	mg/kg	<10	<10	<10	<10
1,1-Dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
Methyl Iodine (iodomethane)	mg/kg	<5	<5	<5	<5
Acrylonitrile	mg/kg	<0.1	<0.1	<0.1	<0.1
Methylene Chloride (DCM)	mg/kg	<0.5	<0.5	<0.5	<0.5
Allyl Chloride	mg/kg	<0.1	<0.1	<0.1	<0.1
Carbon Disulphide	mg/kg	<0.5	<0.5	<0.5	<0.5
<i>trans</i> -1,2-Dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
Methyl-tert-butyl ether (MtBE)	mg/kg	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Butanone (MEK)	mg/kg	<10	<10	<10	<10
<i>cis</i> -1,2-Dichloroethene	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromochloromethane	mg/kg	<0.1	<0.1	<0.1	<0.1
Chloroform	mg/kg	<0.1	<0.1	<0.1	<0.1
2,2-Dichloropropane	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-Dichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,1-Trichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1-Dichloropropene	mg/kg	<0.1	<0.1	<0.1	<0.1
Carbon tetrachloride	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibromomethane	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-Dichloropropane	mg/kg	<0.1	<0.1	<0.1	<0.1
Trichloroethene (TCE)	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Nitropropane	mg/kg	<10	<10	<10	<10
Bromodichloromethane	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>cis</i> -1,3-Dichloropropene	mg/kg	<0.1	<0.1	<0.1	<0.1
4-Methyl-2-Pentanone (MIBK)	mg/kg	<1	<1	<1	<1
<i>trans</i> -1,3-Dichloropropene	mg/kg	<0.1	<0.1	<0.1	<0.1



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NATA accredited laboratory 2562 (4354).  
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VOCs in Soil - 72 List Our Reference:	UNITS	SE83544-3	SE83544-3	SE83544-4	SE83544-4
Your Reference	-----	3	4	2	3
Sample Matrix	-----	BH114-0.2	BH114-0.5	BH127-0.2	BH127-0.5
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	0.5	0.2	0.5
Location		BH114	BH114	BH127	BH127
1,1,2-Trichloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,3-Dichloropropane	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Hexanone (MBK)	mg/kg	<5	<5	<5	<5
Dibromochloromethane	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-Dibromoethane (EDB)	mg/kg	<0.1	<0.1	<0.1	<0.1
Tetrachloroethene (PCE- perchloroethyler	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,1,2-Tetrachloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethyl benzene	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromoform	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>m/p</i> -Xylenes	mg/kg	<0.2	<0.2	<0.2	<0.2
Cis-1,4-dichloro-2-butene	mg/kg	<1	<1	<1	<1
Styrene (vinyl benzene)	mg/kg	<0.1	<0.1	<0.1	<0.1
1,1,2,2-Tetrachloroethane	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>o</i> -Xylene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2,3-Trichloropropane	mg/kg	<0.1	<0.1	<0.1	<0.1
Trans-1,4-dichloro-2-butene	mg/kg	<1	<1	<1	<1
Isopropylbenzene (Cumene)	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>n</i> -Propylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Chlorotoluene	mg/kg	<0.1	<0.1	<0.1	<0.1
4-Chlorotoluene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,3,5-Trimethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>tert</i> -Butylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2,4-Trimethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>sec</i> -Butylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,3-Dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>p</i> -Isopropyl toluene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-Dichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>n</i> -Butylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-Dibromo-3-chloropropane	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2,4-Trichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Hexachlorobutadiene	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2,3-Trichlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1



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VOCs in Soil - 72 List					
Our Reference:	UNITS	SE83544-3	SE83544-3	SE83544-4	SE83544-4
		3	4	2	3
Your Reference	-----	BH114-0.2	BH114-0.5	BH127-0.2	BH127-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	0.5	0.2	0.5
Location		BH114	BH114	BH127	BH127
Vinyl acetate	mg/kg	<10	<10	<10	<10
Dibromofluoromethane	%	76	68	75	89
1,2-Dichloroethane-d4	%	77	74	80	97
Toluene-d8 Surrogate 2	%	76	64	82	103
4-Bromofluorobenzene Surrogate 3	%	67	82	70	91



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BTEX in Soil Our Reference:	UNITS	SE83544-1	SE83544-4	SE83544-8	SE83544-9	SE83544-1 1
Your Reference	-----	MW101-0.2	MW101-1.5	MW102-0.2	MW102-0.5	MW102-1.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	1.5	0.2	0.5	1.5
Location		MW101	MW101	MW102	MW102	MW102
Date Extracted (BTEX)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (BTEX)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
BTEX Surrogate (%)	%	89	80	101	78	98

BTEX in Soil Our Reference:	UNITS	SE83544-1 5	SE83544-2 0	SE83544-2 2	SE83544-2 3	SE83544-3 0
Your Reference	-----	BH103-0.2	BH103-2.7	BH116-0.2	BH116-0.5	BH115-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	2.7	0.2	0.5	0.2
Location		BH103	BH103	BH116	BH116	BH115
Date Extracted (BTEX)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (BTEX)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
BTEX Surrogate (%)	%	87	99	99	87	100



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BTEX in Soil					
Our Reference:	UNITS	SE83544-3	SE83544-3	SE83544-3	SE83544-4
		5	8	9	0
Your Reference	-----	BH114-1.0	QC1	QC1A	QC2
Sample Matrix	-----	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		1.0	-	-	-
Location		BH114	-	-	-
Date Extracted (BTEX)		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (BTEX)		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3
BTEX Surrogate (%)	%	74	77	78	89



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TRH in soil with..C6-C9 by P/T Our Reference:	UNITS	SE83544-1	SE83544-4	SE83544-8	SE83544-9	SE83544-1 1
Your Reference	-----	MW101-0.2	MW101-1.5	MW102-0.2	MW102-0.5	MW102-1.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	1.5	0.2	0.5	1.5
Location		MW101	MW101	MW102	MW102	MW102
Date Extracted (TRH C6-C9 PT)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (TRH C6-C9 PT)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
TRH C6 - C9 P&T	mg/kg	<20	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
TRH C10 - C14	mg/kg	<20	<20	<20	<20	<20
TRH C15 - C28	mg/kg	<50	<50	<50	<50	<50
TRH C29 - C36	mg/kg	<50	<50	<50	<50	<50

TRH in soil with..C6-C9 by P/T Our Reference:	UNITS	SE83544-1 5	SE83544-2 0	SE83544-2 2	SE83544-2 3	SE83544-3 0
Your Reference	-----	BH103-0.2	BH103-2.7	BH116-0.2	BH116-0.5	BH115-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	2.7	0.2	0.5	0.2
Location		BH103	BH103	BH116	BH116	BH115
Date Extracted (TRH C6-C9 PT)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (TRH C6-C9 PT)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
TRH C6 - C9 P&T	mg/kg	<20	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
TRH C10 - C14	mg/kg	<20	<20	<20	<20	<20
TRH C15 - C28	mg/kg	<50	<50	<50	<50	<50
TRH C29 - C36	mg/kg	<50	<50	<50	<50	<50

TRH in soil with..C6-C9 by P/T Our Reference:	UNITS	SE83544-3 3	SE83544-3 4	SE83544-3 5	SE83544-3 8	SE83544-3 9
Your Reference	-----	BH114-0.2	BH114-0.5	BH114-1.0	QC1	QC1A
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	0.5	1.0	-	-
Location		BH114	BH114	BH114	-	-
Date Extracted (TRH C6-C9 PT)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (TRH C6-C9 PT)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
TRH C6 - C9 P&T	mg/kg	<20	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
TRH C10 - C14	mg/kg	<20	<20	<20	<20	<20
TRH C15 - C28	mg/kg	<50	<50	<50	<50	<50
TRH C29 - C36	mg/kg	<50	<50	<50	<50	<50

TRH in soil with..C6-C9 by P/T Our Reference:	UNITS	SE83544-4 0	SE83544-4 2	SE83544-4 3
Your Reference	-----	QC2	BH127-0.2	BH127-0.5
Sample Matrix	-----	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010
Depth		-	0.2	0.5
Location		-	BH127	BH127
Date Extracted (TRH C6-C9 PT)		29/11/2010	29/11/2010	29/11/2010
Date Analysed (TRH C6-C9 PT)		29/11/2010	29/11/2010	29/11/2010
TRH C6 - C9 P&T	mg/kg	<20	<20	<20
Date Extracted (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010
Date Analysed (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010
TRH C10 - C14	mg/kg	<20	<20	<20
TRH C15 - C28	mg/kg	<50	<50	<50
TRH C29 - C36	mg/kg	<50	<50	<50

PAHs in Soil Our Reference:	UNITS	SE83544-1	SE83544-4	SE83544-8	SE83544-9	SE83544-1 1
Your Reference	-----	MW101-0.2	MW101-1.5	MW102-0.2	MW102-0.5	MW102-1.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	1.5	0.2	0.5	1.5
Location		MW101	MW101	MW102	MW102	MW102
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	<0.10	0.21	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	<0.10	0.30	<0.10	<0.10
Pyrene	mg/kg	<0.10	<0.10	0.30	<0.10	<0.10
Benzo[a]anthracene	mg/kg	<0.10	<0.10	0.12	<0.10	<0.10
Chrysene	mg/kg	<0.10	<0.10	0.12	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo[k]fluoranthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[a]pyrene	mg/kg	<0.10	<0.10	0.13	<0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<2	<2	<2.22	<2	<2
Nitrobenzene-d5	%	98	94	96	96	96
2-Fluorobiphenyl	%	93	102	88	96	93
<i>p</i> -Terphenyl-d14	%	93	92	89	88	87



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PAHs in Soil Our Reference:	UNITS	SE83544-1 5	SE83544-2 2	SE83544-2 3	SE83544-3 0	SE83544-3 3
Your Reference	-----	BH103-0.2	BH116-0.2	BH116-0.5	BH115-0.2	BH114-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	0.2	0.5	0.2	0.2
Location		BH103	BH116	BH116	BH115	BH114
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.31	<0.10	<0.10	<0.10	0.13
Anthracene	mg/kg	0.11	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.62	<0.10	<0.10	<0.10	0.29
Pyrene	mg/kg	0.61	<0.10	<0.10	<0.10	0.31
Benzo[a]anthracene	mg/kg	0.30	<0.10	<0.10	<0.10	0.18
Chrysene	mg/kg	0.26	<0.10	<0.10	<0.10	0.17
Benzo[b]fluoranthene	mg/kg	0.3	<0.1	<0.1	<0.1	0.2
Benzo[k]fluoranthene	mg/kg	0.17	<0.10	<0.10	<0.10	0.12
Benzo[a]pyrene	mg/kg	0.29	<0.10	<0.10	<0.10	0.20
Indeno[123-cd]pyrene	mg/kg	0.14	<0.10	<0.10	<0.10	0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	0.20	<0.10	<0.10	<0.10	0.15
Total PAHs (sum)	mg/kg	<3.86	<2	<2	<2	<2.47
Nitrobenzene-d5	%	93	101	100	99	92
2-Fluorobiphenyl	%	87	92	94	88	85
p -Terphenyl-d14	%	89	89	89	91	90



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PAHs in Soil Our Reference:	UNITS	SE83544-3 4	SE83544-3 5	SE83544-3 8	SE83544-3 9	SE83544-4 0
Your Reference	-----	BH114-0.5	BH114-1.0	QC1	QC1A	QC2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.5	1.0	-	-	-
Location		BH114	BH114	-	-	-
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.21	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.54	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	0.55	<0.10	<0.10	<0.10	<0.10
Benzo[a]anthracene	mg/kg	0.31	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	0.23	<0.10	<0.10	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Benzo[k]fluoranthene	mg/kg	0.14	<0.10	<0.10	<0.10	<0.10
Benzo[a]pyrene	mg/kg	0.26	<0.10	<0.10	<0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	0.12	<0.10	<0.10	<0.10	<0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	0.14	<0.10	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<3.44	<2	<2	<2	<2
Nitrobenzene-d5	%	74	113	111	100	107
2-Fluorobiphenyl	%	81	103	101	98	103
p -Terphenyl-d14	%	82	101	100	100	101



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PAHs in Soil Our Reference:	UNITS	SE83544-4 2	SE83544-4 3
Your Reference	-----	BH127-0.2	BH127-0.5
Sample Matrix	-----	Soil	Soil
Date Sampled		25/11/2010	25/11/2010
Depth		0.2	0.5
Location		BH127	BH127
Date Extracted		29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010
Naphthalene	mg/kg	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	<0.10
Pyrene	mg/kg	<0.10	<0.10
Benzo[a]anthracene	mg/kg	<0.10	<0.10
Chrysene	mg/kg	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	<0.1	<0.1
Benzo[k]fluoranthene	mg/kg	<0.10	<0.10
Benzo[a]pyrene	mg/kg	<0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	<0.10	<0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	<0.10	<0.10
Total PAHs (sum)	mg/kg	<2	<2
Nitrobenzene-d5	%	100	106
2-Fluorobiphenyl	%	101	100
p -Terphenyl-d14	%	101	101



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OC Pesticides in Soil Our Reference:	UNITS	SE83544-1	SE83544-8	SE83544-1 5	SE83544-2 2	SE83544-3 0
Your Reference	-----	MW101-0.2	MW102-0.2	BH103-0.2	BH116-0.2	BH115-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	0.2	0.2	0.2	0.2
Location		MW101	MW102	BH103	BH116	BH115
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>alpha</i> -BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC (Lindane)	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
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>beta</i> -BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>delta</i> -BHC	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
<i>o,p</i> -DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>alpha</i> -Endosulfan	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>trans</i> -Chlordane ( <i>gamma</i> )	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>cis</i> -Chlordane ( <i>alpha</i> )	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>trans</i> -Nonachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -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
<i>o,p</i> -DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>o,p</i> -DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>beta</i> -Endosulfan	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -DDT	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
Endrin Aldehyde	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
Endrin Ketone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5,6-Tetrachloro-m-xylene ( <i>Surrogate</i> )	%	106	123	127	124	121



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OC Pesticides in Soil					
Our Reference:	UNITS	SE83544-3	SE83544-3	SE83544-4	SE83544-4
		3	4	2	3
Your Reference	-----	BH114-0.2	BH114-0.5	BH127-0.2	BH127-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	0.5	0.2	0.5
Location		BH114	BH114	BH127	BH127
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>alpha</i> -BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC (Lindane)	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>beta</i> -BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>delta</i> -BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>o,p</i> -DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>alpha</i> -Endosulfan	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>trans</i> -Chlordane ( <i>gamma</i> )	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>cis</i> -Chlordane ( <i>alpha</i> )	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>trans</i> -Nonachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -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
<i>o,p</i> -DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>o,p</i> -DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>beta</i> -Endosulfan	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	<0.1	<0.1	<0.1	<0.1
2,4,5,6-Tetrachloro-m-xylene ( <i>Surrogate</i> )	%	128	129	119	123



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OP Pesticides in Soil by GCMS					
Our Reference:	UNITS	SE83544-3	SE83544-3	SE83544-4	SE83544-4
		3	4	2	3
Your Reference	-----	BH114-0.2	BH114-0.5	BH127-0.2	BH127-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	0.5	0.2	0.5
Location		BH114	BH114	BH127	BH127
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Dichlorvos	mg/kg	<1	<1	<1	<1
Dimethoate	mg/kg	<1	<1	<1	<1
Diazinon	mg/kg	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	<0.20	<0.20	<0.20	<0.20
Chlorpyrifos-ethyl	mg/kg	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl	mg/kg	<0.2	<0.2	<0.2	<0.2
Bromofos-ethyl	mg/kg	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl	mg/kg	<0.20	<0.20	<0.20	<0.20
2-fluorobiphenyl (Surr)	%	84	83	75	76
d14-p-Terphenyl (Surr)	%	81	84	68	67



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PCBs in Soil					
Our Reference:	UNITS	SE83544-3	SE83544-3	SE83544-4	SE83544-4
		3	4	2	3
Your Reference	-----	BH114-0.2	BH114-0.5	BH127-0.2	BH127-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	0.5	0.2	0.5
Location		BH114	BH114	BH127	BH127
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	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
Arochlor 1262	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1268	mg/kg	<0.1	<0.1	<0.1	<0.1
Total Positive PCB	mg/kg	<0.90	<0.90	<0.90	<0.90
PCB_Surrogate 1	%	128	129	119	123

Metals in Soil by ICP-OES Our Reference:	UNITS	SE83544-1	SE83544-4	SE83544-8	SE83544-9	SE83544-1 1
Your Reference	-----	MW101-0.2	MW101-1.5	MW102-0.2	MW102-0.5	MW102-1.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	1.5	0.2	0.5	1.5
Location		MW101	MW101	MW102	MW102	MW102
Date Extracted (Metals)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (Metals)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Arsenic	mg/kg	<3	10	4	8	4
Cadmium	mg/kg	<0.3	0.6	<0.3	0.5	0.4
Chromium	mg/kg	2.7	15	11	20	6.8
Copper	mg/kg	2.3	38	15	29	13
Lead	mg/kg	4	26	42	71	18
Nickel	mg/kg	1.9	2.9	5.4	5.5	17
Zinc	mg/kg	11	17	81	140	70

Metals in Soil by ICP-OES Our Reference:	UNITS	SE83544-1 5	SE83544-2 0	SE83544-2 2	SE83544-2 3	SE83544-3 0
Your Reference	-----	BH103-0.2	BH103-2.7	BH116-0.2	BH116-0.5	BH115-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	2.7	0.2	0.5	0.2
Location		BH103	BH103	BH116	BH116	BH115
Date Extracted (Metals)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (Metals)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Arsenic	mg/kg	6	9	<3	5	16
Cadmium	mg/kg	0.4	<0.3	<0.3	0.3	0.5
Chromium	mg/kg	13	5.6	4.7	9.3	12
Copper	mg/kg	24	40	11	16	21
Lead	mg/kg	75	18	26	82	64
Nickel	mg/kg	5.1	0.98	2.7	3.2	6.1
Zinc	mg/kg	120	8.2	45	140	130

Metals in Soil by ICP-OES						
Our Reference:	UNITS	SE83544-3	SE83544-3	SE83544-3	SE83544-3	SE83544-3
		3	4	5	8	9
Your Reference	-----	BH114-0.2	BH114-0.5	BH114-1.0	QC1	QC1A
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	0.5	1.0	-	-
Location		BH114	BH114	BH114	-	-
Date Extracted (Metals)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (Metals)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Arsenic	mg/kg	5	6	170	7	9
Cadmium	mg/kg	0.6	1.3	0.7	0.7	0.92
Chromium	mg/kg	15	13	20	17	22
Copper	mg/kg	40	280	36	40	55
Lead	mg/kg	130	1,100	28	23	24
Nickel	mg/kg	5.3	11	2.0	1.7	3.4
Zinc	mg/kg	190	720	27	16	26

Metals in Soil by ICP-OES				
Our Reference:	UNITS	SE83544-4	SE83544-4	SE83544-4
		0	2	3
Your Reference	-----	QC2	BH127-0.2	BH127-0.5
Sample Matrix	-----	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010
Depth		-	0.2	0.5
Location		-	BH127	BH127
Date Extracted (Metals)		29/11/2010	29/11/2010	29/11/2010
Date Analysed (Metals)		29/11/2010	29/11/2010	29/11/2010
Arsenic	mg/kg	9	4	<3
Cadmium	mg/kg	0.6	<0.3	<0.3
Chromium	mg/kg	23	22	5.7
Copper	mg/kg	27	13	6.0
Lead	mg/kg	70	17	17
Nickel	mg/kg	6.7	11	1.6
Zinc	mg/kg	140	19	34

Mercury Cold Vapor/Hg Analyser						
Our Reference:	UNITS	SE83544-1	SE83544-4	SE83544-8	SE83544-9	SE83544-11
Your Reference	-----	MW101-0.2	MW101-1.5	MW102-0.2	MW102-0.5	MW102-1.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	1.5	0.2	0.5	1.5
Location		MW101	MW101	MW102	MW102	MW102
Date Extracted (Mercury)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (Mercury)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Mercury	mg/kg	<0.05	<0.05	0.08	0.15	<0.05

Mercury Cold Vapor/Hg Analyser						
Our Reference:	UNITS	SE83544-15	SE83544-20	SE83544-22	SE83544-23	SE83544-30
Your Reference	-----	BH103-0.2	BH103-2.7	BH116-0.2	BH116-0.5	BH115-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	2.7	0.2	0.5	0.2
Location		BH103	BH103	BH116	BH116	BH115
Date Extracted (Mercury)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (Mercury)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Mercury	mg/kg	0.11	<0.05	0.15	0.25	0.13

Mercury Cold Vapor/Hg Analyser						
Our Reference:	UNITS	SE83544-33	SE83544-34	SE83544-35	SE83544-38	SE83544-39
Your Reference	-----	BH114-0.2	BH114-0.5	BH114-1.0	QC1	QC1A
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	0.5	1.0	-	-
Location		BH114	BH114	BH114	-	-
Date Extracted (Mercury)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (Mercury)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Mercury	mg/kg	0.17	0.37	<0.05	<0.05	<0.05



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Mercury Cold Vapor/Hg Analyser				
Our Reference:	UNITS	SE83544-4	SE83544-4	SE83544-4
		0	2	3
Your Reference	-----	QC2	BH127-0.2	BH127-0.5
Sample Matrix	-----	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010
Depth		-	0.2	0.5
Location		-	BH127	BH127
Date Extracted (Mercury)		29/11/2010	29/11/2010	29/11/2010
Date Analysed (Mercury)		29/11/2010	29/11/2010	29/11/2010
Mercury	mg/kg	0.14	<0.05	<0.05

Asbestos ID in soil						
Our Reference:	UNITS	SE83544-1	SE83544-8	SE83544-1	SE83544-2	SE83544-3
				5	2	0
Your Reference	-----	MW101-0.2	MW102-0.2	BH103-0.2	BH116-0.2	BH115-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	0.2	0.2	0.2	0.2
Location		MW101	MW102	BH103	BH116	BH115
Date Analysed		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Sample Description		233g Sand, Soil	270g Sand, Soil	232g Sand, Soil	181g Sand, Soil	208g clay
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*	No asbestos detected

BTEX in Water (µg/L)		
Our Reference:	UNITS	SE83544-2
		8
Your Reference	-----	TB1
Sample Matrix	-----	Soil
Date Sampled		25/11/2010
Depth		-
Location		N/A
Date Extracted (BTEX)		29/11/2010
Date Analysed (BTEX)		29/11/2010
Benzene	µg/L	<0.5
Toluene	µg/L	<0.5
Ethylbenzene	µg/L	<0.5
Total Xylenes	µg/L	<1.5
Surrogate	%	82



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TRH C6-C9 by P/T ONLY-in water		
Our Reference:	UNITS	SE83544-2
		8
Your Reference	-----	TB1
Sample Matrix	-----	Soil
Date Sampled		25/11/2010
Depth		-
Location		N/A
Date Extracted (TRH C6-C9 PT)		29/11/2010
Date Analysed (TRH C6-C9 PT)		29/11/2010
TRH C6 - C9 P&T in µg/L	µg/L	<40

Moisture						
Our Reference:	UNITS	SE83544-1	SE83544-4	SE83544-8	SE83544-9	SE83544-11
Your Reference	-----	MW101-0.2	MW101-1.5	MW102-0.2	MW102-0.5	MW102-1.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	1.5	0.2	0.5	1.5
Location		MW101	MW101	MW102	MW102	MW102
Date Analysed (moisture)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Moisture	%	4	18	13	18	15

Moisture						
Our Reference:	UNITS	SE83544-15	SE83544-20	SE83544-22	SE83544-23	SE83544-30
Your Reference	-----	BH103-0.2	BH103-2.7	BH116-0.2	BH116-0.5	BH115-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	2.7	0.2	0.5	0.2
Location		BH103	BH103	BH116	BH116	BH115
Date Analysed (moisture)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Moisture	%	18	9	8	14	12

Moisture						
Our Reference:	UNITS	SE83544-33	SE83544-34	SE83544-35	SE83544-38	SE83544-39
Your Reference	-----	BH114-0.2	BH114-0.5	BH114-1.0	QC1	QC1A
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010	25/11/2010	25/11/2010
Depth		0.2	0.5	1.0	-	-
Location		BH114	BH114	BH114	-	-
Date Analysed (moisture)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Moisture	%	16	18	20	18	19

Moisture				
Our Reference:	UNITS	SE83544-40	SE83544-42	SE83544-43
Your Reference	-----	QC2	BH127-0.2	BH127-0.5
Sample Matrix	-----	Soil	Soil	Soil
Date Sampled		25/11/2010	25/11/2010	25/11/2010
Depth		-	0.2	0.5
Location		-	BH127	BH127
Date Analysed (moisture)		29/11/2010	29/11/2010	29/11/2010
Moisture	%	17	22	20



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Method ID	Methodology Summary
<b>AN433</b>	Volatile Organic Compounds - Soil samples are extracted with methanol, purged and concentrated by a purge and trap apparatus, and then analysed using GC/MS technique. Water samples undergo the same analysis without the extraction step. Based on USEPA 5030B and 8260B
<b>SEO-019</b>	Volatile Organic Compounds - Soil samples are extracted with methanol, purged and concentrated by a purge and trap apparatus, and then analysed using GC/MS technique. Water samples undergo the same analysis without the extraction step. Based on USEPA 5030B and 8260B
<b>SEO-018</b>	BTEX / C6-C9 Hydrocarbons - Soil samples are extracted with methanol, purged and concentrated by a purge and trap apparatus, and then analysed using GC/MS technique. Water samples undergo the same analysis without the extraction step. Based on USEPA 5030B and 8260B
<b>SEO-020</b>	Total Recoverable Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/FID. Where applicable Solid Phase Extraction Manifold technique is used for aliphatic / aromatic fractionation
<b>SEO-030</b>	Polynuclear Aromatic Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/MS SIM mode
<b>SEO-005</b>	OC/OP/PCB - Determination of a suite of Organochlorine Pesticides, Chlorinated Organo-phosphorus Pesticides and Polychlorinated Biphenyls (PCB's) by liquid-liquid extraction using dichloromethane for waters, or mechanical extraction using acetone / hexane for soils, followed by instrumentation analysis using GC/ECD Based on USEPA 8081/8082.
<b>AN420</b>	Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates, and Speciated Phenols in soils, sediments and waters are determined by GC/MS/ECD/FID technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D)
<b>SEM-010</b>	Determination of elements by ICP-OES following appropriate sample preparation / digestion process. Based on USEPA 6010C / APHA 21st Edition, 3120B
<b>SEM-005</b>	Mercury - determined by Cold-Vapour AAS following appropriate sample preparation or digestion process. Based on APHA 21st Edition, 3112B
<b>AN602</b>	Analysed using in house method AN602 - Qualitative identification of Asbestos Fibres, Synthetic Mineral Fibres and Organic Fibres in bulk samples (including building materials and soils) using Polarised Light Microscopy and Dispersion Staining Techniques. Our NATA Accreditation does not currently cover the identification of Synthetic Mineral Fibres and Organic Fibres, however, according to new NATA requirements, the reporting of these fibres is compulsory if detected.
<b>AN002</b>	Preparation of soils, sediments and sludges undergo analysis by either air drying, compositing, subsampling and 1:5 soil water extraction where required. Moisture content is determined by drying the sample at 105±5°C.



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
VOCs in Soil - 72 List								
Date Extracted				29/11/10	SE83544-3	29/11/2010    29/11/2010	LCS	29/11/10
Date Analysed				29/11/10	SE83544-3	29/11/2010    29/11/2010	LCS	29/11/10
Dichlorodifluoromethane (CFC-12)	mg/kg	1.0	AN433	<1	SE83544-3	<1    <1	[NR]	[NR]
Chloromethane	mg/kg	1.0	AN433	<1	SE83544-3	<1    <1	[NR]	[NR]
Vinyl Chloride (chloroethene)	mg/kg	0.1	AN433	<0.1	SE83544-3	<0.1    <0.1	[NR]	[NR]
Bromomethane	mg/kg	1.0	AN433	<1	SE83544-3	<1    <1	[NR]	[NR]
Chloroethane	mg/kg	1.0	AN433	<1	SE83544-3	<1    <1	[NR]	[NR]
Trichlorofluoromethane	mg/kg	1.0	AN433	<1	SE83544-3	<1    <1	[NR]	[NR]
Acetone (2-propanone)	mg/kg	10	AN433	<10	SE83544-3	<10    <10	[NR]	[NR]
1,1-Dichloroethene	mg/kg	0.1	AN433	<0.1	SE83544-3	<0.1    <0.1	LCS	97%
Methyl Iodine (iodomethane)	mg/kg	5	AN433	<5	SE83544-3	<5    <5	[NR]	[NR]
Acrylonitrile	mg/kg	0.1	AN433	<0.1	SE83544-3	<0.1    <0.1	[NR]	[NR]
Methylene Chloride (DCM)	mg/kg	0.5	AN433	<0.5	SE83544-3	<0.5    <0.5	[NR]	[NR]
Allyl Chloride	mg/kg	0.1	AN433	<0.1	SE83544-3	<0.1    <0.1	[NR]	[NR]
Carbon Disulphide	mg/kg	0.5	AN433	<0.5	SE83544-3	<0.5    <0.5	[NR]	[NR]
<i>trans</i> -1,2-Dichloroethene	mg/kg	0.1	AN433	<0.1	SE83544-3	<0.1    <0.1	[NR]	[NR]
Methyl-tert-butyl ether (MtBE)	mg/kg	0.5	AN433	<0.5	SE83544-3	<0.5    <0.5	[NR]	[NR]
1,1-Dichloroethane	mg/kg	0.1	AN433	<0.1	SE83544-3	<0.1    <0.1	[NR]	[NR]
2-Butanone (MEK)	mg/kg	10	AN433	<10	SE83544-3	<10    <10	[NR]	[NR]
<i>cis</i> -1,2-Dichloroethene	mg/kg	0.1	AN433	<0.1	SE83544-3	<0.1    <0.1	[NR]	[NR]
Bromochloromethane	mg/kg	0.1	AN433	<0.1	SE83544-3	<0.1    <0.1	[NR]	[NR]
Chloroform	mg/kg	0.1	AN433	<0.1	SE83544-3	<0.1    <0.1	LCS	86%
2,2-Dichloropropane	mg/kg	0.1	AN433	<0.1	SE83544-3	<0.1    <0.1	[NR]	[NR]



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
VOCs in Soil - 72 List								
1,2-Dichloroethane	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	LCS	92%
1,1,1-Trichloroethane	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,1-Dichloropropene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Carbon tetrachloride	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Benzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	LCS	86%
Dibromomethane	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,2-Dichloropropane	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Trichloroethene (TCE)	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	LCS	105%
2-Nitropropane	mg/kg	10	AN433	<10	SE83544-3 3	<10    <10	[NR]	[NR]
Bromodichloromethane	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
cis-1,3-Dichloropropene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
4-Methyl-2-Pentanone (MIBK)	mg/kg	1.0	AN433	<1	SE83544-3 3	<1    <1	[NR]	[NR]
trans-1,3-Dichloropropene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,1,2-Trichloroethane	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Toluene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	LCS	108%
1,3-Dichloropropane	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
2-Hexanone (MBK)	mg/kg	5	AN433	<5	SE83544-3 3	<5    <5	[NR]	[NR]
Dibromochloromethane	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,2-Dibromoethane (EDB)	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Tetrachloroethene (PCE-perchloroethylen)	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,1,1,2-Tetrachloroethane	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Chlorobenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	LCS	126%
Ethyl benzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	LCS	120%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
VOCs in Soil - 72 List								
Bromoform	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>m/p</i> -Xylenes	mg/kg	0.2	AN433	<0.2	SE83544-3 3	<0.2    <0.2	LCS	125%
Cis-1,4-dichloro-2-buten e	mg/kg	1	AN433	<1	SE83544-3 3	<1    <1	[NR]	[NR]
Styrene (vinyl benzene)	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,1,2,2-Tetrachloroethan e	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>o</i> -Xylene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	LCS	117%
1,2,3-Trichloropropane	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Trans-1,4-dichloro-2-but ene	mg/kg	1.0	AN433	<1	SE83544-3 3	<1    <1	[NR]	[NR]
Isopropylbenzene (Cumene)	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Bromobenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>n</i> -Propylbenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
2-Chlorotoluene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
4-Chlorotoluene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,3,5-Trimethylbenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>tert</i> -Butylbenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,2,4-Trimethylbenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>sec</i> -Butylbenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,3-Dichlorobenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,4-Dichlorobenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>p</i> -Isopropyl toluene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,2-Dichlorobenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>n</i> -Butylbenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,2-Dibromo-3-chloropro pane	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]



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VOCs in Soil - 72 List								
1,2,4-Trichlorobenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Naphthalene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Hexachlorobutadiene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
1,2,3-Trichlorobenzene	mg/kg	0.1	AN433	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Vinyl acetate	mg/kg	10	AN433	<10	SE83544-3 3	<10    <10	[NR]	[NR]
Dibromofluoromethane	%	0	SEO-019	88	SE83544-3 3	76    91    RPD: 18	LCS	64%
1,2-Dichloroethane-d4	%	0	SEO-019	89	SE83544-3 3	77    96    RPD: 22	LCS	65%
Toluene-d8 Surrogate 2	%	0	SEO-019	105	SE83544-3 3	76    101    RPD: 28	LCS	70%
4-Bromofluorobenzene Surrogate 3	%	0	SEO-019	89	SE83544-3 3	67    90    RPD: 29	LCS	74%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
BTEX in Soil								
Date Extracted (BTEX)				29/11/10	SE83544-1	29/11/2010    29/11/2010	SE83544-4	29/11/10
Date Analysed (BTEX)				29/11/10	SE83544-1	29/11/2010    29/11/2010	SE83544-4	29/11/10
Benzene	mg/kg	0.1	SEO-018	<0.1	SE83544-1	<0.1    <0.1	SE83544-4	73%
Toluene	mg/kg	0.1	SEO-018	<0.1	SE83544-1	<0.1    <0.1	SE83544-4	71%
Ethylbenzene	mg/kg	0.1	SEO-018	<0.1	SE83544-1	<0.1    <0.1	SE83544-4	80%
Total Xylenes	mg/kg	0.3	SEO-018	<0.3	SE83544-1	<0.3    <0.3	SE83544-4	88%
BTEX Surrogate (%)	%	0	SEO-018	86	SE83544-1	89    99    RPD: 11	SE83544-4	76%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
TRH in soil with..C6-C9 by P/T								
Date Extracted (TRH C6-C9 PT)				29/11/10	SE83544-1	29/11/2010    29/11/2010	SE83544-4	29/11/10
Date Analysed (TRH C6-C9 PT)				29/11/10	SE83544-1	29/11/2010    29/11/2010	SE83544-4	29/11/10
TRH C6 - C9 P&T	mg/kg	20	SEO-018	<20	SE83544-1	<20    <20	SE83544-4	87%
Date Extracted (TRH C10-C36)				29/11/10	SE83544-1	29/11/2010    29/11/2010	SE83544-4	29/11/10
Date Analysed (TRH C10-C36)				29/11/10	SE83544-1	29/11/2010    29/11/2010	SE83544-4	29/11/10
TRH C10 - C14	mg/kg	20	SEO-020	<20	SE83544-1	<20    <20	SE83544-4	126%
TRH C15 - C28	mg/kg	50	SEO-020	<50	SE83544-1	<50    <50	SE83544-4	127%
TRH C29 - C36	mg/kg	50	SEO-020	<50	SE83544-1	<50    <50	SE83544-4	80%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
PAHs in Soil								
Date Extracted				29/11/2010	SE83544-1	29/11/2010    29/11/2010	SE83544-8	29/11/2010
Date Analysed				29/11/2010	SE83544-1	29/11/2010    29/11/2010	SE83544-8	29/11/2010
Naphthalene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	SE83544-8	101%
Acenaphthylene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	SE83544-8	97%
Acenaphthene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	SE83544-8	99%
Fluorene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	[NR]	[NR]
Phenanthrene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	SE83544-8	84%
Anthracene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	SE83544-8	93%
Fluoranthene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	SE83544-8	81%
Pyrene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	SE83544-8	85%
Benzo[a]anthracene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	[NR]	[NR]
Chrysene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	[NR]	[NR]
Benzo[b]fluoranthene	mg/kg	0.1	SEO-030	<0.1	SE83544-1	<0.1    <0.1	[NR]	[NR]
Benzo[k]fluoranthene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	[NR]	[NR]
Benzo[a]pyrene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	SE83544-8	87%
Indeno[123-cd]pyrene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	[NR]	[NR]
Dibenzo[ah]anthracene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	[NR]	[NR]
Benzo[ghi]perylene	mg/kg	0.1	SEO-030	<0.10	SE83544-1	<0.10    <0.10	[NR]	[NR]
Total PAHs (sum)	mg/kg	1.6	SEO-030	<2	SE83544-1	<2    <2	[NR]	[NR]
Nitrobenzene-d5	%	0	SEO-030	113	SE83544-1	98    98    RPD: 0	SE83544-8	96%
2-Fluorobiphenyl	%	0	SEO-030	113	SE83544-1	93    95    RPD: 2	SE83544-8	93%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
PAHs in Soil						Base + Duplicate + %RPD		Duplicate + %RPD
<i>p</i> -Terphenyl- <i>d</i> 14	%	0	SEO-030	112	SE83544-1	93    94    RPD: 1	SE83544-8	86%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
OC Pesticides in Soil						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted				29/11/2010	SE83544-3 3	29/11/2010    29/11/2010	SE83544-3 4	29/11/2010
Date Analysed				29/11/2010	SE83544-3 3	29/11/2010    29/11/2010	SE83544-3 4	29/11/2010
HCB	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>alpha</i> -BHC	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
gamma-BHC (Lindane)	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Heptachlor	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	SE83544-3 4	126%
Aldrin	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	SE83544-3 4	124%
<i>beta</i> -BHC	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>delta</i> -BHC	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	SE83544-3 4	120%
Heptachlor Epoxide	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>o,p</i> -DDE	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>alpha</i> -Endosulfan	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>trans</i> -Chlordane ( <i>gamma</i> )	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>cis</i> -Chlordane ( <i>alpha</i> )	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>trans</i> -Nonachlor	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>p,p</i> -DDE	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Dieldrin	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	SE83544-3 4	123%
Endrin	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	SE83544-3 4	125%
<i>o,p</i> -DDD	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>o,p</i> -DDT	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
OC Pesticides in Soil								
<i>beta</i> -Endosulfan	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>p,p</i> -DDD	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
<i>p,p</i> -DDT	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	SE83544-3 4	124%
Endosulfan Sulphate	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Methoxychlor	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Endrin Ketone	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
2,4,5,6-Tetrachloro-m-xy lene ( <i>Surrogate</i> )	%	0	SEO-005	109	SE83544-3 3	128    129    RPD: 1	SE83544-3 4	129%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
OP Pesticides in Soil by GCMS								
Date Extracted				29/11/10	SE83544-3 3	29/11/2010    29/11/2010	SE83544-4 2	29/11/10
Date Analysed				29/11/10	SE83544-3 3	29/11/2010    29/11/2010	SE83544-4 2	29/11/10
Dichlorvos	mg/kg	1	AN420	<1	SE83544-3 3	<1    <1	SE83544-4 2	80%
Dimethoate	mg/kg	1	AN420	<1	SE83544-3 3	<1    <1	[NR]	[NR]
Diazinon	mg/kg	0.5	AN420	<0.5	SE83544-3 3	<0.5    <0.5	SE83544-4 2	72%
Fenitrothion	mg/kg	0.2	AN420	<0.2	SE83544-3 3	<0.2    <0.2	[NR]	[NR]
Malathion	mg/kg	0.2	AN420	<0.20	SE83544-3 3	<0.20    <0.20	[NR]	[NR]
Chlorpyrifos-ethyl	mg/kg	0.2	AN420	<0.2	SE83544-3 3	<0.2    <0.2	SE83544-4 2	96%
Parathion-ethyl	mg/kg	0.2	AN420	<0.2	SE83544-3 3	<0.2    <0.2	[NR]	[NR]
Bromofos-ethyl	mg/kg	0.2	AN420	<0.2	SE83544-3 3	<0.2    <0.2	[NR]	[NR]
Methidathion	mg/kg	0.5	AN420	<0.5	SE83544-3 3	<0.5    <0.5	[NR]	[NR]
Ethion	mg/kg	0.2	AN420	<0.2	SE83544-3 3	<0.2    <0.2	SE83544-4 2	102%
Azinphos-methyl	mg/kg	0.2	AN420	<0.20	SE83544-3 3	<0.20    <0.20	[NR]	[NR]



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
OP Pesticides in Soil by GCMS								
2-fluorobiphenyl (Surr)	%	0	AN420	118	SE83544-3 3	84    79    RPD: 6	SE83544-4 2	84%
d14-p-Terphenyl (Surr)	%	0	AN420	104	SE83544-3 3	81    77    RPD: 5	SE83544-4 2	73%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
PCBs in Soil								
Date Extracted				29/11/2010	SE83544-3 3	29/11/2010    29/11/2010	SE83544-4 3	29/11/2010
Date Analysed				29/11/2010	SE83544-3 3	29/11/2010    29/11/2010	SE83544-4 3	29/11/2010
Arochlor 1016	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Arochlor 1260	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	SE83544-4 3	110%
Arochlor 1262	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Arochlor 1268	mg/kg	0.1	SEO-005	<0.1	SE83544-3 3	<0.1    <0.1	[NR]	[NR]
Total Positive PCB	mg/kg	0.9	SEO-005	<0.90	SE83544-3 3	<0.90    <0.90	[NR]	[NR]
PCB_Surrogate 1	%	0	SEO-005	109	SE83544-3 3	128    129    RPD: 1	SE83544-4 3	122%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
Metals in Soil by ICP-OES						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (Metals)				29/11/2010	SE83544-1	29/11/2010    29/11/2010	SE83544-4	29/11/2010
Date Analysed (Metals)				29/11/2010	SE83544-1	29/11/2010    29/11/2010	SE83544-4	29/11/2010
Arsenic	mg/kg	3	SEM-010	<3	SE83544-1	<3    <3	SE83544-4	95%
Cadmium	mg/kg	0.3	SEM-010	<0.3	SE83544-1	<0.3    <0.3	SE83544-4	93%
Chromium	mg/kg	0.3	SEM-010	<0.3	SE83544-1	2.7    2.3    RPD: 16	SE83544-4	100%
Copper	mg/kg	0.5	SEM-010	<0.5	SE83544-1	2.3    2.2    RPD: 4	SE83544-4	111%
Lead	mg/kg	1	SEM-010	<1	SE83544-1	4    4    RPD: 0	SE83544-4	94%
Nickel	mg/kg	0.5	SEM-010	<0.5	SE83544-1	1.9    1.7    RPD: 11	SE83544-4	94%
Zinc	mg/kg	0.5	SEM-010	<0.5	SE83544-1	11    11    RPD: 0	SE83544-4	107%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
Mercury Cold Vapor/Hg Analyser						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (Mercury)				29/11/2010	SE83544-1	29/11/2010    29/11/2010	SE83544-4	29/11/2010
Date Analysed (Mercury)				29/11/2010	SE83544-1	29/11/2010    29/11/2010	SE83544-4	29/11/2010
Mercury	mg/kg	0.05	SEM-005	<0.05	SE83544-1	<0.05    <0.05	SE83544-4	107%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank
Asbestos ID in soil				
Date Analysed				[NT]

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
BTEX in Water (µg/L)						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (BTEX)				29/11/2010	[NT]	[NT]	LCS	29/11/2010
Date Analysed (BTEX)				29/11/2010	[NT]	[NT]	LCS	29/11/2010
Benzene	µg/L	0.5	SEO-018	<0.5	[NT]	[NT]	LCS	96%
Toluene	µg/L	0.5	SEO-018	<0.5	[NT]	[NT]	LCS	96%
Ethylbenzene	µg/L	0.5	SEO-018	<0.5	[NT]	[NT]	LCS	95%
Total Xylenes	µg/L	1.5	SEO-018	<1.5	[NT]	[NT]	LCS	93%
Surrogate	%	0	SEO-018	108	[NT]	[NT]	LCS	72%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
TRH C6-C9 by P/T ONLY-in water								
Date Extracted (TRH C6-C9 PT)				29/11/10	[NT]	[NT]	LCS	29/11/10
Date Analysed (TRH C6-C9 PT)				29/11/10	[NT]	[NT]	LCS	29/11/10
TRH C6 - C9 P&T in µg/L	µg/L	40	SEO-018	<40	[NT]	[NT]	LCS	119%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank
Hold sample- <b>NO test</b> required				
Sample on HOLD		[NT]		[NT]

QUALITY CONTROL	UNITS	LOR	METHOD	Blank
Moisture				
Date Analysed (moisture)				[NT]
Moisture	%	1	AN002	<1

QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
TRH in soil with..C6-C9 by P/T			
Date Extracted (TRH C6-C9 PT)		SE83544-33	29/11/2010    29/11/2010
Date Analysed (TRH C6-C9 PT)		SE83544-33	29/11/2010    29/11/2010
TRH C6 - C9 P&T	mg/kg	SE83544-33	<20    <20
Date Extracted (TRH C10-C36)		SE83544-33	29/11/2010    29/11/2010
Date Analysed (TRH C10-C36)		SE83544-33	29/11/2010    29/11/2010
TRH C10 - C14	mg/kg	SE83544-33	<20    [N/T]
TRH C15 - C28	mg/kg	SE83544-33	<50    [N/T]
TRH C29 - C36	mg/kg	SE83544-33	<50    [N/T]



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QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted		SE83544-3 4	29/11/2010    29/11/2010
Date Analysed		SE83544-3 4	29/11/2010    29/11/2010
Naphthalene	mg/kg	SE83544-3 4	<0.10    <0.10
Acenaphthylene	mg/kg	SE83544-3 4	<0.10    <0.10
Acenaphthene	mg/kg	SE83544-3 4	<0.10    <0.10
Fluorene	mg/kg	SE83544-3 4	<0.10    <0.10
Phenanthrene	mg/kg	SE83544-3 4	0.21    0.29    RPD: 32
Anthracene	mg/kg	SE83544-3 4	<0.10    <0.10
Fluoranthene	mg/kg	SE83544-3 4	0.54    0.70    RPD: 26
Pyrene	mg/kg	SE83544-3 4	0.55    0.73    RPD: 28
Benzo[a]anthracene	mg/kg	SE83544-3 4	0.31    0.46    RPD: 39
Chrysene	mg/kg	SE83544-3 4	0.23    0.33    RPD: 36
Benzo[b]fluoranthene	mg/kg	SE83544-3 4	0.3    0.6    RPD: 67
Benzo[k]fluoranthene	mg/kg	SE83544-3 4	0.14    0.19    RPD: 30
Benzo[a]pyrene	mg/kg	SE83544-3 4	0.26    0.49    RPD: 61
Indeno[123-cd]pyrene	mg/kg	SE83544-3 4	0.12    0.29    RPD: 83
Dibenzo[ah]anthracene	mg/kg	SE83544-3 4	<0.10    <0.10
Benzo[ghi]perylene	mg/kg	SE83544-3 4	0.14    0.36    RPD: 88
Total PAHs (sum)	mg/kg	SE83544-3 4	<3.44    <5.03
Nitrobenzene-d5	%	SE83544-3 4	74    100    RPD: 30
2-Fluorobiphenyl	%	SE83544-3 4	81    101    RPD: 22
<i>p</i> -Terphenyl-d14	%	SE83544-3 4	82    106    RPD: 26



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QUALITY CONTROL Metals in Soil by ICP-OES	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (Metals)		SE83544-3 3	29/11/2010    29/11/2010
Date Analysed (Metals)		SE83544-3 3	29/11/2010    29/11/2010
Arsenic	mg/kg	SE83544-3 3	5    5    RPD: 0
Cadmium	mg/kg	SE83544-3 3	0.6    0.6    RPD: 0
Chromium	mg/kg	SE83544-3 3	15    15    RPD: 0
Copper	mg/kg	SE83544-3 3	40    38    RPD: 5
Lead	mg/kg	SE83544-3 3	130    140    RPD: 7
Nickel	mg/kg	SE83544-3 3	5.3    5.3    RPD: 0
Zinc	mg/kg	SE83544-3 3	190    190    RPD: 0

QUALITY CONTROL Mercury Cold Vapor/Hg Analyser	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (Mercury)		SE83544-3 3	29/11/2010    29/11/2010
Date Analysed (Mercury)		SE83544-3 3	29/11/2010    29/11/2010
Mercury	mg/kg	SE83544-3 3	0.17    0.23    RPD: 30

QUALITY CONTROL TRH in soil with..C6-C9 by P/T	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)		SE83544-3 4	29/11/2010    29/11/2010
Date Analysed (TRH C6-C9 PT)		SE83544-3 4	29/11/2010    29/11/2010
TRH C6 - C9 P&T	mg/kg	SE83544-3 4	<20    [N/T]
Date Extracted (TRH C10-C36)		SE83544-3 4	29/11/2010    29/11/2010
Date Analysed (TRH C10-C36)		SE83544-3 4	29/11/2010    29/11/2010



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QUALITY CONTROL TRH in soil with..C6-C9 by P/T	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
TRH C10 - C14	mg/kg	SE83544-3 4	<20    <20
TRH C15 - C28	mg/kg	SE83544-3 4	<50    <50
TRH C29 - C36	mg/kg	SE83544-3 4	<50    <50



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**Result Codes**

[INS] : Insufficient Sample for this test  
[NR] : Not Requested  
[NT] : Not tested  
[LOR] : Limit of reporting

[RPD] : Relative Percentage Difference  
\* : Not part of NATA Accreditation  
[N/A] : Not Applicable

**Report Comments**

Sampled by the client

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy.

This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

No respirable fibres detected using trace analysis technique.

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

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

Date Organics extraction commenced:

NATA Corporate Accreditation No. 2562, Site No 4354

Note: Test results are not corrected for recovery (excluding Air-toxics and Dioxins/Furans\*)

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**Quality Control Protocol**

**Method Blank:** An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.

**Duplicate:** A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.

**Surrogate Spike:** An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.

**Internal Standard:** Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.

**Laboratory Control Sample:** A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.

**Matrix Spike:** An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

**Quality Acceptance Criteria**

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: <http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-09.pdf>



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Day 2 Samples.

Completed by NDS at 12.45 on 26/11

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92006

# coffey environments

Philippines: 3rd Floor, JMT Bldg, ADB Ave, Ortigas Ctr, Pasig City, Metro Manila, Philippines  
 ACT: 254 Henthorne Ave, Canberra ACT 2601  
 NSW: Level 1, 3 Ridge Blvd, Rhodes NSW 2138  
 Level 101, 19 Warbrook Blvd, Warbrook NSW 2301  
 Level 1222 Berkeley Rd, Unanderra NSW 2526

QLD: 47 Doggett St, Newstead QLD 4006  
 SA: Level 1, 2-3 Greenhill Rd, Whyville SA 5034  
 TAS: Coffey Business Centre, 2 Melville St, Hobart TAS 7000  
 VIC: 126 Tonnerry Cres, Abbotsford VIC 3067  
 Level 1, 23 West Plains St, Newmarket VIC 3220  
 WA: 61 Duke St, Albany WA 6530  
 Suite 2, 53 Burnwood Rd, Burnwood WA 6100  
 Suite 3 & 4, 236 Naturaliste Ter, Dunsborough WA 6261

Project No: ENAURH004083AB

Task No:

Project Name: Sydney Adventist Hospital

Laboratory: SGS

Samplers Name: Josh Garvin

Project Manager: NANA DE SILVA

Special Instructions:

Parts needed by 30/11 and delivered with Simon

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil, etc)	Container Type & Preservative*	T-A-T (Specify)
1	TP102	---	0.2	26/11/10		WATER	2V	
2	TP110-0.2	TP110	0.2	26/11		SOIL	1G + 6G	
3	TP110-0.5	"	0.5	"		"	"	
4	TP110-1.0	"	1.0	"		"	"	
5	TP104-0.2	TP104	0.2	"		"	"	
6	TP104-0.5	"	0.5	"		"	"	
7	TP104-1.0	"	1.0	"		"	"	
8	TP105-0.2	TP105	0.2	"		"	"	
9	TP105-0.5	"	0.5	"		"	"	
10	TP105-1.0	"	1.0	"		"	"	
11	TP106-0.2	TP106	0.2	"		"	"	
12	TP106-0.5	"	0.5	"		"	"	
13	TP106-1.0	"	1.0	"		"	"	
14	TP107-0.2	TP107	0.2	"		"	"	
15	TP107-0.5	"	0.5	"		"	"	

30/11

BTEX / TPH  
 METALS  
 PAHs  
 OCs  
 Asbestos

NOTES  
 Received 26/11/10  
 Sent to Lab  
 26/11/10

RELINQUISHED BY:

RECEIVED BY:

Signature: [Signature]  
 Company: Coffey Env.  
 Date: [Date]  
 Time: [Time]

Signature: [Signature]  
 Company: SGS  
 Date: 26/11/10  
 Time: 09:11am

Sample Receipt Advice: (Lab Use Only)  
 All Samples Received in Good Condition  
 All Documentation is in Proper Order  
 Samples Received Properly Chilled

\* Container Type & Preservation Codes: P - Plastic, G - Solvent Washed Acid Rinsed Glass Bottle, V - Vial, N - Nitric Acid Preserved  
 C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice

CHAIN OF CUSTODY AND ANALYSIS REQUEST

ISSUE: 3

ISSUE DATE: 10/07/08

Lab. Ref/Batch No. SC-83545



# coffey environments

Philippines: ☐ 3rd Floor, JMT Bldg, ADB Ave, Ortigas Ctr, Pasig City, Metro Manila, Philippines  
 ACT: ☐ 254 Northbourne Ave, Canberra ACT 2601  
 NSW: ☒ Level 1, 3 Rider Blvd, Rhodes NSW 2138  
☐ Lot 101, 19 Watbrook Blvd, Watbrook NSW 2304  
☐ 1222 Berkeley Rd, Unanderra NSW 2526

QLD: ☐ 47 Doggett St, Newstead QLD 4006  
 SA: ☐ Level 1, 2-3 Greenhill Rd, Wayville SA 5034  
 TAS: ☐ Coffey Business Centre, 2 Melville St, Hobart TAS 7000  
 VIC: ☐ 126 Trenerry Cres, Abbotsford VIC 3067  
☐ Level 1, 23 West Pyans St, Newtown VIC 3220  
 WA: ☐ 61 Duke St, Albany WA 6530  
☐ Suite 2, 53 Burswood Rd, Burswood WA 6100  
☐ Suite 3 & 4, 236 Naturalise Tce, Dunsborough WA 6281

Project No: ENAUKR0004053AB

Task No:

Project Name: SYDNEY ADVENTIST HOSPITAL

Laboratory: SES

Samplers Name: JOYI GARVIN

Project Manager: NATHAN DE SILVA

Special Instructions:

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92007

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil, etc)	Container Type & Preservative	T-A-T (Specify)	NOTES
16	TP07-1.0	TP107	1.0	24/11/10		Soil	16 + Bag		
17	TP09-0.2	TP109	0.2			"	"		
18	TP09-0.5	"	0.5			"	"		
19	TP09-1.0	"	1.0			"	"		
20	TP09-0.2	TP108	0.2			"	"		
21	TP08-0.5	"	0.5			"	"		
22	TP08-1.0	"	1.0			"	"		
23	QC4	"	"			"	"		
24	QC4A	"	"			"	"		
25	QC5	"	"			"	"		
26	QC6	"	"			"	"		

RELINQUISHED BY:

RECEIVED BY:

Signature: *John J. Garvin* Date: *26/11/10*  
 Company: *coffey env* Time: *11am*  
 Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Company: \_\_\_\_\_ Time: \_\_\_\_\_

Signature: *CG* Date: *26/11/10*  
 Company: *SES* Time: *11am*  
 Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
 Company: \_\_\_\_\_ Time: \_\_\_\_\_

Sample Receipt Advice: (Lab Use Only)

All Samples Received in Good Condition... ☒  
 All Documentation is in Proper Order... ☒  
 Samples Received Properly Cooled... ☒

Lab. Ref/Batch No.

5423545

\* Container Type & Preservation Codes: P - Plastic, G - Solvent Washed Acid Rinsed Glass Bottle, V - Vial, N - Nitric Acid Preserved  
 C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice

## Client Details

Requested By : **Nalin De Silva**  
 Client : Coffey Environments Pty Ltd  
 Contact : Nalin De Silva  
 Address : Level 1, 3 Rider Boulevard  
 RHODES NSW 2138

Email : Nalin\_DeSilva@coffey.com  
 Telephone : 02 8083 1600  
 Facsimile : 02 8765 0762

Project : ENAURHOD04083AB - Sydney Adventist Hospital  
 Order Number : 92006-7  
 Samples : 25 Soils

## Laboratory Details

Laboratory : SGS Environmental Services  
 Manager : Edward Ibrahim  
 Address : Unit 16, 33 Maddox Street  
 Alexandria NSW 2015

Email : au.samplerreceipt.sydney@sgs.com  
 Telephone : 61 2 8594 0400  
 Facsimile : 61 2 8594 0499

Report No : **SE83545**  
 No. of Samples : 26  
 Due Date : 30/11/2010

Date Instructions Received : 26/11/2010  
 Sample Receipt Date : 26/11/10

Samples received in good order : YES (see below)  
 Samples received without headspace : YES  
 Upon receipt sample temperature : Cool  
 Sample containers provided by : SGS  
 Turnaround time requested : 2 Days

Samples received in correct container : YES  
 Sufficient quantity supplied : YES  
 Cooling Method : Ice  
 Samples clearly Labelled : YES  
 Completed documentation received : YES

Samples will be held for 1 month for water samples and 3 months for soil samples from date of receipt of samples, unless otherwise instructed.

## Comments

TB2 not received.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

**The signed chain of custody will be returned to you with the original report.**



**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83545  
Project : ENAURHOD04083AB - Sydney Adventist Hospital

**Summary of Samples and Requested Analysis**

The table below represents SGS Environmental Service's understanding and interpretation of the customer supplied sample request.

Please indicate ASAP if your request differs from these details.

Testing shall commence immediately as per this table, unless the customer intervenes with a correction prior to testing.

Note that a small X in the table below indicates some testing has not been requested in the package.

Sample No.	Description	Metals Prep, soil, water, TCLP	BTEX in Soil	TRH in soil with .C6-C9 by P/T	PAHs in Soil	OC Pesticides in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	Asbestos ID in soil	Hold sample-NO test required	Moisture
2	TP110-0.2	X	X	X	X	X	X	X	X		X
3	TP110-0.5	X	X	X	X		X	X			X
4	TP110-1.0									X	
5	TP104-0.2	X	X	X	X	X	X	X	X		X
6	TP104-0.5	X	X	X	X		X	X			X
7	TP104-1.0									X	
8	TP105-0.2	X	X	X	X	X	X	X	X		X
9	TP105-0.5	X	X	X	X		X	X			X
10	TP105-1.0									X	
11	TP106-0.2	X	X	X	X	X	X	X	X		X
12	TP106-0.5	X	X	X	X		X	X	X		X
13	TP106-1.0	X	X	X	X		X	X			X
14	TP107-0.2	X			X	X	X	X	X		X
15	TP107-0.5	X			X		X	X			X
16	TP107-1.0									X	
17	TP109-0.2	X	X	X	X	X	X	X	X		X
18	TP109-0.5	X	X	X	X		X	X			X
19	TP109-1.0									X	





**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83545  
 Project : ENAURHOD04083AB - Sydney Adventist Hospital

Sample No.	Description	Metals Prep, soil, water, TCLP	BTEX in Soil	TRH in soil with .C6-C9 by P/T	PAHs in Soil	OC Pesticides in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	Asbestos ID in soil	Hold sample-NO test required	Moisture
20	TP108-0.2	X	X	X	X	X	X	X	X		X
21	TP108-0.5	X	X	X	X	X	X	X	X		X
22	TP108-1.0	X	X	X	X		X	X			X
23	QC4									X	
24	QC4A									X	
25	QC5									X	
26	QC6	X	X	X	X	X	X	X			X

Sample No.	Description
2	TP110-0.2
3	TP110-0.5
4	TP110-1.0
5	TP104-0.2
6	TP104-0.5
7	TP104-1.0
8	TP105-0.2
9	TP105-0.5
10	TP105-1.0
11	TP106-0.2
12	TP106-0.5
13	TP106-1.0



**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83545  
Project : ENAURHOD04083AB - Sydney Adventist Hospital

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Sample No.	Description
14	TP107-0.2
15	TP107-0.5
16	TP107-1.0
17	TP109-0.2
18	TP109-0.5
19	TP109-1.0
20	TP108-0.2
21	TP108-0.5
22	TP108-1.0
23	QC4
24	QC4A
25	QC5
26	QC6



## ANALYTICAL REPORT

30 November 2010

**Coffey Environments Pty Ltd**

Level 1, 3 Rider Boulevard

RHODES

NSW 2138

**Attention:** **Nalin De Silva**

Your Reference: ENAURHOD04083AB - Sydney Adventist Hospital

Our Reference: SE83545

Samples: 25 Soils

Received: 26/11/10

Preliminary Report Sent: Not Issued

These samples were analysed in accordance with your written instructions.

For and on Behalf of:

SGS ENVIRONMENTAL SERVICES

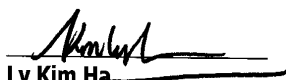
Sample Receipt: Angela Mamalicos

AU.SampleReceipt.Sydney@sgs.com

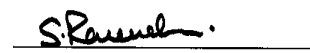
Production Manager: Huong Crawford

Huong.Crawford@sgs.com

*Results Approved and/or Authorised by:*

  
**Ly Kim Ha**  
Organics Signatory

  
**Huong Crawford**  
Metals Signatory

  
**Ravee Sivasubramaniam**  
Asbestos Signatory



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ACCREDITATION

SGS Australia Pty Ltd  
ABN 44 000 964 278

Environmental Services Unit 16/33 Maddox Street Alexandria NSW 2015 Australia  
t +61 (0)2 8594 0400 f + 61 (0)2 8594 0499  
www.au.sgs.com



BTEX in Soil						
Our Reference:	UNITS	SE83545-2	SE83545-3	SE83545-5	SE83545-6	SE83545-8
Your Reference	-----	TP110-0.2	TP110-0.5	TP104-0.2	TP104-0.5	TP105-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.2	0.5	0.2	0.5	0.2
Location		TP110	TP110	TP104	TP104	TP105
Date Extracted (BTEX)		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Date Analysed (BTEX)		27/11/2010	27/11/2010	27/11/2010	27/11/2010	27/11/2010
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
BTEX Surrogate (%)	%	108	90	113	103	124

BTEX in Soil						
Our Reference:	UNITS	SE83545-9	SE83545-1	SE83545-1	SE83545-1	SE83545-1
Your Reference	-----	TP105-0.5	1 TP106-0.2	2 TP106-0.5	3 TP106-1.0	7 TP109-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.5	0.2	0.5	1.0	0.2
Location		TP105	TP106	TP106	TP106	TP109
Date Extracted (BTEX)		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Date Analysed (BTEX)		27/11/2010	27/11/2010	27/11/2010	27/11/2010	27/11/2010
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
BTEX Surrogate (%)	%	95	106	105	113	108

BTEX in Soil						
Our Reference:	UNITS	SE83545-1	SE83545-2	SE83545-2	SE83545-2	SE83545-2
		8	0	1	2	6
Your Reference	-----	TP109-0.5	TP108-0.2	TP108-0.5	TP108-1.0	QC6
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.5	0.2	0.5	1.0	-
Location		TP109	TP108	TP108	TP108	-
Date Extracted (BTEX)		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Date Analysed (BTEX)		27/11/2010	27/11/2010	27/11/2010	27/11/2010	27/11/2010
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
BTEX Surrogate (%)	%	105	110	103	106	106



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TRH in soil with..C6-C9 by P/T						
Our Reference:	UNITS	SE83545-2	SE83545-3	SE83545-5	SE83545-6	SE83545-8
Your Reference	-----	TP110-0.2	TP110-0.5	TP104-0.2	TP104-0.5	TP105-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.2	0.5	0.2	0.5	0.2
Location		TP110	TP110	TP104	TP104	TP105
Date Extracted (TRH C6-C9 PT)		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Date Analysed (TRH C6-C9 PT)		27/11/2010	27/11/2010	27/11/2010	27/11/2010	27/11/2010
TRH C6 - C9 P&T	mg/kg	<20	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
TRH C10 - C14	mg/kg	<20	<20	<20	<20	<20
TRH C15 - C28	mg/kg	<50	<50	<50	<50	<50
TRH C29 - C36	mg/kg	<50	<50	<50	<50	<50

TRH in soil with..C6-C9 by P/T						
Our Reference:	UNITS	SE83545-9	SE83545-1	SE83545-1	SE83545-1	SE83545-1
Your Reference	-----	TP105-0.5	TP106-0.2	TP106-0.5	TP106-1.0	TP109-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.5	0.2	0.5	1.0	0.2
Location		TP105	TP106	TP106	TP106	TP109
Date Extracted (TRH C6-C9 PT)		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Date Analysed (TRH C6-C9 PT)		27/11/2010	27/11/2010	27/11/2010	27/11/2010	27/11/2010
TRH C6 - C9 P&T	mg/kg	<20	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
TRH C10 - C14	mg/kg	<20	<20	<20	<20	<20
TRH C15 - C28	mg/kg	<50	<50	<50	<50	<50
TRH C29 - C36	mg/kg	<50	<50	<50	<50	<50

TRH in soil with..C6-C9 by P/T Our Reference:	UNITS	SE83545-1 8	SE83545-2 0	SE83545-2 1	SE83545-2 2	SE83545-2 6
Your Reference	-----	TP109-0.5	TP108-0.2	TP108-0.5	TP108-1.0	QC6
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.5	0.2	0.5	1.0	-
Location		TP109	TP108	TP108	TP108	-
Date Extracted (TRH C6-C9 PT)		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Date Analysed (TRH C6-C9 PT)		27/11/2010	27/11/2010	27/11/2010	27/11/2010	27/11/2010
TRH C <sub>6</sub> - C <sub>9</sub> P&T	mg/kg	<20	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (TRH C10-C36)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<20	<20	<20	<20	<20
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<50	<50	<50	<50	<50
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<50	<50	<50	<50	<50



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PAHs in Soil Our Reference: Your Reference Sample Matrix Date Sampled Depth Location	UNITS ----- -----	SE83545-2 TP110-0.2 Soil 26/11/2010 0.2 TP110	SE83545-3 TP110-0.5 Soil 26/11/2010 0.5 TP110	SE83545-5 TP104-0.2 Soil 26/11/2010 0.2 TP104	SE83545-6 TP104-0.5 Soil 26/11/2010 0.5 TP104	SE83545-8 TP105-0.2 Soil 26/11/2010 0.2 TP105
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Naphthalene	mg/kg	0.55	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	0.12	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	1.2	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	0.33	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	1.5	<0.10	<0.10	<0.10	0.12
Pyrene	mg/kg	1.2	<0.10	<0.10	<0.10	0.11
Benzo[a]anthracene	mg/kg	0.77	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	0.65	<0.10	<0.10	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	0.9	<0.1	<0.1	<0.1	<0.1
Benzo[k]fluoranthene	mg/kg	0.31	<0.10	<0.10	<0.10	<0.10
Benzo[a]pyrene	mg/kg	0.68	<0.10	<0.10	<0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	0.34	<0.10	<0.10	<0.10	<0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	0.45	<0.10	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<9.25	<2	<2	<2	<1.63
Nitrobenzene-d5	%	97	94	95	93	96
2-Fluorobiphenyl	%	95	89	90	80	89
p -Terphenyl-d14	%	93	91	95	96	96



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PAHs in Soil Our Reference:	UNITS	SE83545-9	SE83545-1 1	SE83545-1 2	SE83545-1 3	SE83545-1 4
Your Reference	-----	TP105-0.5	TP106-0.2	TP106-0.5	TP106-1.0	TP107-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.5	0.2	0.5	1.0	0.2
Location		TP105	TP106	TP106	TP106	TP107
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[a]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo[k]fluoranthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[a]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<2	<2	<2	<2	<2
Nitrobenzene-d5	%	95	96	91	96	123
2-Fluorobiphenyl	%	84	94	87	91	120
p -Terphenyl-d14	%	92	95	96	98	105



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PAHs in Soil Our Reference:	UNITS	SE83545-1 5	SE83545-1 7	SE83545-1 8	SE83545-2 0	SE83545-2 1
Your Reference	-----	TP107-0.5	TP109-0.2	TP109-0.5	TP108-0.2	TP108-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.5	0.2	0.5	0.2	0.5
Location		TP107	TP109	TP109	TP108	TP108
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[a]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo[k]fluoranthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[a]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<2	<2	<2	<2	<2
Nitrobenzene-d5	%	127	74	79	94	91
2-Fluorobiphenyl	%	125	71	74	86	91
p -Terphenyl-d14	%	128	92	93	91	97



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PAHs in Soil Our Reference:	UNITS	SE83545-2 2	SE83545-2 6
Your Reference	-----	TP108-1.0	QC6
Sample Matrix	-----	Soil	Soil
Date Sampled		26/11/2010	26/11/2010
Depth		1.0	-
Location		TP108	-
Date Extracted		29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010
Naphthalene	mg/kg	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	<0.10
Pyrene	mg/kg	<0.10	<0.10
Benzo[a]anthracene	mg/kg	<0.10	<0.10
Chrysene	mg/kg	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	<0.1	<0.1
Benzo[k]fluoranthene	mg/kg	<0.10	<0.10
Benzo[a]pyrene	mg/kg	<0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	<0.10	<0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	<0.10	<0.10
Total PAHs (sum)	mg/kg	<2	<2
Nitrobenzene-d5	%	87	85
2-Fluorobiphenyl	%	76	80
p -Terphenyl-d14	%	96	93



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OC Pesticides in Soil Our Reference:	UNITS	SE83545-2	SE83545-5	SE83545-8	SE83545-1 1	SE83545-1 4
Your Reference	-----	TP110-0.2	TP104-0.2	TP105-0.2	TP106-0.2	TP107-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.2	0.2	0.2	0.2	0.2
Location		TP110	TP104	TP105	TP106	TP107
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>alpha</i> -BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC (Lindane)	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
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>beta</i> -BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>delta</i> -BHC	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
<i>o,p</i> -DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>alpha</i> -Endosulfan	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>trans</i> -Chlordane ( <i>gamma</i> )	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>cis</i> -Chlordane ( <i>alpha</i> )	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>trans</i> -Nonachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -DDE	mg/kg	<0.1	0.2	<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
<i>o,p</i> -DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>o,p</i> -DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>beta</i> -Endosulfan	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -DDT	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Endosulfan Sulphate	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
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5,6-Tetrachloro-m-xylene ( <i>Surrogate</i> )	%	129	115	123	123	115



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OC Pesticides in Soil					
Our Reference:	UNITS	SE83545-1	SE83545-2	SE83545-2	SE83545-2
		7	0	1	6
Your Reference	-----	TP109-0.2	TP108-0.2	TP108-0.5	QC6
Sample Matrix	-----	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.2	0.2	0.5	-
Location		TP109	TP108	TP108	-
Date Extracted		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed		29/11/2010	29/11/2010	29/11/2010	29/11/2010
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>alpha</i> -BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC (Lindane)	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>beta</i> -BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>delta</i> -BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>o,p</i> -DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>alpha</i> -Endosulfan	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>trans</i> -Chlordane ( <i>gamma</i> )	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>cis</i> -Chlordane ( <i>alpha</i> )	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>trans</i> -Nonachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -DDE	mg/kg	<0.1	<0.1	0.4	0.5
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>o,p</i> -DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>o,p</i> -DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>beta</i> -Endosulfan	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	<0.1	<0.1	<0.1	<0.1
2,4,5,6-Tetrachloro-m-xylene ( <i>Surrogate</i> )	%	121	121	124	123



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Metals in Soil by ICP-OES						
Our Reference:	UNITS	SE83545-2	SE83545-3	SE83545-5	SE83545-6	SE83545-8
Your Reference	-----	TP110-0.2	TP110-0.5	TP104-0.2	TP104-0.5	TP105-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.2	0.5	0.2	0.5	0.2
Location		TP110	TP110	TP104	TP104	TP105
Date Extracted (Metals)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (Metals)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Arsenic	mg/kg	11	10	10	12	7
Cadmium	mg/kg	0.7	0.3	0.8	0.5	0.5
Chromium	mg/kg	25	16	24	25	25
Copper	mg/kg	36	15	32	19	35
Lead	mg/kg	96	23	48	26	31
Nickel	mg/kg	13	2.2	6.3	1.7	9.7
Zinc	mg/kg	150	15	130	11	86

Metals in Soil by ICP-OES						
Our Reference:	UNITS	SE83545-9	SE83545-1	SE83545-1	SE83545-1	SE83545-1
Your Reference	-----	TP105-0.5	1 TP106-0.2	2 TP106-0.5	3 TP106-1.0	4 TP107-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.5	0.2	0.5	1.0	0.2
Location		TP105	TP106	TP106	TP106	TP107
Date Extracted (Metals)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (Metals)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Arsenic	mg/kg	12	10	11	<3	10
Cadmium	mg/kg	0.4	0.5	0.4	<0.3	0.5
Chromium	mg/kg	22	20	23	6.1	18
Copper	mg/kg	14	24	11	4.1	24
Lead	mg/kg	23	26	20	27	24
Nickel	mg/kg	1.4	3.8	1.1	<0.5	1.7
Zinc	mg/kg	6.9	83	5.4	1.3	17

Metals in Soil by ICP-OES						
Our Reference:	UNITS	SE83545-1	SE83545-1	SE83545-1	SE83545-2	SE83545-2
		5	7	8	0	1
Your Reference	-----	TP107-0.5	TP109-0.2	TP109-0.5	TP108-0.2	TP108-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.5	0.2	0.5	0.2	0.5
Location		TP107	TP109	TP109	TP108	TP108
Date Extracted (Metals)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Date Analysed (Metals)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Arsenic	mg/kg	13	9	12	8	9
Cadmium	mg/kg	0.5	0.5	0.3	0.4	0.6
Chromium	mg/kg	22	21	18	14	23
Copper	mg/kg	20	14	13	15	27
Lead	mg/kg	27	40	22	39	37
Nickel	mg/kg	1.8	3.2	1.0	3.8	5.7
Zinc	mg/kg	17	16	5.1	78	130

Metals in Soil by ICP-OES			
Our Reference:	UNITS	SE83545-2	SE83545-2
		2	6
Your Reference	-----	TP108-1.0	QC6
Sample Matrix	-----	Soil	Soil
Date Sampled		26/11/2010	26/11/2010
Depth		1.0	-
Location		TP108	-
Date Extracted (Metals)		29/11/2010	29/11/2010
Date Analysed (Metals)		29/11/2010	29/11/2010
Arsenic	mg/kg	9	9
Cadmium	mg/kg	<0.3	0.6
Chromium	mg/kg	22	21
Copper	mg/kg	4.9	28
Lead	mg/kg	20	36
Nickel	mg/kg	1.4	5.1
Zinc	mg/kg	7.8	140

Mercury Cold Vapor/Hg Analyser						
Our Reference:	UNITS	SE83545-2	SE83545-3	SE83545-5	SE83545-6	SE83545-8
Your Reference	-----	TP110-0.2	TP110-0.5	TP104-0.2	TP104-0.5	TP105-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.2	0.5	0.2	0.5	0.2
Location		TP110	TP110	TP104	TP104	TP105
Date Extracted (Mercury)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (Mercury)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Mercury	mg/kg	0.18	<0.05	0.17	<0.05	0.07

Mercury Cold Vapor/Hg Analyser						
Our Reference:	UNITS	SE83545-9	SE83545-1 1	SE83545-1 2	SE83545-1 3	SE83545-1 4
Your Reference	-----	TP105-0.5	TP106-0.2	TP106-0.5	TP106-1.0	TP107-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.5	0.2	0.5	1.0	0.2
Location		TP105	TP106	TP106	TP106	TP107
Date Extracted (Mercury)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (Mercury)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Mercury	mg/kg	<0.05	0.06	<0.05	<0.05	<0.05

Mercury Cold Vapor/Hg Analyser						
Our Reference:	UNITS	SE83545-1 5	SE83545-1 7	SE83545-1 8	SE83545-2 0	SE83545-2 1
Your Reference	-----	TP107-0.5	TP109-0.2	TP109-0.5	TP108-0.2	TP108-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.5	0.2	0.5	0.2	0.5
Location		TP107	TP109	TP109	TP108	TP108
Date Extracted (Mercury)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (Mercury)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Mercury	mg/kg	<0.05	<0.05	<0.05	0.07	0.08



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Mercury Cold Vapor/Hg Analyser			
Our Reference:	UNITS	SE83545-2	SE83545-2
		2	6
Your Reference	-----	TP108-1.0	QC6
Sample Matrix	-----	Soil	Soil
Date Sampled		26/11/2010	26/11/2010
Depth		1.0	-
Location		TP108	-
Date Extracted (Mercury)		30/11/2010	30/11/2010
Date Analysed (Mercury)		30/11/2010	30/11/2010
Mercury	mg/kg	<0.05	0.08

Asbestos ID in soil Our Reference:	UNITS	SE83545-2	SE83545-5	SE83545-8	SE83545-1 1	SE83545-1 2
Your Reference	-----	TP110-0.2	TP104-0.2	TP105-0.2	TP106-0.2	TP106-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.2	0.2	0.2	0.2	0.5
Location		TP110	TP104	TP105	TP106	TP106
Date Analysed		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Sample Description		234g Soil,clay	245g Soil,clay	267g Soil,clay	229g Soil,clay	210g Soil,clay
Asbestos ID in soil	-	No asbestos detected	Chrysotile asbestos detected	No asbestos detected Organic fibres detected*	Chrysotile asbestos detected	No asbestos detected Organic fibres detected*

Asbestos ID in soil Our Reference:	UNITS	SE83545-1 4	SE83545-1 7	SE83545-2 0	SE83545-2 1
Your Reference	-----	TP107-0.2	TP109-0.2	TP108-0.2	TP108-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.2	0.2	0.2	0.5
Location		TP107	TP109	TP108	TP108
Date Analysed		30/11/2010	30/11/2010	30/11/2010	30/11/2010
Sample Description		274g Clay	254g Soil,clay	191g Soil,clay	246g Soil,clay
Asbestos ID in soil	-	No asbestos detected	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*



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Moisture						
Our Reference:	UNITS	SE83545-2	SE83545-3	SE83545-5	SE83545-6	SE83545-8
Your Reference	-----	TP110-0.2	TP110-0.5	TP104-0.2	TP104-0.5	TP105-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.2	0.5	0.2	0.5	0.2
Location		TP110	TP110	TP104	TP104	TP105
Date Analysed (moisture)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Moisture	%	19	19	17	24	12

Moisture						
Our Reference:	UNITS	SE83545-9	SE83545-1	SE83545-1	SE83545-1	SE83545-1
Your Reference	-----	TP105-0.5	1 TP106-0.2	2 TP106-0.5	3 TP106-1.0	4 TP107-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.5	0.2	0.5	1.0	0.2
Location		TP105	TP106	TP106	TP106	TP107
Date Analysed (moisture)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Moisture	%	21	20	21	19	17

Moisture						
Our Reference:	UNITS	SE83545-1	SE83545-1	SE83545-1	SE83545-2	SE83545-2
Your Reference	-----	5 TP107-0.5	7 TP109-0.2	8 TP109-0.5	0 TP108-0.2	1 TP108-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		26/11/2010	26/11/2010	26/11/2010	26/11/2010	26/11/2010
Depth		0.5	0.2	0.5	0.2	0.5
Location		TP107	TP109	TP109	TP108	TP108
Date Analysed (moisture)		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Moisture	%	22	17	21	17	18

Moisture			
Our Reference:	UNITS	SE83545-2	SE83545-2
Your Reference	-----	2 TP108-1.0	6 QC6
Sample Matrix	-----	Soil	Soil
Date Sampled		26/11/2010	26/11/2010
Depth		1.0	-
Location		TP108	-
Date Analysed (moisture)		29/11/2010	29/11/2010
Moisture	%	18	18



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Method ID	Methodology Summary
<b>SEO-018</b>	BTEX / C6-C9 Hydrocarbons - Soil samples are extracted with methanol, purged and concentrated by a purge and trap apparatus, and then analysed using GC/MS technique. Water samples undergo the same analysis without the extraction step. Based on USEPA 5030B and 8260B
<b>SEO-020</b>	Total Recoverable Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/FID. Where applicable Solid Phase Extraction Manifold technique is used for aliphatic / aromatic fractionation
<b>SEO-030</b>	Polynuclear Aromatic Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/MS SIM mode
<b>SEO-005</b>	OC/OP/PCB - Determination of a suite of Organochlorine Pesticides, Chlorinated Organo-phosphorus Pesticides and Polychlorinated Biphenyls (PCB's) by liquid-liquid extraction using dichloromethane for waters, or mechanical extraction using acetone / hexane for soils, followed by instrumentation analysis using GC/ECD Based on USEPA 8081/8082.
<b>SEM-010</b>	Determination of elements by ICP-OES following appropriate sample preparation / digestion process. Based on USEPA 6010C / APHA 21st Edition, 3120B
<b>SEM-005</b>	Mercury - determined by Cold-Vapour AAS following appropriate sample preparation or digestion process. Based on APHA 21st Edition, 3112B
<b>AN602</b>	Analysed using in house method AN602 - Qualitative identification of Asbestos Fibres, Synthetic Mineral Fibres and Organic Fibres in bulk samples (including building materials and soils) using Polarised Light Microscopy and Dispersion Staining Techniques. Our NATA Accreditation does not currently cover the identification of Synthetic Mineral Fibres and Organic Fibres, however, according to new NATA requirements, the reporting of these fibres is compulsory if detected.
<b>AN002</b>	Preparation of soils, sediments and sludges undergo analysis by either air drying, compositing, subsampling and 1:5 soil water extraction where required. Moisture content is determined by drying the sample at 105± 5°C.



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank
BTEX in Soil				
Date Extracted (BTEX)				26/11/10
Date Analysed (BTEX)				27/11/10
Benzene	mg/kg	0.1	SEO-018	<0.1
Toluene	mg/kg	0.1	SEO-018	<0.1
Ethylbenzene	mg/kg	0.1	SEO-018	<0.1
Total Xylenes	mg/kg	0.3	SEO-018	<0.3
BTEX Surrogate (%)	%	0	SEO-018	122

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
TRH in soil with..C6-C9 by P/T								
Date Extracted (TRH C6-C9 PT)				26/11/10	SE83545-2	26/11/2010    26/11/2010	[NR]	[NR]
Date Analysed (TRH C6-C9 PT)				27/11/10	SE83545-2	27/11/2010    27/11/2010	[NR]	[NR]
TRH C6 - C9 P&T	mg/kg	20	SEO-018	<20	SE83545-2	<20    [N/T]	[NR]	[NR]
Date Extracted (TRH C10-C36)				29/11/10	SE83545-2	29/11/2010    29/11/2010	SE83545-5	29/11/2010
Date Analysed (TRH C10-C36)				29/11/10	SE83545-2	29/11/2010    29/11/2010	SE83545-5	29/11/2010
TRH C10 - C14	mg/kg	20	SEO-020	<20	SE83545-2	<20    <20	SE83545-5	68%
TRH C15 - C28	mg/kg	50	SEO-020	<50	SE83545-2	<50    <50	SE83545-5	70%
TRH C29 - C36	mg/kg	50	SEO-020	<50	SE83545-2	<50    <50	SE83545-5	74%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
PAHs in Soil								
Date Extracted				29/11/2010	SE83545-2	29/11/2010    29/11/2010	SE83545-5	29/11/2010
Date Analysed				29/11/2010	SE83545-2	29/11/2010    29/11/2010	SE83545-5	29/11/2010
Naphthalene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	0.55    0.60    RPD: 9	SE83545-5	87%
Acenaphthylene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	<0.10    <0.10	SE83545-5	84%
Acenaphthene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	<0.10    <0.10	SE83545-5	86%
Fluorene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	0.12    0.13    RPD: 8	[NR]	[NR]
Phenanthrene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	1.2    1.3    RPD: 8	SE83545-5	79%
Anthracene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	0.33    0.36    RPD: 9	SE83545-5	84%
Fluoranthene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	1.5    1.6    RPD: 6	SE83545-5	81%
Pyrene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	1.2    1.3    RPD: 8	SE83545-5	81%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
PAHs in Soil								
Benzo[a]anthracene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	0.77    0.85    RPD: 10	[NR]	[NR]
Chrysene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	0.65    0.71    RPD: 9	[NR]	[NR]
Benzo[b]fluoranthene	mg/kg	0.1	SEO-030	<0.1	SE83545-2	0.9    1.0    RPD: 11	[NR]	[NR]
Benzo[k]fluoranthene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	0.31    0.38    RPD: 20	[NR]	[NR]
Benzo[a]pyrene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	0.68    0.74    RPD: 8	SE83545-5	80%
Indeno[123-cd]pyrene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	0.34    0.39    RPD: 14	[NR]	[NR]
Dibenzo[ah]anthracene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	<0.10    <0.10	[NR]	[NR]
Benzo[ghi]perylene	mg/kg	0.1	SEO-030	<0.10	SE83545-2	0.45    0.49    RPD: 9	[NR]	[NR]
Total PAHs (sum)	mg/kg	1.6	SEO-030	<2	SE83545-2	<9.25    <10.14	[NR]	[NR]
Nitrobenzene-d5	%	0	SEO-030	113	SE83545-2	97    106    RPD: 9	SE83545-5	95%
2-Fluorobiphenyl	%	0	SEO-030	113	SE83545-2	95    103    RPD: 8	SE83545-5	96%
p -Terphenyl-d 14	%	0	SEO-030	112	SE83545-2	93    102    RPD: 9	SE83545-5	94%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
OC Pesticides in Soil								
Date Extracted				29/11/2010	SE83545-8	29/11/2010    29/11/2010	LCS	29/11/2010
Date Analysed				29/11/2010	SE83545-8	29/11/2010    29/11/2010	LCS	29/11/2010
HCB	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
gamma-BHC (Lindane)	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
Heptachlor	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	LCS	83%
Aldrin	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	LCS	76%
beta-BHC	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
delta-BHC	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	LCS	73%
Heptachlor Epoxide	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
o,p-DDE	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
alpha-Endosulfan	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
trans-Chlordane (gamma)	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
cis-Chlordane (alpha)	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
trans-Nonachlor	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
p,p-DDE	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
Dieldrin	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	LCS	78%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
OC Pesticides in Soil								
Endrin	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	LCS	88%
<i>o,p</i> -DDD	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
<i>o,p</i> -DDT	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
<i>beta</i> -Endosulfan	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
<i>p,p</i> -DDD	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
<i>p,p</i> -DDT	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	LCS	83%
Endosulfan Sulphate	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
Methoxychlor	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
Endrin Ketone	mg/kg	0.1	SEO-005	<0.1	SE83545-8	<0.1    <0.1	[NR]	[NR]
2,4,5,6-Tetrachloro-m-xy lene ( <i>Surrogate</i> )	%	0	SEO-005	109	SE83545-8	123    121    RPD: 2	LCS	115%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Metals in Soil by ICP-OES								
Date Extracted (Metals)				29/11/2010	SE83545-2	29/11/2010    29/11/2010	SE83545-3	29/11/2010
Date Analysed (Metals)				29/11/2010	SE83545-2	29/11/2010    29/11/2010	SE83545-3	29/11/2010
Arsenic	mg/kg	3	SEM-010	<3	SE83545-2	11    10    RPD: 10	SE83545-3	92%
Cadmium	mg/kg	0.3	SEM-010	<0.3	SE83545-2	0.7    0.7    RPD: 0	SE83545-3	95%
Chromium	mg/kg	0.3	SEM-010	<0.3	SE83545-2	25    26    RPD: 4	SE83545-3	99%
Copper	mg/kg	0.5	SEM-010	<0.5	SE83545-2	36    40    RPD: 11	SE83545-3	100%
Lead	mg/kg	1	SEM-010	<1	SE83545-2	96    89    RPD: 8	SE83545-3	92%
Nickel	mg/kg	0.5	SEM-010	<0.5	SE83545-2	13    16    RPD: 21	SE83545-3	96%
Zinc	mg/kg	0.5	SEM-010	<0.5	SE83545-2	150    170    RPD: 12	SE83545-3	107%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Mercury Cold Vapor/Hg Analyser								
Date Extracted (Mercury)				30/11/2010	SE83545-2	30/11/2010    30/11/2010	SE83545-3	30/11/2010
Date Analysed (Mercury)				30/11/2010	SE83545-2	30/11/2010    30/11/2010	SE83545-3	30/11/2010
Mercury	mg/kg	0.05	SEM-005	<0.05	SE83545-2	0.18    0.25    RPD: 33	SE83545-3	108%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank
Asbestos ID in soil				
Date Analysed				[NT]

QUALITY CONTROL	UNITS	LOR	METHOD	Blank
Hold sample- <b>NO test</b> required				
Sample on HOLD		[NT]		[NT]

QUALITY CONTROL	UNITS	LOR	METHOD	Blank
Moisture				
Date Analysed (moisture)				[NT]
Moisture	%	1	AN002	<1

QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
BTEX in Soil					
Date Extracted (BTEX)		[NT]	[NT]	SE83545-1 2	26/11/10
Date Analysed (BTEX)		[NT]	[NT]	SE83545-1 2	27/11/10
Benzene	mg/kg	[NT]	[NT]	SE83545-1 2	90%
Toluene	mg/kg	[NT]	[NT]	SE83545-1 2	90%
Ethylbenzene	mg/kg	[NT]	[NT]	SE83545-1 2	89%
Total Xylenes	mg/kg	[NT]	[NT]	SE83545-1 2	95%
BTEX Surrogate (%)	%	[NT]	[NT]	SE83545-1 2	95%



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QUALITY CONTROL TRH in soil with..C6-C9 by P/T	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)		SE83545-1 7	26/11/2010    26/11/2010	SE83545-1 2	26/11/10
Date Analysed (TRH C6-C9 PT)		SE83545-1 7	27/11/2010    27/11/2010	SE83545-1 2	27/11/10
TRH C6 - C9 P&T	mg/kg	SE83545-1 7	<20    [N/T]	SE83545-1 2	107%
Date Extracted (TRH C10-C36)		SE83545-1 7	29/11/2010    29/11/2010	[NR]	[NR]
Date Analysed (TRH C10-C36)		SE83545-1 7	29/11/2010    29/11/2010	[NR]	[NR]
TRH C10 - C14	mg/kg	SE83545-1 7	<20    <20	[NR]	[NR]
TRH C15 - C28	mg/kg	SE83545-1 7	<50    <50	[NR]	[NR]
TRH C29 - C36	mg/kg	SE83545-1 7	<50    <50	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted		SE83545-1 7	29/11/2010    29/11/2010
Date Analysed		SE83545-1 7	29/11/2010    29/11/2010
Naphthalene	mg/kg	SE83545-1 7	<0.10    <0.10
Acenaphthylene	mg/kg	SE83545-1 7	<0.10    <0.10
Acenaphthene	mg/kg	SE83545-1 7	<0.10    <0.10
Fluorene	mg/kg	SE83545-1 7	<0.10    <0.10
Phenanthrene	mg/kg	SE83545-1 7	<0.10    <0.10
Anthracene	mg/kg	SE83545-1 7	<0.10    <0.10
Fluoranthene	mg/kg	SE83545-1 7	<0.10    <0.10
Pyrene	mg/kg	SE83545-1 7	<0.10    <0.10
Benzo[a]anthracene	mg/kg	SE83545-1 7	<0.10    <0.10



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QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Chrysene	mg/kg	SE83545-1 7	<0.10    <0.10
Benzo[b]fluoranthene	mg/kg	SE83545-1 7	<0.1    <0.1
Benzo[k]fluoranthene	mg/kg	SE83545-1 7	<0.10    <0.10
Benzo[a]pyrene	mg/kg	SE83545-1 7	<0.10    <0.10
Indeno[123-cd]pyrene	mg/kg	SE83545-1 7	<0.10    <0.10
Dibenzo[ah]anthracene	mg/kg	SE83545-1 7	<0.10    <0.10
Benzo[ghi]perylene	mg/kg	SE83545-1 7	<0.10    <0.10
Total PAHs (sum)	mg/kg	SE83545-1 7	<2    <2
Nitrobenzene-d5	%	SE83545-1 7	74    78    RPD: 5
2-Fluorobiphenyl	%	SE83545-1 7	71    74    RPD: 4
<i>p</i> -Terphenyl- <i>d</i> 14	%	SE83545-1 7	92    96    RPD: 4

QUALITY CONTROL Metals in Soil by ICP-OES	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (Metals)		SE83545-1 7	29/11/2010    29/11/2010
Date Analysed (Metals)		SE83545-1 7	29/11/2010    29/11/2010
Arsenic	mg/kg	SE83545-1 7	9    9    RPD: 0
Cadmium	mg/kg	SE83545-1 7	0.5    0.4    RPD: 22
Chromium	mg/kg	SE83545-1 7	21    19    RPD: 10
Copper	mg/kg	SE83545-1 7	14    10    RPD: 33
Lead	mg/kg	SE83545-1 7	40    33    RPD: 19
Nickel	mg/kg	SE83545-1 7	3.2    2.4    RPD: 29
Zinc	mg/kg	SE83545-1 7	16    14    RPD: 13



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QUALITY CONTROL BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (BTEX)		SE83545-1 1	26/11/2010    26/11/2010
Date Analysed (BTEX)		SE83545-1 1	27/11/2010    27/11/2010
Benzene	mg/kg	SE83545-1 1	<0.1    <0.1
Toluene	mg/kg	SE83545-1 1	<0.1    <0.1
Ethylbenzene	mg/kg	SE83545-1 1	<0.1    <0.1
Total Xylenes	mg/kg	SE83545-1 1	<0.3    <0.3
BTEX Surrogate (%)	%	SE83545-1 1	106    95    RPD: 11

QUALITY CONTROL TRH in soil with..C6-C9 by P/T	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)		SE83545-1 1	26/11/2010    26/11/2010
Date Analysed (TRH C6-C9 PT)		SE83545-1 1	27/11/2010    27/11/2010
TRH C6 - C9 P&T	mg/kg	SE83545-1 1	<20    <20
Date Extracted (TRH C10-C36)		SE83545-1 1	29/11/2010    29/11/2010
Date Analysed (TRH C10-C36)		SE83545-1 1	29/11/2010    29/11/2010
TRH C10 - C14	mg/kg	SE83545-1 1	<20    [N/T]
TRH C15 - C28	mg/kg	SE83545-1 1	<50    [N/T]
TRH C29 - C36	mg/kg	SE83545-1 1	<50    [N/T]



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**Result Codes**

[INS] : Insufficient Sample for this test  
[NR] : Not Requested  
[NT] : Not tested  
[LOR] : Limit of reporting

[RPD] : Relative Percentage Difference  
\* : Not part of NATA Accreditation  
[N/A] : Not Applicable

**Report Comments**

Sampled by the client

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy.

This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

No respirable fibres detected using trace analysis technique.

Sample # 5: 1-3mm length fibre bundles found loose in sample and in 8x8mm cement sheet fragment.

Sample # 11: 3x 1-4mm length fibre bundles found loose in sample.

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

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

Date Organics extraction commenced:

NATA Corporate Accreditation No. 2562, Site No 4354

Note: Test results are not corrected for recovery (excluding Air-toxics and Dioxins/Furans\*)

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**Quality Control Protocol**

**Method Blank:** An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.

**Duplicate:** A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.

**Surrogate Spike:** An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.

**Internal Standard:** Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.

**Laboratory Control Sample:** A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.

**Matrix Spike:** An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.



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**Quality Acceptance Criteria**

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: <http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-09.pdf>



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loc received 30/11/10 @ 11:28am



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92008

Philippines: ☐ 3rd Floor, JMT Bldg, ADB Ave, Ortigas Ctr, Pasig City, Metro Manila, Philippines. Tel (+63) (2) 638 9686 Fax (+63) (2) 687 3518  
ACT: ☐ 25/4 Northbourne Ave, Canberra ACT 2601 Tel (02) 6248 7366 Fax (02) 6248 7157  
VIC: ☐ Level 1, 3 Rider Blvd, Rhodes NSW 2138 Tel (02) 8063 1600 Fax (02) 8765 0762  
NSW: ☐ Lot 101, 19 Warbrook Blvd, Warbrook NSW 2304 Tel (02) 4016 2300 Fax (02) 4016 2380  
☐ 1/222 Berkeley Rd, Unanderra NSW 2556 Tel (02) 4272 6071 Fax (02) 4272 6075  
QLD: ☐ 47 Doggett St, Newstead QLD 4006 Tel (07) 3806 2500 Fax (07) 3862 2805  
SA: ☐ Level 1, 2-3 Greenhill Rd, Whyalla SA 5034 Tel (08) 7221 3500 Fax (08) 8172 1988  
WA: ☐ Coffey Business Centre, 2 Melville St, Hobart TAS 7000 Tel (03) 6108 0100 Fax (03) 6108 0199  
VIC: ☐ 126 Trenerry Cres, Abbotsford VIC 3067 Tel (03) 9473 1400 Fax (03) 9473 1450  
☐ Level 1, 23 West Pyans St, Newtown VIC 3220 Tel (03) 5215 4600 Fax (03) 5224 1368  
☐ 61 Duke St, Albany WA 6330 Tel (08) 9892 6400 Fax (08) 9892 6444  
☐ Suite 2, 53 Burswood Rd, Burswood WA 6100 Tel (08) 9355 7100 Fax (08) 9355 7111  
☐ Suite 3 & 4, 236 Murrumbidgee Tce, Dunsborough WA 6281 Tel (08) 9756 7869 Fax (08) 9756 9878

Project No: ENAUKH004043386 Task No: Laboratory: SGS Project Manager: NALIN DE SILVA

Project Name: SYDNEY ADVANCEMENT HOSPITAL Special Instructions: ALLEN 7 TAT - Results needed by COB Wed. 1/12/10.

Samples Name: JOHN GILKIN

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Sol., etc)	Container Type & Preservation	T-A-T (Specify)	BTEX / TPH	METALS (Specify)	PAHs / Phenols	OCs / PCBs	Asbestos	NOTES
1	MW112-0-2	MW112-0-2	0-5	29/11/10		Soil	1G + 8g bag	Wednesday 1/12/10						
2	MW112-0-5	MW112-0-5	1-0	"	"	"	1G + 8g bag							
3	MW112-1-0	"	2-0	"	"	"	1G + 8g bag							
4	MW112-2-0	"	3-0	"	"	"	1G							
5	MW112-3-0	"	0-2	"	"	"	1G + 8g bag							
6	BH111-0-2	BH111	0-5	"	"	"	1G							
7	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
8	BH111-1-0	"	2-0	"	"	"	1G							
9	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
10	BH111-0-2	BH111	0-5	"	"	"	1G							
11	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
12	BH111-1-0	"	2-0	"	"	"	1G							
13	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
14	BH111-0-2	BH111	0-5	"	"	"	1G							
15	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
16	BH111-1-0	"	2-0	"	"	"	1G							
17	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
18	BH111-0-2	BH111	0-5	"	"	"	1G							
19	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
20	BH111-1-0	"	2-0	"	"	"	1G							
21	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
22	BH111-0-2	BH111	0-5	"	"	"	1G							
23	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
24	BH111-1-0	"	2-0	"	"	"	1G							
25	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
26	BH111-0-2	BH111	0-5	"	"	"	1G							
27	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
28	BH111-1-0	"	2-0	"	"	"	1G							
29	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
30	BH111-0-2	BH111	0-5	"	"	"	1G							
31	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
32	BH111-1-0	"	2-0	"	"	"	1G							
33	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
34	BH111-0-2	BH111	0-5	"	"	"	1G							
35	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
36	BH111-1-0	"	2-0	"	"	"	1G							
37	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
38	BH111-0-2	BH111	0-5	"	"	"	1G							
39	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
40	BH111-1-0	"	2-0	"	"	"	1G							
41	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
42	BH111-0-2	BH111	0-5	"	"	"	1G							
43	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
44	BH111-1-0	"	2-0	"	"	"	1G							
45	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
46	BH111-0-2	BH111	0-5	"	"	"	1G							
47	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
48	BH111-1-0	"	2-0	"	"	"	1G							
49	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
50	BH111-0-2	BH111	0-5	"	"	"	1G							
51	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
52	BH111-1-0	"	2-0	"	"	"	1G							
53	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
54	BH111-0-2	BH111	0-5	"	"	"	1G							
55	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
56	BH111-1-0	"	2-0	"	"	"	1G							
57	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
58	BH111-0-2	BH111	0-5	"	"	"	1G							
59	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
60	BH111-1-0	"	2-0	"	"	"	1G							
61	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
62	BH111-0-2	BH111	0-5	"	"	"	1G							
63	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
64	BH111-1-0	"	2-0	"	"	"	1G							
65	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
66	BH111-0-2	BH111	0-5	"	"	"	1G							
67	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
68	BH111-1-0	"	2-0	"	"	"	1G							
69	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
70	BH111-0-2	BH111	0-5	"	"	"	1G							
71	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
72	BH111-1-0	"	2-0	"	"	"	1G							
73	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
74	BH111-0-2	BH111	0-5	"	"	"	1G							
75	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
76	BH111-1-0	"	2-0	"	"	"	1G							
77	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
78	BH111-0-2	BH111	0-5	"	"	"	1G							
79	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
80	BH111-1-0	"	2-0	"	"	"	1G							
81	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
82	BH111-0-2	BH111	0-5	"	"	"	1G							
83	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
84	BH111-1-0	"	2-0	"	"	"	1G							
85	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
86	BH111-0-2	BH111	0-5	"	"	"	1G							
87	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
88	BH111-1-0	"	2-0	"	"	"	1G							
89	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
90	BH111-0-2	BH111	0-5	"	"	"	1G							
91	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
92	BH111-1-0	"	2-0	"	"	"	1G							
93	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
94	BH111-0-2	BH111	0-5	"	"	"	1G							
95	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
96	BH111-1-0	"	2-0	"	"	"	1G							
97	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
98	BH111-0-2	BH111	0-5	"	"	"	1G							
99	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
100	BH111-1-0	"	2-0	"	"	"	1G							
101	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
102	BH111-0-2	BH111	0-5	"	"	"	1G							
103	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
104	BH111-1-0	"	2-0	"	"	"	1G							
105	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
106	BH111-0-2	BH111	0-5	"	"	"	1G							
107	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
108	BH111-1-0	"	2-0	"	"	"	1G							
109	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
110	BH111-0-2	BH111	0-5	"	"	"	1G							
111	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
112	BH111-1-0	"	2-0	"	"	"	1G							
113	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
114	BH111-0-2	BH111	0-5	"	"	"	1G							
115	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
116	BH111-1-0	"	2-0	"	"	"	1G							
117	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
118	BH111-0-2	BH111	0-5	"	"	"	1G							
119	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
120	BH111-1-0	"	2-0	"	"	"	1G							
121	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
122	BH111-0-2	BH111	0-5	"	"	"	1G							
123	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
124	BH111-1-0	"	2-0	"	"	"	1G							
125	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
126	BH111-0-2	BH111	0-5	"	"	"	1G							
127	BH111-0-5	"	1-0	"	"	"	1G + 8g bag							
128	BH111-1-0	"	2-0	"	"	"	1G							
129	BH111-2-0	"	0-2	"	"	"	1G + 8g bag							
130	BH111-0-2	BH111	0-5	"	"	"	1G							
131	BH111-0-5	"	1-0	"	"	"	1G + 8g +							



## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92009



Philippines: ☐ 3rd floor, JKT Bldg, ADB Ave, Ortigas Ctr, Pasig City, Metro Manila, Philippines Tel (+63) (2) 638 9886 Fax (+63) (2) 637 3518  
 ACT: ☐ 2/54 Northbourne Ave, Canberra ACT 2601 Tel (02) 6248 7366 Fax (02) 6248 7157  
 NSW: ☐ Level 1, 3 Rider Blvd, Rhodes NSW 2138 Tel (02) 8063 1600 Fax (02) 8765 0762  
☐ Lot 101, 19 Warbrook Blvd, Warbrook NSW 2304 Tel (02) 4016 2300 Fax (02) 4016 2380  
☐ 1/222 Bareilly Rd, Urandera NSW 2828 Tel (02) 4272 8071 Fax (02) 4272 8075

QLD: ☐ 47 Doggett St, Newstead QLD 4006 Tel (07) 3608 2500 Fax (07) 3652 2865  
 SA: ☐ Level 1, 2-3 Greenhill Rd, Whyville SA 5034 Tel (08) 7221 3500 Fax (08) 8172 1968  
 TAS: ☐ Coffey Business Centre, 2 Mainville St, Hobart TAS 7000 Tel (03) 6108 0100 Fax (03) 6108 0199  
 VIC: ☐ 1/26 Trenerry Cres, Abbotsford VIC 3067 Tel (03) 9473 1400 Fax (03) 9473 1450  
☐ Level 1, 23 West Trans St, Newtown VIC 3220 Tel (03) 5215 4800 Fax (03) 5224 1368  
 WA: ☐ 61 Duke St, Albany WA 6330 Tel (08) 9992 0400 Fax (08) 9992 0444  
☐ Suite 2, 53 Burwood Rd, Burwood WA 6100 Tel (08) 9355 7100 Fax (08) 9355 7111  
☐ Suite 3 & 4, 235 Naturaliste Ter, Dunsborough WA 6281 Tel (08) 9756 7869 Fax (08) 9756 8878

Project No: **ENAVRHO04083AK**

Task No:

Project Name: **SYDNEY ADVENTUR HOSPITAL**Laboratory: **SGS**Samplers Name: **JOHN GRIVIN**Project Manager: **NAHUE DE SILVA**

Special Instructions:

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil, etc)	Container Type & Preservative*	T-A-T (Specify)
16	BM12-1.0	BM12	1.0	29/11/10		Soil	1G	
17	BM12-2.0	"	2.0	"	"	"	1G	
18	BM12-0.2	BM120	0.2	"	"	"	1G + Bag	
19	BM12-0.5	"	0.5	"	"	"	1G + Bag	
20	BM12-1.0	"	1.0	"	"	"	1G	
21	BM12-2.0	"	2.0	"	"	"	1G	
22	BM130-0.2	BM130	0.2	"	"	"	1G + Bag	
23	BM130-0.5	"	0.5	"	"	"	1G + Bag	
24	BM130-1.0	"	1.0	"	"	"	1G	
25	BM130-2.0	"	2.0	"	"	"	1G	
26	BM132-0.2	BM132	0.2	"	"	"	1G + Bag	
27	BM132-0.5	"	0.5	"	"	"	1G	
28	BM132-1.0	"	1.0	"	"	"	1G	
29	BM132-1.4	"	1.4	"	"	"	1G	
30	BM131-0.2	BM131	0.2	"	"	"	1G + Bag	

RELINQUISHED BY:

RECEIVED BY:

Signature: *[Signature]* Date: **29/11/10**  
 Company: **COFFEY ENV.** Time:  
 Signature: Date:  
 Company: Time:

Signature: *[Signature]* Date: **29/11/10**  
 Company: **SGS** Time: **3pm**  
 Signature: Date:  
 Company: Time:

\* Container Type & Preservation Codes: P - Plastic, G - Solvent Washed Acid Rinsed Glass Bottle, V - Vial, N - Nitric Acid Preserved  
 C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice

## Analysis Request Section

BTEX / TPH  
 METALS (Specify)  
 PAHs / Phenols  
 OCs / PCBs

NOTES

Sample Receipt Advice: (Lab Use Only)

All Samples Received In Good Condition. ....

All Documentation is in Proper Order. ....

Samples Received Properly Chilled. ....

Lab. Ref/Batch No.

51-83596





# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92010

**Philippines:** ☐ 3rd Floor, Unit Bldg. A08 Ave. Ungas Crt, Pasig City, Metro Manila, Philippines. Tel (+63) (2) 638 9686. Fax (+63) (2) 667 35 18

**ACT:** ☐ 254 Northbourne Ave, Canberra ACT 2601. Tel (02) 6248 3366. Fax (02) 6248 7157

**NSW:** ☒ Level 1, 3 Rider Blvd, Rhodes NSW 2138. Tel (02) 9083 1600. Fax (02) 9766 0762

<input type="checkbox"/> Lot 101, 19 Warburton Rd, Warburton NSW 2304	Tel (02) 4016 2300	Fax (02) 4016 2300
<input type="checkbox"/> 1/2222 Bentley Rd, Unanderra NSW 2526	Tel (02) 4272 6071	Fax (02) 4272 6075

- ☐ 47 Doggett St., Newtonston QLD 4006..... Tel (07) 3608 2500..... Fax (07) 3662 2803
- ☐ Level 1, 2-3 Greenhill Rd., Weyville SA 5034..... Tel (08) 7221 3500..... Fax (08) 8172 1968
- ☐ Coffey Business Centre, 2 Mainville St., Hobart TAS 7000..... Tel (03) 6108 0100..... Fax (03) 6108 0198
- ☐ 128 Trimery Cres., Abbotsford VIC 3067..... Tel (03) 9473 1400..... Fax (03) 9473 1450
- ☐ Level 1, 23 West Frings St., Newtown VIC 3220..... Tel (03) 5215 4800..... Fax (03) 5224 1368
- ☐ 61 Dune St., Albany WA 6530..... Tel (08) 9882 6400..... Fax (08) 9882 6444
- ☐ Suite 2, 53 Burnwood Rd., Burnwood WA 6100..... Tel (08) 9355 7100..... Fax (08) 9355 7111
- ☐ Suite 3 & 4, 236 Naturaliste Tce., Dunbarrough WA 6291..... Tel (08) 9756 7869..... Fax (08) 9756 8878

Project No: **ENVRH004083AG**

Task No.:

Project Name: Sydney Adventist Hospital

Laboratory: **SGS / MGT**

Samplers Name: JOSH GLENN

Project Manager: Nathan De Silva

Special Instructions: Please forward OCA to M6T.


Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Sol., etc)	Container Type & Preservative	T-A-T (Specdy)	BTEX	META	PAHs	OCs	NOTES
31	BH31-0.5	BH131	0.5m	29/11/10		Soil	16		✓	✓	✓	✓	
32	BH31-1.0	"	1.0	"	"	"	16		✓	✓	✓	✓	
33	BH31-2.0	"	2.0	"	"	"	16		✓	✓	✓	✓	
34	BH27-0.2	BH129	0.2	"	"	"	16 + B <sub>20</sub>		✓	✓	✓	✓	
35	BH27-0.4	"	0.4m	"	"	"	16 + B <sub>20</sub>		✓	✓	✓	✓	
36	BH27-1.0	"	1.0	"	"	"	16		✓	✓	✓	✓	
37	BH29-0.95	"	0.95m	"	"	"	16		✓	✓	✓	✓	
38	OC7	"	"	"	"	"	16		✓	✓	✓	✓	
39	OC8	"	"	"	"	"	16		✓	✓	✓	✓	
40	OC9	"	"	"	"	"	16		✓	✓	✓	✓	
41	OC9A	"	"	"	"	"	16		✓	✓	✓	✓	
42	OC10	"	"	"	"	"	16		✓	✓	✓	✓	
43	OC11	"	"	"	"	"	16		✓	✓	✓	✓	
44	T63	"	"	"	"	WATER	2V						

Forward to M&T please.

**RELINQUISHED BY:**

RECEIVED BY:

**Sample Receipt Advice:** (Lab Use Only)

Signature:  Date: 29/11/00

Signature: CEP Date: 25/11/13

Company: ☒ Coffee CNV

Company: SGI Time: 3:40pm

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Company: \_\_\_\_\_ Time: \_\_\_\_\_

Company: \_\_\_\_\_

Time: \_\_\_\_\_

\* Container Type & Preservation Codes: P - Plastic, G - Solvent Washed Acid Rinsed Glass Bottle, V - Vial, N - Nitric Acid Preserved  
C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice

Lab. Ref/Batch No

5-23546



## Client Details

Requested By : **Nalin De Silva**  
 Client : Coffey Environments Pty Ltd  
 Contact : Nalin De Silva  
 Address : Level 1, 3 Rider Boulevard  
 RHODES NSW 2138

Email : Nalin\_DeSilva@coffey.com  
 Telephone : 02 8083 1600  
 Facsimile : 02 8765 0762

Project : ENAURHOD04083AB - Sydney Adventist Hospital  
 Order Number : 92008-10  
 Samples : 42 Soils, 1 Water

## Laboratory Details

Laboratory : SGS Environmental Services  
 Manager : Edward Ibrahim  
 Address : Unit 16, 33 Maddox Street  
 Alexandria NSW 2015

Email : au.samplereceipt.sydney@sgs.com  
 Telephone : 61 2 8594 0400  
 Facsimile : 61 2 8594 0499

Report No : **SE83596**  
 No. of Samples : 43  
 Due Date : 1/12/2010

Date Instructions Received : 29/11/2010  
 Sample Receipt Date : 30/11/10

Samples received in good order : YES  
 Samples received without headspace : YES  
 Upon receipt sample temperature : Cool  
 Sample containers provided by : SGS  
 Turnaround time requested : 1 Day

Samples received in correct container: YES  
 Sufficient quantity supplied : YES  
 Cooling Method : Ice  
 Samples clearly Labelled : YES  
 Completed documentation received : YES

Samples will be held for 1 month for water samples and 3 months for soil samples from date of receipt of samples, unless otherwise instructed.

## Comments

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

**The signed chain of custody will be returned to you with the original report.**



**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83596  
Project : ENAURHOD04083AB - Sydney Adventist Hospital

**Summary of Samples and Requested Analysis**

The table below represents SGS Environmental Service's understanding and interpretation of the customer supplied sample request.

Please indicate ASAP if your request differs from these details.

Testing shall commence immediately as per this table, unless the customer intervenes with a correction prior to testing.

Note that a small X in the table below indicates some testing has not been requested in the package.

Sample No.	Description	Metals Prep, soil, water, TCLP	BTEX in Soil	TRH in soil with .C6-C9 by P/T	PAHs in Soil	OC Pesticides in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	Asbestos ID in soil	Hold sample-NO test required	Moisture
1	MW112-0.2	X	X	X	X	X	X	X	X		X
2	MW112-0.5	X	X	X	X	X	X	X	X		X
3	MW112-1.0	X	X	X	X		X	X			X
4	MW112-2.0									X	
5	MW112-3.0	X	X	X	X		X	X			X
6	BH111-0.2								X		
7	BH111-0.5								X		
8	BH111-1.0	X	X	X	X	X	X	X			X
9	BH111-2.0									X	
10	BH113-0.2								X		
11	BH113-0.5								X		
12	BH113-1.0	X	X	X	X	X	X	X	X		X
13	BH113-2.0									X	
14	BH122-0.2								X		
15	BH122-0.5	X	X	X	X		X	X			X
16	BH122-1.0									X	
17	BH122-2.0									X	
18	BH120-0.2								X		



**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83596  
 Project : ENAURHOD04083AB - Sydney Adventist Hospital

Sample No.	Description	Metals Prep, soil, water, TCLP	BTEX in Soil	TRH in soil with .C6-C9 by P/T	PAHs in Soil	OC Pesticides in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	Asbestos ID in soil	Hold sample-NO test required	Moisture
19	BH120-0.5	X	X	X	X	X	X	X	X		X
20	BH120-1.0	X	X	X	X		X	X			X
21	BH120-2.0									X	
22	BH130-0.2	X	X	X	X	X	X	X	X		X
23	BH130-0.5	X	X	X	X	X	X	X	X		X
24	BH130-1.0									X	
25	BH130-2.0									X	
26	BH132-0.2	X	X	X	X	X	X	X	X		X
27	BH132-0.5	X	X	X	X		X	X			X
28	BH132-1.0	X	X	X	X		X	X			X
29	BH132-1.4									X	
30	BH131-0.2								X		
31	BH131-0.5	X	X	X	X		X	X			X
32	BH131-1.0									X	
33	BH131-2.0	X	X	X	X		X	X			X
34	BH129-0.2								X		
35	BH129-0.4	X	X	X	X		X	X			X
36	BH129-1.0									X	
37	BH129-1.95									X	
38	QC7									X	
39	QC8									X	
40	QC9	X	X	X	X		X	X			X
41	QC10	X	X	X	X		X	X			X
42	QC11									X	



**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83596  
 Project : ENAURHOD04083AB - Sydney Adventist Hospital

Sample No.	Description	Metals Prep, soil, water, TCLP	BTEX in Soil	TRH in soil with .C6-C9 by P/T	PAHs in Soil	OC Pesticides in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	Asbestos ID in soil	Hold sample-NO test required	Moisture
43	TB3									X	

Sample No.	Description
1	MW112-0.2
2	MW112-0.5
3	MW112-1.0
4	MW112-2.0
5	MW112-3.0
6	BH111-0.2
7	BH111-0.5
8	BH111-1.0
9	BH111-2.0
10	BH113-0.2
11	BH113-0.5
12	BH113-1.0
13	BH113-2.0
14	BH122-0.2
15	BH122-0.5
16	BH122-1.0
17	BH122-2.0
18	BH120-0.2



**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83596  
Project : ENAURHOD04083AB - Sydney Adventist Hospital

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Sample No.	Description
19	BH120-0.5
20	BH120-1.0
21	BH120-2.0
22	BH130-0.2
23	BH130-0.5
24	BH130-1.0
25	BH130-2.0
26	BH132-0.2
27	BH132-0.5
28	BH132-1.0
29	BH132-1.4
30	BH131-0.2
31	BH131-0.5
32	BH131-1.0
33	BH131-2.0
34	BH129-0.2
35	BH129-0.4
36	BH129-1.0
37	BH129-1.95
38	QC7
39	QC8
40	QC9
41	QC10
42	QC11
43	TB3



## ANALYTICAL REPORT

1 December 2010

**Coffey Environments Pty Ltd**

Level 1, 3 Rider Boulevard

RHODES

NSW 2138

**Attention:** Nalin De Silva

Your Reference: ENAURHOD04083AB - Sydney Adventist Hospital

Our Reference: SE83596

Samples: 42 Soils, 1 Water

Received: 30/11/10

Preliminary Report Sent: Not Issued

These samples were analysed in accordance with your written instructions.

For and on Behalf of:

SGS ENVIRONMENTAL SERVICES

Sample Receipt: Angela Mamalicos

AU.SampleReceipt.Sydney@sgs.com

Production Manager: Huong Crawford

Huong.Crawford@sgs.com

*Results Approved and/or Authorised by:*

**Edward Ibrahim**  
Laboratory Manager

**Ravee Sivasubramaniam**  
Asbestos Signatory

**Ly Kim Ha**  
Organics Signatory



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WORLD RECOGNISED  
ACCREDITATION

SGS Australia Pty Ltd  
ABN 44 000 964 278

Environmental Services Unit 16/33 Maddox Street Alexandria NSW 2015 Australia  
t +61 (0)2 8594 0400 f + 61 (0)2 8594 0499 www.au.sgs.com

BTEX in Soil						
Our Reference:	UNITS	SE83596-1	SE83596-2	SE83596-3	SE83596-5	SE83596-8
Your Reference	-----	MW112-0.2	MW112-0.5	MW112-1.0	MW112-3.0	BH111-1.0
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.2	0.5	1.0	3.0	1.0
Location		MW112	MW112	MW112	MW112	BH111
Date Extracted (BTEX)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (BTEX)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
BTEX Surrogate (%)	%	103	85	93	87	89

BTEX in Soil						
Our Reference:	UNITS	SE83596-1	SE83596-1	SE83596-1	SE83596-2	SE83596-2
Your Reference	-----	2	5	9	0	2
Sample Matrix	-----	BH113-1.0	BH122-0.5	BH120-0.5	BH120-1.0	BH130-0.2
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		1.0	0.5	0.5	1.0	0.2
Location		BH113	BH122	BH120	BH120	BH130
Date Extracted (BTEX)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (BTEX)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
BTEX Surrogate (%)	%	85	73	88	68	110



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BTEX in Soil						
Our Reference:	UNITS	SE83596-2	SE83596-2	SE83596-2	SE83596-2	SE83596-3
		3	6	7	8	1
Your Reference	-----	BH130-0.5	BH132-0.2	BH132-0.5	BH132-1.0	BH131-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.5	0.2	0.5	1.0	0.5
Location		BH130	BH132	BH132	BH132	BH131
Date Extracted (BTEX)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (BTEX)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
BTEX Surrogate (%)	%	81	81	86	88	91

BTEX in Soil					
Our Reference:	UNITS	SE83596-3	SE83596-3	SE83596-4	SE83596-4
		3	5	0	1
Your Reference	-----	BH131-2.0	BH129-0.4	QC9	QC10
Sample Matrix	-----	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		2.0	0.4	-	-
Location		BH131	BH129	-	-
Date Extracted (BTEX)		30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (BTEX)		30/11/2010	30/11/2010	30/11/2010	30/11/2010
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3
BTEX Surrogate (%)	%	93	106	73	84

TRH in soil with..C6-C9 by P/T						
Our Reference:	UNITS	SE83596-1	SE83596-2	SE83596-3	SE83596-5	SE83596-8
Your Reference	-----	MW112-0.2	MW112-0.5	MW112-1.0	MW112-3.0	BH111-1.0
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.2	0.5	1.0	3.0	1.0
Location		MW112	MW112	MW112	MW112	BH111
Date Extracted (TRH C6-C9 PT)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (TRH C6-C9 PT)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
TRH C <sub>6</sub> - C <sub>9</sub> P&T	mg/kg	<20	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (TRH C10-C36)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<20	<20	<20	<20	<20
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<50	<50	<50	<50	<50
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<50	<50	<50	<50	<50

TRH in soil with..C6-C9 by P/T						
Our Reference:	UNITS	SE83596-1	SE83596-1	SE83596-1	SE83596-2	SE83596-2
Your Reference	-----	2	5	9	0	2
Sample Matrix	-----	BH113-1.0	BH122-0.5	BH120-0.5	BH120-1.0	BH130-0.2
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		1.0	0.5	0.5	1.0	0.2
Location		BH113	BH122	BH120	BH120	BH130
Date Extracted (TRH C6-C9 PT)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (TRH C6-C9 PT)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
TRH C <sub>6</sub> - C <sub>9</sub> P&T	mg/kg	<20	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (TRH C10-C36)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<20	<20	<20	<20	<20
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<50	<50	<50	<50	<50
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<50	<50	<50	<50	<50

TRH in soil with..C6-C9 by P/T Our Reference:	UNITS	SE83596-2 3	SE83596-2 6	SE83596-2 7	SE83596-2 8	SE83596-3 1
Your Reference	-----	BH130-0.5	BH132-0.2	BH132-0.5	BH132-1.0	BH131-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.5	0.2	0.5	1.0	0.5
Location		BH130	BH132	BH132	BH132	BH131
Date Extracted (TRH C6-C9 PT)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (TRH C6-C9 PT)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
TRH C <sub>6</sub> - C <sub>9</sub> P&T	mg/kg	<20	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (TRH C10-C36)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<20	<20	<20	<20	<20
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<50	110	<50	<50	<50
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<50	71	<50	<50	<50

TRH in soil with..C6-C9 by P/T Our Reference:	UNITS	SE83596-3 3	SE83596-3 5	SE83596-4 0	SE83596-4 1
Your Reference	-----	BH131-2.0	BH129-0.4	QC9	QC10
Sample Matrix	-----	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		2.0	0.4	-	-
Location		BH131	BH129	-	-
Date Extracted (TRH C6-C9 PT)		30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (TRH C6-C9 PT)		30/11/2010	30/11/2010	30/11/2010	30/11/2010
TRH C <sub>6</sub> - C <sub>9</sub> P&T	mg/kg	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (TRH C10-C36)		30/11/2010	30/11/2010	30/11/2010	30/11/2010
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<20	<20	<20	<20
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<50	<50	<50	<50
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<50	<50	<50	<50

PAHs in Soil Our Reference: Your Reference Sample Matrix Date Sampled Depth Location	UNITS ----- -----	SE83596-1 MW112-0.2 Soil 29/11/2010 0.2 MW112	SE83596-2 MW112-0.5 Soil 29/11/2010 0.5 MW112	SE83596-3 MW112-1.0 Soil 29/11/2010 1.0 MW112	SE83596-5 MW112-3.0 Soil 29/11/2010 3.0 MW112	SE83596-8 BH111-1.0 Soil 29/11/2010 1.0 BH111
Date Extracted		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[a]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo[k]fluoranthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[a]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<2	<2	<2	<2	<2
Nitrobenzene-d5	%	96	127	120	118	112
2-Fluorobiphenyl	%	114	126	121	120	116
p -Terphenyl-d14	%	96	112	111	103	103



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PAHs in Soil Our Reference:	UNITS	SE83596-1 2	SE83596-1 5	SE83596-1 9	SE83596-2 0	SE83596-2 2
Your Reference	-----	BH113-1.0	BH122-0.5	BH120-0.5	BH120-1.0	BH130-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		1.0	0.5	0.5	1.0	0.2
Location		BH113	BH122	BH120	BH120	BH130
Date Extracted		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.24	<0.10	<0.10	<0.10	0.10
Pyrene	mg/kg	0.26	<0.10	<0.10	<0.10	0.11
Benzo[a]anthracene	mg/kg	0.17	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	0.16	<0.10	<0.10	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	0.2	<0.1	<0.1	<0.1	0.1
Benzo[k]fluoranthene	mg/kg	0.13	<0.10	<0.10	<0.10	<0.10
Benzo[a]pyrene	mg/kg	0.21	<0.10	<0.10	<0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	0.14	<0.10	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<2.35	<2	<2	<2	<1.61
Nitrobenzene-d5	%	113	111	101	114	112
2-Fluorobiphenyl	%	116	112	104	118	118
p -Terphenyl-d14	%	97	97	96	103	101



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PAHs in Soil Our Reference:	UNITS	SE83596-2 3	SE83596-2 6	SE83596-2 7	SE83596-2 8	SE83596-3 1
Your Reference	-----	BH130-0.5	BH132-0.2	BH132-0.5	BH132-1.0	BH131-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.5	0.2	0.5	1.0	0.5
Location		BH130	BH132	BH132	BH132	BH131
Date Extracted		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	0.13	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	0.42	<0.10	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	0.88	<0.10	<0.10	<0.10
Pyrene	mg/kg	<0.10	0.76	<0.10	<0.10	<0.10
Benzo[a]anthracene	mg/kg	<0.10	0.30	<0.10	<0.10	<0.10
Chrysene	mg/kg	<0.10	0.32	<0.10	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
Benzo[k]fluoranthene	mg/kg	<0.10	0.21	<0.10	<0.10	<0.10
Benzo[a]pyrene	mg/kg	<0.10	0.39	<0.10	<0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	<0.10	0.22	<0.10	<0.10	<0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	<0.10	0.28	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<2	<4.93	<2	<2	<2
Nitrobenzene-d5	%	104	102	102	96	104
2-Fluorobiphenyl	%	110	118	116	110	120
p -Terphenyl-d14	%	89	104	95	96	111



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PAHs in Soil Our Reference:	UNITS	SE83596-3 3	SE83596-3 5	SE83596-4 0	SE83596-4 1
Your Reference	-----	BH131-2.0	BH129-0.4	QC9	QC10
Sample Matrix	-----	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		2.0	0.4	-	-
Location		BH131	BH129	-	-
Date Extracted		30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed		30/11/2010	30/11/2010	30/11/2010	30/11/2010
Naphthalene	mg/kg	<0.10	0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	<0.10	0.13	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10
Benzo[a]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	<0.10	<0.10	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo[k]fluoranthene	mg/kg	<0.10	<0.10	<0.10	<0.10
Benzo[a]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	<0.10	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<2	<1.63	<2	<2
Nitrobenzene-d5	%	104	105	110	109
2-Fluorobiphenyl	%	116	126	121	117
p -Terphenyl-d14	%	106	114	108	105



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OC Pesticides in Soil Our Reference:	UNITS	SE83596-1	SE83596-2	SE83596-8	SE83596-1 2	SE83596-1 9
Your Reference	-----	MW112-0.2	MW112-0.5	BH111-1.0	BH113-1.0	BH120-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.2	0.5	1.0	1.0	0.5
Location		MW112	MW112	BH111	BH113	BH120
Date Extracted		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>alpha</i> -BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC (Lindane)	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
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>beta</i> -BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>delta</i> -BHC	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
<i>o,p</i> -DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>alpha</i> -Endosulfan	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>trans</i> -Chlordane ( <i>gamma</i> )	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>cis</i> -Chlordane ( <i>alpha</i> )	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>trans</i> -Nonachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -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
<i>o,p</i> -DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>o,p</i> -DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>beta</i> -Endosulfan	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<i>p,p</i> -DDT	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
Endrin Aldehyde	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
Endrin Ketone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5,6-Tetrachloro-m-xylene ( <i>Surrogate</i> )	%	122	123	72	129	124



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OC Pesticides in Soil Our Reference:	UNITS	SE83596-2 2	SE83596-2 3	SE83596-2 6
Your Reference	-----	BH130-0.2	BH130-0.5	BH132-0.2
Sample Matrix	-----	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010
Depth		0.2	0.5	0.2
Location		BH130	BH130	BH132
Date Extracted		30/11/2010	30/11/2010	30/11/2010
Date Analysed		30/11/2010	30/11/2010	30/11/2010
HCB	mg/kg	<0.1	<0.1	<0.1
<i>alpha</i> -BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC (Lindane)	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
<i>beta</i> -BHC	mg/kg	<0.1	<0.1	<0.1
<i>delta</i> -BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
<i>o,p</i> -DDE	mg/kg	<0.1	<0.1	<0.1
<i>alpha</i> -Endosulfan	mg/kg	<0.1	<0.1	<0.1
<i>trans</i> -Chlordane ( <i>gamma</i> )	mg/kg	<0.1	<0.1	<0.1
<i>cis</i> -Chlordane ( <i>alpha</i> )	mg/kg	<0.1	<0.1	<0.1
<i>trans</i> -Nonachlor	mg/kg	<0.1	<0.1	<0.1
<i>p,p</i> -DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
<i>o,p</i> -DDD	mg/kg	<0.1	<0.1	<0.1
<i>o,p</i> -DDT	mg/kg	<0.1	<0.1	<0.1
<i>beta</i> -Endosulfan	mg/kg	<0.1	<0.1	<0.1
<i>p,p</i> -DDD	mg/kg	<0.1	<0.1	<0.1
<i>p,p</i> -DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	<0.1	<0.1	<0.1
2,4,5,6-Tetrachloro-m-xylene ( <i>Surrogate</i> )	%	123	129	113



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Metals in Soil by ICP-OES						
Our Reference:	UNITS	SE83596-1	SE83596-2	SE83596-3	SE83596-5	SE83596-8
Your Reference	-----	MW112-0.2	MW112-0.5	MW112-1.0	MW112-3.0	BH111-1.0
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.2	0.5	1.0	3.0	1.0
Location		MW112	MW112	MW112	MW112	BH111
Date Extracted (Metals)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (Metals)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Arsenic	mg/kg	5	7	7	8	7
Cadmium	mg/kg	0.4	0.4	0.3	0.4	0.4
Chromium	mg/kg	29	16	15	21	17
Copper	mg/kg	24	15	14	10	8.3
Lead	mg/kg	53	37	54	23	45
Nickel	mg/kg	25	4.3	3.2	3.2	2.8
Zinc	mg/kg	55	56	55	27	46

Metals in Soil by ICP-OES						
Our Reference:	UNITS	SE83596-1	SE83596-1	SE83596-1	SE83596-2	SE83596-2
Your Reference	-----	2	5	9	0	2
Sample Matrix	-----	BH113-1.0	BH122-0.5	BH120-0.5	BH120-1.0	BH130-0.2
Date Sampled		Soil	Soil	Soil	Soil	Soil
Depth		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Location		1.0	0.5	0.5	1.0	0.2
		BH113	BH122	BH120	BH120	BH130
Date Extracted (Metals)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (Metals)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Arsenic	mg/kg	7	9	7	5	7
Cadmium	mg/kg	0.6	0.4	0.7	<0.3	0.5
Chromium	mg/kg	13	13	17	15	19
Copper	mg/kg	27	31	35	13	18
Lead	mg/kg	130	31	46	24	56
Nickel	mg/kg	6.6	3.5	5.5	2.2	4.3
Zinc	mg/kg	92	32	66	10	60

Metals in Soil by ICP-OES						
Our Reference:	UNITS	SE83596-2	SE83596-2	SE83596-2	SE83596-2	SE83596-3
		3	6	7	8	1
Your Reference	-----	BH130-0.5	BH132-0.2	BH132-0.5	BH132-1.0	BH131-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.5	0.2	0.5	1.0	0.5
Location		BH130	BH132	BH132	BH132	BH131
Date Extracted (Metals)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (Metals)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Arsenic	mg/kg	8	4	5	6	4
Cadmium	mg/kg	0.4	<0.3	0.4	0.6	0.5
Chromium	mg/kg	11	11	18	18	20
Copper	mg/kg	17	25	18	28	13
Lead	mg/kg	25	43	23	23	19
Nickel	mg/kg	7.5	5.4	6.5	1.4	5.3
Zinc	mg/kg	26	52	23	11	17

Metals in Soil by ICP-OES					
Our Reference:	UNITS	SE83596-3	SE83596-3	SE83596-4	SE83596-4
		3	5	0	1
Your Reference	-----	BH131-2.0	BH129-0.4	QC9	QC10
Sample Matrix	-----	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		2.0	0.4	-	-
Location		BH131	BH129	-	-
Date Extracted (Metals)		30/11/2010	30/11/2010	30/11/2010	30/11/2010
Date Analysed (Metals)		30/11/2010	30/11/2010	30/11/2010	30/11/2010
Arsenic	mg/kg	18	<3	5	27
Cadmium	mg/kg	0.4	0.5	0.6	0.3
Chromium	mg/kg	7.8	64	16	7.7
Copper	mg/kg	28	33	30	26
Lead	mg/kg	16	6	22	17
Nickel	mg/kg	3.3	82	4.7	4.3
Zinc	mg/kg	21	58	16	31

Mercury Cold Vapor/Hg Analyser						
Our Reference:	UNITS	SE83596-1	SE83596-2	SE83596-3	SE83596-5	SE83596-8
Your Reference	-----	MW112-0.2	MW112-0.5	MW112-1.0	MW112-3.0	BH111-1.0
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.2	0.5	1.0	3.0	1.0
Location		MW112	MW112	MW112	MW112	BH111
Date Extracted (Mercury)		1/12/2010	1/12/2010	1/12/2010	1/12/2010	1/12/2010
Date Analysed (Mercury)		1/12/2010	1/12/2010	1/12/2010	1/12/2010	1/12/2010
Mercury	mg/kg	0.08	<0.05	<0.05	<0.05	0.21

Mercury Cold Vapor/Hg Analyser						
Our Reference:	UNITS	SE83596-1	SE83596-1	SE83596-1	SE83596-2	SE83596-2
Your Reference	-----	2	5	9	0	2
Sample Matrix	-----	BH113-1.0	BH122-0.5	BH120-0.5	BH120-1.0	BH130-0.2
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		1.0	0.5	0.5	1.0	0.2
Location		BH113	BH122	BH120	BH120	BH130
Date Extracted (Mercury)		1/12/2010	1/12/2010	1/12/2010	1/12/2010	1/12/2010
Date Analysed (Mercury)		1/12/2010	1/12/2010	1/12/2010	1/12/2010	1/12/2010
Mercury	mg/kg	0.16	<0.05	0.15	<0.05	0.15

Mercury Cold Vapor/Hg Analyser						
Our Reference:	UNITS	SE83596-2	SE83596-2	SE83596-2	SE83596-2	SE83596-3
Your Reference	-----	3	6	7	8	1
Sample Matrix	-----	BH130-0.5	BH132-0.2	BH132-0.5	BH132-1.0	BH131-0.5
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.5	0.2	0.5	1.0	0.5
Location		BH130	BH132	BH132	BH132	BH131
Date Extracted (Mercury)		1/12/2010	1/12/2010	1/12/2010	1/12/2010	1/12/2010
Date Analysed (Mercury)		1/12/2010	1/12/2010	1/12/2010	1/12/2010	1/12/2010
Mercury	mg/kg	0.09	<0.05	<0.05	<0.05	<0.05



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Mercury Cold Vapor/Hg Analyser					
Our Reference:	UNITS	SE83596-3	SE83596-3	SE83596-4	SE83596-4
		3	5	0	1
Your Reference	-----	BH131-2.0	BH129-0.4	QC9	QC10
Sample Matrix	-----	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		2.0	0.4	-	-
Location		BH131	BH129	-	-
Date Extracted (Mercury)		1/12/2010	1/12/2010	1/12/2010	1/12/2010
Date Analysed (Mercury)		1/12/2010	1/12/2010	1/12/2010	1/12/2010
Mercury	mg/kg	<0.05	<0.05	<0.05	<0.05

Asbestos ID in soil Our Reference:	UNITS	SE83596-1	SE83596-2	SE83596-6	SE83596-7	SE83596-10
Your Reference	-----	MW112-0.2	MW112-0.5	BH111-0.2	BH111-0.5	BH113-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.2	0.5	0.2	0.5	0.2
Location		MW112	MW112	BH111	BH111	BH113
Date Analysed		1/12/2010	1/12/2010	1/12/2010	1/12/2010	1/12/2010
Sample Description		220g Soil, clay	204g Soil, clay	94g Cement mixture, rocks	166g Cement mixture, rocks	278g Cement mixture, rocks
Asbestos ID in soil	-	No asbestos detected	No asbestos detected Organic fibres detected*	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID in soil Our Reference:	UNITS	SE83596-11	SE83596-12	SE83596-14	SE83596-18	SE83596-19
Your Reference	-----	BH113-0.5	BH113-1.0	BH122-0.2	BH120-0.2	BH120-0.5
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.5	1.0	0.2	0.2	0.5
Location		BH113	BH113	BH122	BH120	BH120
Date Analysed		1/12/2010	1/12/2010	1/12/2010	1/12/2010	1/12/2010
Sample Description		255g Cement mixture, rocks	50g Cement mixture, rocks	215g Soil	237g Soil, rocks	198g Cement mixture, rocks
Asbestos ID in soil	-	No asbestos detected Organic fibres detected*	No asbestos detected	No asbestos detected Organic fibres detected*	No asbestos detected	No asbestos detected Organic fibres detected*



Asbestos ID in soil						
Our Reference:	UNITS	SE83596-2	SE83596-2	SE83596-2	SE83596-3	SE83596-3
		2	3	6	0	4
Your Reference	-----	BH130-0.2	BH130-0.5	BH132-0.2	BH131-0.2	BH129-0.2
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.2	0.5	0.2	0.2	0.2
Location		BH130	BH130	BH132	BH131	BH129
Date Analysed		1/12/2010	1/12/2010	1/12/2010	1/12/2010	1/12/2010
Sample Description		239g Soil,clay	173g Soil,clay,ro cks	197g Soil	291g Soil,rocks	247g Cement mixture,roc ks
Asbestos ID in soil	-	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*	No asbestos detected	No asbestos detected



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Moisture						
Our Reference:	UNITS	SE83596-1	SE83596-2	SE83596-3	SE83596-5	SE83596-8
Your Reference	-----	MW112-0.2	MW112-0.5	MW112-1.0	MW112-3.0	BH111-1.0
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.2	0.5	1.0	3.0	1.0
Location		MW112	MW112	MW112	MW112	BH111
Date Analysed (moisture)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Moisture	%	13	18	17	13	22

Moisture						
Our Reference:	UNITS	SE83596-1	SE83596-1	SE83596-1	SE83596-2	SE83596-2
Your Reference	-----	2	5	9	0	2
Sample Matrix	-----	BH113-1.0	BH122-0.5	BH120-0.5	BH120-1.0	BH130-0.2
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		1.0	0.5	0.5	1.0	0.2
Location		BH113	BH122	BH120	BH120	BH130
Date Analysed (moisture)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Moisture	%	24	19	17	21	18

Moisture						
Our Reference:	UNITS	SE83596-2	SE83596-2	SE83596-2	SE83596-2	SE83596-3
Your Reference	-----	3	6	7	8	1
Sample Matrix	-----	BH130-0.5	BH132-0.2	BH132-0.5	BH132-1.0	BH131-0.5
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		0.5	0.2	0.5	1.0	0.5
Location		BH130	BH132	BH132	BH132	BH131
Date Analysed (moisture)		30/11/2010	30/11/2010	30/11/2010	30/11/2010	30/11/2010
Moisture	%	17	17	17	18	15

Moisture					
Our Reference:	UNITS	SE83596-3	SE83596-3	SE83596-4	SE83596-4
Your Reference	-----	3	5	0	1
Sample Matrix	-----	BH131-2.0	BH129-0.4	QC9	QC10
Date Sampled		29/11/2010	29/11/2010	29/11/2010	29/11/2010
Depth		2.0	0.4	-	-
Location		BH131	BH129	-	-
Date Analysed (moisture)		30/11/2010	30/11/2010	30/11/2010	30/11/2010
Moisture	%	9	5	17	10



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Method ID	Methodology Summary
<b>SEO-018</b>	BTEX / C6-C9 Hydrocarbons - Soil samples are extracted with methanol, purged and concentrated by a purge and trap apparatus, and then analysed using GC/MS technique. Water samples undergo the same analysis without the extraction step. Based on USEPA 5030B and 8260B
<b>SEO-020</b>	Total Recoverable Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/FID. Where applicable Solid Phase Extraction Manifold technique is used for aliphatic / aromatic fractionation
<b>SEO-030</b>	Polynuclear Aromatic Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/MS SIM mode
<b>SEO-005</b>	OC/OP/PCB - Determination of a suite of Organochlorine Pesticides, Chlorinated Organo-phosphorus Pesticides and Polychlorinated Biphenyls (PCB's) by liquid-liquid extraction using dichloromethane for waters, or mechanical extraction using acetone / hexane for soils, followed by instrumentation analysis using GC/ECD Based on USEPA 8081/8082.
<b>SEM-010</b>	Determination of elements by ICP-OES following appropriate sample preparation / digestion process. Based on USEPA 6010C / APHA 21st Edition, 3120B
<b>SEM-005</b>	Mercury - determined by Cold-Vapour AAS following appropriate sample preparation or digestion process. Based on APHA 21st Edition, 3112B
<b>AN602</b>	Analysed using in house method AN602 - Qualitative identification of Asbestos Fibres, Synthetic Mineral Fibres and Organic Fibres in bulk samples (including building materials and soils) using Polarised Light Microscopy and Dispersion Staining Techniques. Our NATA Accreditation does not currently cover the identification of Synthetic Mineral Fibres and Organic Fibres, however, according to new NATA requirements, the reporting of these fibres is compulsory if detected.
<b>AN002</b>	Preparation of soils, sediments and sludges undergo analysis by either air drying, compositing, subsampling and 1:5 soil water extraction where required. Moisture content is determined by drying the sample at 105± 5°C.



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank
BTEX in Soil				
Date Extracted (BTEX)				30/11/10
Date Analysed (BTEX)				30/11/10
Benzene	mg/kg	0.1	SEO-018	<0.1
Toluene	mg/kg	0.1	SEO-018	<0.1
Ethylbenzene	mg/kg	0.1	SEO-018	<0.1
Total Xylenes	mg/kg	0.3	SEO-018	<0.3
BTEX Surrogate (%)	%	0	SEO-018	100

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
TRH in soil with..C6-C9 by P/T								
Date Extracted (TRH C6-C9 PT)				30/11/10	SE83596-1	30/11/2010    30/11/2010	[NR]	[NR]
Date Analysed (TRH C6-C9 PT)				30/11/10	SE83596-1	30/11/2010    30/11/2010	[NR]	[NR]
TRH C6 - C9 P&T	mg/kg	20	SEO-018	<20	SE83596-1	<20    [N/T]	[NR]	[NR]
Date Extracted (TRH C10-C36)				30/11/2010	SE83596-1	30/11/2010    30/11/2010	SE83596-2	30/11/2010
Date Analysed (TRH C10-C36)				30/11/2010	SE83596-1	30/11/2010    30/11/2010	SE83596-2	30/11/2010
TRH C10 - C14	mg/kg	20	SEO-020	<20	SE83596-1	<20    <20	SE83596-2	114%
TRH C15 - C28	mg/kg	50	SEO-020	<50	SE83596-1	<50    <50	SE83596-2	107%
TRH C29 - C36	mg/kg	50	SEO-020	<50	SE83596-1	<50    <50	SE83596-2	91%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
PAHs in Soil								
Date Extracted				30/11/2010	SE83596-1	30/11/2010    30/11/2010	SE83596-3	30/11/2010
Date Analysed				30/11/2010	SE83596-1	30/11/2010    30/11/2010	SE83596-3	30/11/2010
Naphthalene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	SE83596-3	112%
Acenaphthylene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	SE83596-3	101%
Acenaphthene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	SE83596-3	105%
Fluorene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	[NR]	[NR]
Phenanthrene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	SE83596-3	96%
Anthracene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	SE83596-3	104%
Fluoranthene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	SE83596-3	98%
Pyrene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	SE83596-3	101%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
PAHs in Soil								
Benzo[a]anthracene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	[NR]	[NR]
Chrysene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	[NR]	[NR]
Benzo[b]fluoranthene	mg/kg	0.1	SEO-030	<0.1	SE83596-1	<0.1    <0.1	[NR]	[NR]
Benzo[k]fluoranthene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	[NR]	[NR]
Benzo[a]pyrene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	SE83596-3	100%
Indeno[123-cd]pyrene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	[NR]	[NR]
Dibenzo[ah]anthracene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	[NR]	[NR]
Benzo[ghi]perylene	mg/kg	0.1	SEO-030	<0.10	SE83596-1	<0.10    <0.10	[NR]	[NR]
Total PAHs (sum)	mg/kg	1.6	SEO-030	<2	SE83596-1	<2    <2	[NR]	[NR]
Nitrobenzene-d5	%	0	SEO-030	117	SE83596-1	96    115    RPD: 18	SE83596-3	108%
2-Fluorobiphenyl	%	0	SEO-030	114	SE83596-1	114    116    RPD: 2	SE83596-3	112%
p -Terphenyl-d 14	%	0	SEO-030	102	SE83596-1	96    108    RPD: 12	SE83596-3	101%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
OC Pesticides in Soil								
Date Extracted				30/11/10	SE83596-8	30/11/2010    30/11/2010	LCS	30/11/10
Date Analysed				30/11/10	SE83596-8	30/11/2010    30/11/2010	LCS	30/11/10
HCB	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
gamma-BHC (Lindane)	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
Heptachlor	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	LCS	87%
Aldrin	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	LCS	77%
beta-BHC	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
delta-BHC	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	LCS	80%
Heptachlor Epoxide	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
o,p-DDE	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
alpha-Endosulfan	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
trans-Chlordane (gamma)	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
cis-Chlordane (alpha)	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
trans-Nonachlor	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
p,p-DDE	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
Dieldrin	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	LCS	79%
Endrin	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	LCS	103%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
OC Pesticides in Soil								
<i>o,p</i> -DDD	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
<i>o,p</i> -DDT	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
<i>beta</i> -Endosulfan	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
<i>p,p</i> -DDD	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
<i>p,p</i> -DDT	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	LCS	127%
Endosulfan Sulphate	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
Methoxychlor	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
Endrin Ketone	mg/kg	0.1	SEO-005	<0.1	SE83596-8	<0.1    <0.1	[NR]	[NR]
2,4,5,6-Tetrachloro-m-xy lene ( <i>Surrogate</i> )	%	0	SEO-005	105	SE83596-8	72    73    RPD: 1	LCS	116%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Metals in Soil by ICP-OES								
Date Extracted (Metals)				30/11/2010	SE83596-1	30/11/2010    30/11/2010	SE83596-2	30/11/2010
Date Analysed (Metals)				30/11/2010	SE83596-1	30/11/2010    30/11/2010	SE83596-2	30/11/2010
Arsenic	mg/kg	3	SEM-010	<3	SE83596-1	5    4    RPD: 22	SE83596-2	91%
Cadmium	mg/kg	0.3	SEM-010	<0.3	SE83596-1	0.4    0.4    RPD: 0	SE83596-2	95%
Chromium	mg/kg	0.3	SEM-010	<0.3	SE83596-1	29    31    RPD: 7	SE83596-2	97%
Copper	mg/kg	0.5	SEM-010	<0.5	SE83596-1	24    27    RPD: 12	SE83596-2	101%
Lead	mg/kg	1	SEM-010	<1	SE83596-1	53    42    RPD: 23	SE83596-2	96%
Nickel	mg/kg	0.5	SEM-010	<0.5	SE83596-1	25    33    RPD: 28	SE83596-2	114%
Zinc	mg/kg	0.5	SEM-010	<0.5	SE83596-1	55    56    RPD: 2	SE83596-2	101%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
Mercury Cold Vapor/Hg Analyser						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (Mercury)				1/12/2010	SE83596-1	1/12/2010    1/12/2010	SE83596-2	1/12/2010
Date Analysed (Mercury)				1/12/2010	SE83596-1	1/12/2010    1/12/2010	SE83596-2	1/12/2010
Mercury	mg/kg	0.05	SEM-005	<0.05	SE83596-1	0.08    0.10    RPD: 22	SE83596-2	85%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank
Asbestos ID in soil				
Date Analysed				[NT]

QUALITY CONTROL	UNITS	LOR	METHOD	Blank
Hold sample- <b>NO test</b> required				
Sample on HOLD		[NT]		[NT]

QUALITY CONTROL	UNITS	LOR	METHOD	Blank
Moisture				
Date Analysed (moisture)				[NT]
Moisture	%	1	AN002	<1

QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
BTEX in Soil			Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (BTEX)		[NT]	[NT]	SE83596-20	30/11/10
Date Analysed (BTEX)		[NT]	[NT]	SE83596-20	30/11/10
Benzene	mg/kg	[NT]	[NT]	SE83596-20	78%
Toluene	mg/kg	[NT]	[NT]	SE83596-20	79%
Ethylbenzene	mg/kg	[NT]	[NT]	SE83596-20	81%
Total Xylenes	mg/kg	[NT]	[NT]	SE83596-20	87%
BTEX Surrogate (%)	%	[NT]	[NT]	SE83596-20	80%



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QUALITY CONTROL TRH in soil with..C6-C9 by P/T	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)		SE83596-2 6	30/11/2010    30/11/2010	SE83596-2 0	30/11/10
Date Analysed (TRH C6-C9 PT)		SE83596-2 6	30/11/2010    30/11/2010	SE83596-2 0	30/11/10
TRH C6 - C9 P&T	mg/kg	SE83596-2 6	<20    [N/T]	SE83596-2 0	102%
Date Extracted (TRH C10-C36)		SE83596-2 6	30/11/2010    30/11/2010	[NR]	[NR]
Date Analysed (TRH C10-C36)		SE83596-2 6	30/11/2010    30/11/2010	[NR]	[NR]
TRH C10 - C14	mg/kg	SE83596-2 6	<20    22	[NR]	[NR]
TRH C15 - C28	mg/kg	SE83596-2 6	110    130    RPD: 17	[NR]	[NR]
TRH C29 - C36	mg/kg	SE83596-2 6	71    83    RPD: 16	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted		SE83596-2 6	30/11/2010    30/11/2010
Date Analysed		SE83596-2 6	30/11/2010    30/11/2010
Naphthalene	mg/kg	SE83596-2 6	<0.10    <0.10
Acenaphthylene	mg/kg	SE83596-2 6	0.13    0.13    RPD: 0
Acenaphthene	mg/kg	SE83596-2 6	<0.10    <0.10
Fluorene	mg/kg	SE83596-2 6	<0.10    <0.10
Phenanthrene	mg/kg	SE83596-2 6	0.42    0.41    RPD: 2
Anthracene	mg/kg	SE83596-2 6	<0.10    <0.10
Fluoranthene	mg/kg	SE83596-2 6	0.88    0.89    RPD: 1
Pyrene	mg/kg	SE83596-2 6	0.76    0.74    RPD: 3
Benzo[a]anthracene	mg/kg	SE83596-2 6	0.30    0.34    RPD: 13



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QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Chrysene	mg/kg	SE83596-2 6	0.32    0.31    RPD: 3
Benzo[b]fluoranthene	mg/kg	SE83596-2 6	0.5    0.5    RPD: 0
Benzo[k]fluoranthene	mg/kg	SE83596-2 6	0.21    0.20    RPD: 5
Benzo[a]pyrene	mg/kg	SE83596-2 6	0.39    0.40    RPD: 3
Indeno[123-cd]pyrene	mg/kg	SE83596-2 6	0.22    0.23    RPD: 4
Dibenzo[ah]anthracene	mg/kg	SE83596-2 6	<0.10    <0.10
Benzo[ghi]perylene	mg/kg	SE83596-2 6	0.28    0.29    RPD: 4
Total PAHs (sum)	mg/kg	SE83596-2 6	<4.93    <4.99
Nitrobenzene-d5	%	SE83596-2 6	102    105    RPD: 3
2-Fluorobiphenyl	%	SE83596-2 6	118    119    RPD: 1
<i>p</i> -Terphenyl- <i>d</i> 14	%	SE83596-2 6	104    103    RPD: 1

QUALITY CONTROL Metals in Soil by ICP-OES	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (Metals)		SE83596-2 2	30/11/2010    30/11/2010
Date Analysed (Metals)		SE83596-2 2	30/11/2010    30/11/2010
Arsenic	mg/kg	SE83596-2 2	7    8    RPD: 13
Cadmium	mg/kg	SE83596-2 2	0.5    0.6    RPD: 18
Chromium	mg/kg	SE83596-2 2	19    20    RPD: 5
Copper	mg/kg	SE83596-2 2	18    16    RPD: 12
Lead	mg/kg	SE83596-2 2	56    52    RPD: 7
Nickel	mg/kg	SE83596-2 2	4.3    5.3    RPD: 21
Zinc	mg/kg	SE83596-2 2	60    56    RPD: 7



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QUALITY CONTROL Mercury Cold Vapor/Hg Analyser	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (Mercury)		SE83596-2 2	1/12/2010    1/12/2010
Date Analysed (Mercury)		SE83596-2 2	1/12/2010    1/12/2010
Mercury	mg/kg	SE83596-2 2	0.15    0.17    RPD: 13

QUALITY CONTROL BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (BTEX)		SE83596-1 9	30/11/2010    30/11/2010
Date Analysed (BTEX)		SE83596-1 9	30/11/2010    30/11/2010
Benzene	mg/kg	SE83596-1 9	<0.1    <0.1
Toluene	mg/kg	SE83596-1 9	<0.1    <0.1
Ethylbenzene	mg/kg	SE83596-1 9	<0.1    <0.1
Total Xylenes	mg/kg	SE83596-1 9	<0.3    <0.3
BTEX Surrogate (%)	%	SE83596-1 9	88    88    RPD: 0



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QUALITY CONTROL TRH in soil with..C6-C9 by P/T	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)		SE83596-1 9	30/11/2010    30/11/2010
Date Analysed (TRH C6-C9 PT)		SE83596-1 9	30/11/2010    30/11/2010
TRH C6 - C9 P&T	mg/kg	SE83596-1 9	<20    <20
Date Extracted (TRH C10-C36)		SE83596-1 9	30/11/2010    30/11/2010
Date Analysed (TRH C10-C36)		SE83596-1 9	30/11/2010    30/11/2010
TRH C10 - C14	mg/kg	SE83596-1 9	<20    [N/T]
TRH C15 - C28	mg/kg	SE83596-1 9	<50    [N/T]
TRH C29 - C36	mg/kg	SE83596-1 9	<50    [N/T]

QUALITY CONTROL BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (BTEX)		SE83596-4 0	30/11/2010    30/11/2010
Date Analysed (BTEX)		SE83596-4 0	30/11/2010    30/11/2010
Benzene	mg/kg	SE83596-4 0	<0.1    <0.1
Toluene	mg/kg	SE83596-4 0	<0.1    <0.1
Ethylbenzene	mg/kg	SE83596-4 0	<0.1    <0.1
Total Xylenes	mg/kg	SE83596-4 0	<0.3    <0.3
BTEX Surrogate (%)	%	SE83596-4 0	73    80    RPD: 9



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QUALITY CONTROL TRH in soil with..C6-C9 by P/T	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)		SE83596-4 0	30/11/2010    30/11/2010
Date Analysed (TRH C6-C9 PT)		SE83596-4 0	30/11/2010    30/11/2010
TRH C6 - C9 P&T	mg/kg	SE83596-4 0	<20    <20
Date Extracted (TRH C10-C36)		SE83596-4 0	30/11/2010    30/11/2010
Date Analysed (TRH C10-C36)		SE83596-4 0	30/11/2010    30/11/2010
TRH C10 - C14	mg/kg	SE83596-4 0	<20    [N/T]
TRH C15 - C28	mg/kg	SE83596-4 0	<50    [N/T]
TRH C29 - C36	mg/kg	SE83596-4 0	<50    [N/T]



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**Result Codes**

[INS] : Insufficient Sample for this test  
[NR] : Not Requested  
[NT] : Not tested  
[LOR] : Limit of reporting

[RPD] : Relative Percentage Difference  
\* : Not part of NATA Accreditation  
[N/A] : Not Applicable

**Report Comments**

Sampled by the client

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy.

This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

No respirable fibres detected using trace analysis technique.

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

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

Date Organics extraction commenced:

NATA Corporate Accreditation No. 2562, Site No 4354

Note: Test results are not corrected for recovery (excluding Air-toxics and Dioxins/Furans\*)

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**Quality Control Protocol**

**Method Blank:** An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.

**Duplicate:** A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.

**Surrogate Spike:** An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.

**Internal Standard:** Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.

**Laboratory Control Sample:** A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.

**Matrix Spike:** An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

**Quality Acceptance Criteria**

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: <http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-09.pdf>



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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

92011



Philippines: ☐ 3rd Floor, JMT Bldg, ADB Ave, Ortigas Ctr, Pasig City, Metro Manila, Philippines ..... Tel (+63) (2) 638 9666 ..... Fax (+63) (2) 687 3518  
 ACT: ☐ 2/54 Northbourne Ave, Canberra ACT 2601 ..... Tel (02) 6248 7366 ..... Fax (02) 6248 7157  
 NSW: ☒ Level 1, 3 Rider Blvd, Rhodes NSW 2138 ..... Tel (02) 8083 1600 ..... Fax (02) 8765 0762  
☐ Lot 101, 19 Warabrook Blvd, Warabrook NSW 2304 ..... Tel (02) 4016 2300 ..... Fax (02) 4016 2380  
☐ 1/222 Berkeley Rd, Unanderra NSW 2526 ..... Tel (02) 4272 6071 ..... Fax (02) 4272 6075

QLD: ☐ 47 Doggett St, Newstead QLD 4006 ..... Tel (07) 3608 2500 ..... Fax (07) 3852 2805  
 SA: ☐ Level 1, 2-3 Greenhill Rd, Wayville SA 5034 ..... Tel (08) 7221 3500 ..... Fax (08) 8172 1968  
 TAS: ☐ Coffey Business Centre, 2 Melville St, Hobart TAS 7000 ..... Tel (03) 6108 0100 ..... Fax (03) 6108 0199  
 VIC: ☐ 126 Trenerry Cres, Abbotsford VIC 3067 ..... Tel (03) 9473 1400 ..... Fax (03) 9473 1450  
☐ Level 1, 23 West Pyans St, Newtown VIC 3220 ..... Tel (03) 5215 4600 ..... Fax (03) 5224 1368  
 WA: ☐ 61 Duke St, Albany WA 6330 ..... Tel (08) 9892 6400 ..... Fax (08) 9892 6444  
☐ Suite 2, 53 Burswood Rd, Burswood WA 6100 ..... Tel (08) 9355 7100 ..... Fax (08) 9355 7111  
☐ Suite 3 & 4, 236 Naturaliste Tce, Dunsborough WA 6281 ..... Tel (08) 9756 7869 ..... Fax (08) 9756 8878

Project No: ENAURH004083AB

Task No:

Project Name: SYDNEY ADVENTIST HOSPITAL

Laboratory: SGS / MET for QCIA phase

Samplers Name: JOSH GIEVIN

Project Manager: MARTIN DE SILVA

Special Instructions:

24 hour turnaround please.  
 Forward QCIA to MET please.

Lab. No.	Sample ID	Sample Location	Sample Depth	Sample Date	Time	Matrix (Soil, etc)	Container Type & Preservative*	T-A-T (Specify)	Analysis Request Section	NOTES
1	MW/D1	MW/D1	N/A	30/11/10		WATER	2V, 1N, 1G	24hr	BTEX / TPH	
2	MW/D2	MW/D2	N/A	"		"	2V, 1N, 1G		METALS (Specify)	
3	MW/I2	MW/I2	N/A	"		"	2V, 1N, 1G		PAHs / PHENOLS	
4	QCI	—	N/A	"		"	2V, 1N, 1G		OCs / OPs	
	QCIA	—	N/A	"		"	2V, 1N, 1G			

RELINQUISHED BY:

RECEIVED BY:

Signature: [Signature]

Date: 30/11/10

Company: COFFEY ENV.

Signature: [Signature]

Date: 30/11/10

Company: [Signature]

Signature:

Date:

Time: 1600

Company:

Signature:

Date:

Time:

Company:

\* Container Type & Preservation Codes: P - Plastic, G - Solvent Washed Acid Rinsed Glass Bottle, V - Vial, N - Nitric Acid Preserved  
 C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice

Sample Receipt Advice: (Lab Use Only)

All Samples Received in Good Condition ... ☒All Documentation is in Proper Order ... ☒Samples Received Properly Chilled ... ☒

Lab. Ref/Batch No.

5F 23644



## **AU.SampleReceipt.Sydney (Sydney)**

---

**From:** AU.SampleReceipt.Sydney (Sydney)  
**Sent:** Tuesday, 30 November 2010 4:38 PM  
**To:** 'Nalin\_DeSilva@coffey.com'  
**Subject:** ENAURHOD04083AB-SAH, COC#92011. SE83644 - MW112-Incomplete set of bottles supplied  
**Attachments:** SE83644\_COC.pdf

Hi Nalin,

SGS has just received samples related to COC attached.

Due to the lateness in the day the results will be issued on Thursday 02/12/2010 on a 1day TAT.

Further more the COC states that 2vials + 1 Natural bottle was received for "MW112". Please note that the glass amber and 1 Natural bottle were both not received. This sample id only had the vials delivered. As such BTEX and VTRH (TRHC6-C9) can only be analysed.

Kind Regards

**Angela Mamalicos**  
**Environmental Services**  
Sample Administration Manager

**SGS Australia Pty Ltd**  
Unit 16, 33 Maddox St  
Alexandria, NSW, 2015

Phone: +61 (0)2 8594 0400  
Fax: +61 (0)2 8594 0499  
E-mail: [au.samplereceipt.sydney@sgs.com](mailto:au.samplereceipt.sydney@sgs.com)

## Client Details

Requested By : **Nalin De Silva**  
 Client : Coffey Environments Pty Ltd  
 Contact : Nalin De Silva  
 Address : Level 1, 3 Rider Boulevard  
 RHODES NSW 2138

Email : Nalin\_DeSilva@coffey.com  
 Telephone : 02 8083 1600  
 Facsimile : 02 8765 0762

Project : ENAURHOD04083AB - Sydney Adventist Hospital  
 Order Number : 92011  
 Samples : 4 Waters

## Laboratory Details

Laboratory : SGS Environmental Services  
 Manager : Edward Ibrahim  
 Address : Unit 16, 33 Maddox Street  
 Alexandria NSW 2015

Email : au.samplerreceipt.sydney@sgs.com  
 Telephone : 61 2 8594 0400  
 Facsimile : 61 2 8594 0499

Report No : **SE83644**  
 No. of Samples : 4  
 Due Date : 2/12/2010

Date Instructions Received : 30/11/2010  
 Sample Receipt Date : 30/11/2010

Samples received in good order : YES (see below)  
 Samples received without headspace : YES  
 Upon receipt sample temperature : Cool  
 Sample containers provided by : SGS  
 Turnaround time requested : 1 Day

Samples received in correct container: YES  
 Sufficient quantity supplied : NO  
 Cooling Method : Ice  
 Samples clearly Labelled : YES  
 Completed documentation received : YES

Samples will be held for 1 month for water samples and 3 months for soil samples from date of receipt of samples, unless otherwise instructed.

## Comments

Samples received at SGS 30/11/2010@4.15pm.

Sample ID "MW112" - 2 glass vials only receipted.

As such BTEX + VTRH (TRHC6-C9) possible only.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

**The signed chain of custody will be returned to you with the original report.**

**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83644  
Project : ENAURHOD04083AB - Sydney Adventist Hospital

**Summary of Samples and Requested Analysis**

The table below represents SGS Environmental Service's understanding and interpretation of the customer supplied sample request.

Please indicate ASAP if your request differs from these details.

Testing shall commence immediately as per this table, unless the customer intervenes with a correction prior to testing.

Note that a small X in the table below indicates some testing has not been requested in the package.

Sample No.	Description	Metals Prep & Inorganics - All	BTEX in Water (µg/L)	TRH C6-C9 by P/T ONLY in water	TRH in Water (Semi Volatile)	PAHs-Ultra low -ANZECC99%/ADWG	Phenols in Water	Trace HM (ICP-MS)-Dissolved	Mercury Cold Vapor/Hg Analyser
1	MW101	X	X	X	X	X	X	X	X
2	MW102	X	X	X	X	X	X	X	X
3	MW112		X	X					
4	QC1	X	X	X	X	X	X	X	X

Sample No.	Description
1	MW101
2	MW102
3	MW112
4	QC1



## ANALYTICAL REPORT

2 December 2010

**Coffey Environments Pty Ltd**

Level 1, 3 Rider Boulevard

RHODES

NSW 2138

**Attention:** Nalin De Silva

Your Reference: ENAURHOD04083AB - Sydney Adventist Hospital

Our Reference: SE83644

Samples: 4 Waters

Received: 30/11/2010

Preliminary Report Sent: Not Issued

These samples were analysed in accordance with your written instructions.

For and on Behalf of:

SGS ENVIRONMENTAL SERVICES

Sample Receipt: Angela Mamalicos

AU.SampleReceipt.Sydney@sgs.com

Production Manager: Huong Crawford

Huong.Crawford@sgs.com

*Results Approved and/or Authorised by:*

**Dong Liang**  
Quality Manager

**Ly Kim Ha**  
Organics Signatory

**Huong Crawford**  
Metals Signatory



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WORLD RECOGNISED  
ACCREDITATION

SGS Australia Pty Ltd  
ABN 44 000 964 278

Environmental Services Unit 16/33 Maddox Street Alexandria NSW 2015 Australia  
t +61 (0)2 8594 0400 f + 61 (0)2 8594 0499  
www.au.sgs.com

BTEX in Water (µg/L)					
Our Reference:	UNITS	SE83644-1	SE83644-2	SE83644-3	SE83644-4
Your Reference	-----	MW101	MW102	MW112	QC1
Sample Matrix	-----	Water	Water	Water	Water
Date Sampled		30/11/2010	30/11/2010	30/11/2010	30/11/2010
Location		MW101	MW102	MW112	-
Date Extracted (BTEX)		2/12/2010	2/12/2010	2/12/2010	2/12/2010
Date Analysed (BTEX)		2/12/2010	2/12/2010	2/12/2010	2/12/2010
Benzene	µg/L	<0.5	<0.5	1	<0.5
Toluene	µg/L	<0.5	<0.5	0.9	<0.5
Ethylbenzene	µg/L	<0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	<1.5	<1.5	<1.5	<1.5
Surrogate	%	111	128	71	68

TRH C6-C9 by P/T ONLY-in water					
Our Reference:	UNITS	SE83644-1	SE83644-2	SE83644-3	SE83644-4
Your Reference	-----	MW101	MW102	MW112	QC1
Sample Matrix	-----	Water	Water	Water	Water
Date Sampled		30/11/2010	30/11/2010	30/11/2010	30/11/2010
Location		MW101	MW102	MW112	-
Date Extracted (TRH C6-C9 PT)		2/12/2010	2/12/2010	2/12/2010	2/12/2010
Date Analysed (TRH C6-C9 PT)		2/12/2010	2/12/2010	2/12/2010	2/12/2010
TRH C <sub>6</sub> - C <sub>9</sub> P&T in µg/L	µg/L	<40	<40	<40	<40



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TRH in Water (Semi Volatile)				
Our Reference:	UNITS	SE83644-1	SE83644-2	SE83644-4
Your Reference	-----	MW101	MW102	QC1
Sample Matrix	-----	Water	Water	Water
Date Sampled		30/11/2010	30/11/2010	30/11/2010
Location		MW101	MW102	-
Date Extracted (TRH C10-C36)		1/12/2010	1/12/2010	1/12/2010
Date Analysed (TRH C10-C36)		2/12/2010	2/12/2010	2/12/2010
TRH C <sub>10</sub> - C <sub>14</sub>	µg/L	<100	<100	<100
TRH C <sub>15</sub> - C <sub>28</sub>	µg/L	<200	<200	<200
TRH C <sub>29</sub> - C <sub>36</sub>	µg/L	<200	<200	<200



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PAHs-Ultra low level-ANZECC99% /ADWC				
Our Reference:	UNITS	SE83644-1	SE83644-2	SE83644-4
Your Reference	-----	MW101	MW102	QC1
Sample Matrix	-----	Water	Water	Water
Date Sampled		30/11/2010	30/11/2010	30/11/2010
Location		MW101	MW102	-
Date Extracted		1/12/2010	1/12/2010	1/12/2010
Date Analysed		2/12/2010	2/12/2010	2/12/2010
Naphthalene	µg/L	<0.02	0.03	0.02
Acenaphthylene	µg/L	<0.01	<0.01	<0.01
Acenaphthene	µg/L	0.03	0.06	0.04
Fluorene	µg/L	0.06	0.08	0.07
Phenanthrene	µg/L	0.06	0.08	0.07
Anthracene	µg/L	0.02	0.02	0.02
Fluoranthene	µg/L	0.01	0.01	<0.01
Pyrene	µg/L	<0.01	<0.01	<0.01
Benzo[a]anthracene	µg/L	<0.01	<0.01	<0.01
Chrysene	µg/L	<0.01	<0.01	<0.01
Benzo[b]fluoranthene	µg/L	<0.01	<0.01	<0.01
Benzo[k]fluoranthene	µg/L	<0.01	<0.01	<0.01
Benzo[a]pyrene	µg/L	<0.01	<0.01	<0.01
Indeno[123-cd]pyrene	µg/L	<0.01	<0.01	<0.01
Dibenzo[ah]anthracene	µg/L	<0.01	<0.01	<0.01
Benzo[ghi]perylene	µg/L	<0.01	<0.01	<0.01
Total PAHs (sum)	µg/L	<0.30	<0.37	<0.32
<i>p</i> -Terphenyl- <i>d</i> 14	%	86	106	104
Nitrobenzene- <i>d</i> 5	%	94	88	94
2-Fluorobiphenyl	%	88	94	88



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Phenols in Water	UNITS	SE83644-1	SE83644-2	SE83644-4
Our Reference:	-----	MW101	MW102	QC1
Your Reference	-----	Water	Water	Water
Sample Matrix		30/11/2010	30/11/2010	30/11/2010
Date Sampled		MW101	MW102	-
Location				
Date Extracted (Phenols)		2/12/2010	2/12/2010	2/12/2010
Date Analysed (Phenols)		2/12/2010	2/12/2010	2/12/2010
Total Phenolics (as Phenol)	mg/L	<0.01	<0.01	<0.01



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Trace HM (ICP-MS)-Dissolved				
Our Reference:	UNITS	SE83644-1	SE83644-2	SE83644-4
Your Reference	-----	MW101	MW102	QC1
Sample Matrix	-----	Water	Water	Water
Date Sampled		30/11/2010	30/11/2010	30/11/2010
Location		MW101	MW102	-
Date Extracted (Metals-ICPMS)		1/12/2010	1/12/2010	1/12/2010
Date Analysed (Metals-ICPMS)		1/12/2010	1/12/2010	1/12/2010
Arsenic	µg/L	<1	<1	<1
Cadmium	µg/L	<0.1	<0.1	<0.1
Chromium	µg/L	<1	<1	<1
Copper	µg/L	2	3	2
Lead	µg/L	<1	<1	<1
Nickel	µg/L	7	5	7
Zinc	µg/L	320	270	370



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Mercury Cold Vapor/Hg Analyser				
Our Reference:	UNITS	SE83644-1	SE83644-2	SE83644-4
Your Reference	-----	MW101	MW102	QC1
Sample Matrix	-----	Water	Water	Water
Date Sampled		30/11/2010	30/11/2010	30/11/2010
Location		MW101	MW102	-
Date Extracted (Mercury)		2/12/2010	2/12/2010	2/12/2010
Date Analysed (Mercury)		2/12/2010	2/12/2010	2/12/2010
Mercury (Dissolved)	mg/L	<0.0001	<0.0001	<0.0001



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Method ID	Methodology Summary
<b>SEO-018</b>	BTEX / C6-C9 Hydrocarbons - Soil samples are extracted with methanol, purged and concentrated by a purge and trap apparatus, and then analysed using GC/MS technique. Water samples undergo the same analysis without the extraction step. Based on USEPA 5030B and 8260B
<b>SEO-020</b>	Total Recoverable Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/FID. Where applicable Solid Phase Extraction Manifold technique is used for aliphatic / aromatic fractionation
<b>PEO-720</b>	Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates, and Speciated Phenols in soils, sediments and waters are determined by GC/MS technique following appropriate solvent extraction process.
<b>AN289</b>	Total Phenols - Determined by colourimetric method using Discrete Analyser, following distillation of the sample. Based on APHA 21st Edition 5530B and 5530C
<b>AN318</b>	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020.
<b>SEM-005</b>	Mercury - determined by Cold-Vapour AAS following appropriate sample preparation or digestion process. Based on APHA 21st Edition, 3112B

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
BTEX in Water (µg/L)								
Date Extracted (BTEX)				02/12/10	[NT]	[NT]	LCS	02/12/10
Date Analysed (BTEX)				02/12/10	[NT]	[NT]	LCS	02/12/10
Benzene	µg/L	0.5	SEO-018	<0.5	[NT]	[NT]	LCS	99%
Toluene	µg/L	0.5	SEO-018	<0.5	[NT]	[NT]	LCS	99%
Ethylbenzene	µg/L	0.5	SEO-018	<0.5	[NT]	[NT]	LCS	97%
Total Xylenes	µg/L	1.5	SEO-018	<1.5	[NT]	[NT]	LCS	95%
Surrogate	%	0	SEO-018	125	[NT]	[NT]	LCS	73%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
TRH C6-C9 by P/T ONLY-in water								
Date Extracted (TRH C6-C9 PT)				02/12/10	[NT]	[NT]	LCS	02/12/10
Date Analysed (TRH C6-C9 PT)				02/12/10	[NT]	[NT]	LCS	02/12/10
TRH C6 - C9 P&T in µg/L	µg/L	40	SEO-018	<40	[NT]	[NT]	LCS	121%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
TRH in Water (Semi Volatile)								
Date Extracted (TRH C10-C36)				1/12/10	[NT]	[NT]	LCS	1/12/10
Date Analysed (TRH C10-C36)				02/12/10	[NT]	[NT]	LCS	02/12/10
TRH C10 - C14	µg/L	100	SEO-020	<100	[NT]	[NT]	LCS	68%
TRH C15 - C28	µg/L	200	SEO-020	<200	[NT]	[NT]	LCS	74%
TRH C29 - C36	µg/L	200	SEO-020	<200	[NT]	[NT]	LCS	105%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
PAHs-Ultra low level-ANZECC99% /ADWG								
Date Extracted				01/12/10	[NT]	[NT]	LCS	01/12/10
Date Analysed				02/12/10	[NT]	[NT]	LCS	02/12/10
Naphthalene	µg/L	0.02	PEO-720	<0.02	[NT]	[NT]	LCS	89%
Acenaphthylene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	87%
Acenaphthene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	105%
Fluorene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Phenanthrene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	100%
Anthracene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	94%
Fluoranthene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	100%
Pyrene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	100%
Benzo[a]anthracene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Benzo[b]fluoranthene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Benzo[k]fluoranthene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Benzo[a]pyrene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	112%
Indeno[123-cd]pyrene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Dibenzo[ah]anthracene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Benzo[ghi]perylene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Total PAHs (sum)	µg/L	0.16	PEO-720	<0.2	[NT]	[NT]	[NR]	[NR]
<i>p</i> -Terphenyl- <i>d</i> <sub>14</sub>	%	0	PEO-720	120	[NT]	[NT]	LCS	90%
Nitrobenzene- <i>d</i> <sub>5</sub>	%	0	PEO-720	122	[NT]	[NT]	LCS	86%
2-Fluorobiphenyl	%	0	PEO-720	116	[NT]	[NT]	LCS	93%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank
Phenols in Water				
Date Extracted (Phenols)				2/12/2010
Date Analysed (Phenols)				2/12/2010
Total Phenolics (as Phenol)	mg/L	0.01	AN289	<0.01

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Trace HM (ICP-MS)-Dissolved								
Date Extracted (Metals-ICPMS)				1/12/2010	[NT]	[NT]	LCS	1/12/2010
Date Analysed (Metals-ICPMS)				1/12/2010	[NT]	[NT]	LCS	1/12/2010
Arsenic	µg/L	1	AN318	<1	[NT]	[NT]	LCS	97%
Cadmium	µg/L	0.1	AN318	<0.1	[NT]	[NT]	LCS	101%
Chromium	µg/L	1	AN318	<1	[NT]	[NT]	LCS	100%
Copper	µg/L	1	AN318	<1	[NT]	[NT]	LCS	103%
Lead	µg/L	1	AN318	<1	[NT]	[NT]	LCS	101%
Nickel	µg/L	1	AN318	<1	[NT]	[NT]	LCS	103%
Zinc	µg/L	1	AN318	<1	[NT]	[NT]	LCS	102%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Mercury Cold Vapor/Hg Analyser								
Date Extracted (Mercury)				2/12/2010	[NT]	[NT]	LCS	2/12/2010
Date Analysed (Mercury)				2/12/2010	[NT]	[NT]	LCS	2/12/2010
Mercury (Dissolved)	mg/L	0.0001	SEM-005	<0.0001	[NT]	[NT]	LCS	113%

**Result Codes**

[INS] : Insufficient Sample for this test  
[NR] : Not Requested  
[NT] : Not tested  
[LOR] : Limit of reporting

[RPD] : Relative Percentage Difference  
\* : Not part of NATA Accreditation  
[N/A] : Not Applicable

**Report Comments**

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

Date Organics extraction commenced:

NATA Corporate Accreditation No. 2562, Site No 4354

Note: Test results are not corrected for recovery (excluding Air-toxics and Dioxins/Furans\*)

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**Quality Control Protocol**

**Method Blank:** An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.

**Duplicate:** A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.

**Surrogate Spike:** An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.

**Internal Standard:** Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.

**Laboratory Control Sample:** A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.

**Matrix Spike:** An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

**Quality Acceptance Criteria**

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: <http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-09.pdf>



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[illegible]

SC-2372.2.



**AU.SampleReceipt.Sydney (Sydney)**

---

**From:** Josh Girvin [Josh\_Girvin@coffey.com]  
**Sent:** Friday, 3 December 2010 2:05 PM  
**To:** AU.SampleReceipt.Sydney (Sydney)  
**Subject:** RE: Schedule of analysis for "ENAU RHOD04083AB - Sydney Adventist Hospital"

Yes, the HCl bottle was used in error, apologies. Please proceed with the analyses as described. We will endeavour to provide larger samples where possible, although sample was limited in this instance.

Thank you,

---

**From:** AU.SampleReceipt.Sydney (Sydney) [mailto:AU.SampleReceipt.Sydney@sgs.com]  
**Sent:** Friday, 3 December 2010 1:44 PM  
**To:** Josh Girvin  
**Subject:** RE: Schedule of analysis for "ENAU RHOD04083AB - Sydney Adventist Hospital"

Josh,

By using 1L Amber bottle and vials we can perform the analysis as requested however there leaves no room for repeat or confirmation on results. Due to the limited sample supplied the extraction is a one shot deal and extra care is required by our laboratory staff to not evaporate the sample entirely during the "blow down" stage of the trace analysis of PAHs.

Upon further investigation it was observed that a HCL bottle was received in place of the nitric bottle for metals analysis.

With this in mind SGS will be taking a portion from the 1L Amber bottle (Filtering and acidifying the sample) for metals analysis also. HCL preserved bottle is inappropriate for metals analysis.

Ideally in future we recommend that 2 x 1L Amber bottles be supplied. Due to the limitations above extra care and analysis becomes more tedious.

As per your request SGS will proceed with :-

MW112 (1 water sample, comprising 2 vials, 1 filtered nitric plastic (**HCL DELIVERED NOT NITRIC**) and 1 amber)

- TPH (C10-C36)
- PAH Ultratrace
- 8 metals

Kind Regards

Angela Mamalicos  
**Environmental Services**  
 Sample Administration Manager

Phone: +61 (0)2 8594 0400

---

**From:** Josh Girvin [mailto:Josh\_Girvin@coffey.com]  
**Sent:** Friday, 3 December 2010 10:43 AM  
**To:** AU.SampleReceipt.Sydney (Sydney); Nalin De Silva  
**Subject:** RE: Schedule of analysis for "ENAU RHOD04083AB - Sydney Adventist Hospital"

Hi,

I'm just checking our previous data...

We seem to have C6-9, C10-36, BTEX, and "PAHs-Ultra low level-ANZECC99% /ADWG" in Report SE83644. This was from 1L amber and 2 vials.

3/12/2010

**AU.SampleReceipt.Sydney (Sydney)**

---

**From:** Josh Girvin [Josh\_Girvin@coffey.com]  
**Sent:** Friday, 3 December 2010 2:20 PM  
**To:** AU.SampleReceipt.Sydney (Sydney)  
**Subject:** RE: Schedule of analysis for "ENAU RHOD04083AB - Sydney Adventist Hospital"

Yes, please include the TRH C6-C9 thank you.

---

**From:** AU.SampleReceipt.Sydney (Sydney) [mailto:AU.SampleReceipt.Sydney@sgs.com]  
**Sent:** Friday, 3 December 2010 1:59 PM  
**To:** Josh Girvin  
**Subject:** FW: Schedule of analysis for "ENAU RHOD04083AB - Sydney Adventist Hospital"

Hi Josh,  
 Further to the below and as per your discussion with Emily Yin, you had stated that TRH C6-C9 was to be included in the analysis for MW112.  
 We will add this to the testing scheme for this sample and analysis will be taken from the vials supplied.  
 If this differs to your intentions please advise as soon as possible.

Kind Regards

**Angela Mamalicos**  
**Environmental Services**  
 Sample Administration Manager

Phone: +61 (0)2 8594 0400

---

**From:** AU.SampleReceipt.Sydney (Sydney)  
**Sent:** Friday, 3 December 2010 1:44 PM  
**To:** 'Josh Girvin'  
**Subject:** RE: Schedule of analysis for "ENAU RHOD04083AB - Sydney Adventist Hospital"

Josh,  
 By using 1L Amber bottle and vials we can perform the analysis as requested however there leaves no room for repeat or confirmation on results. Due to the limited sample supplied the extraction is a one shot deal and extra care is required by our laboratory staff to not evaporate the sample entirely during the "blow down" stage of the trace analysis of PAHs.  
 Upon further investigation it was observed that a HCL bottle was received in place of the nitric bottle for metals analysis.

With this in mind SGS will be taking a portion from the 1L Amber bottle (Filtering and acidifying the sample) for metals analysis also. HCL preserved bottle is inappropriate for metals analysis.

Ideally in future we recommend that 2 x 1L Amber bottles be supplied. Due to the limitations above extra care and analysis becomes more tedious.

As per your request SGS will proceed with :-

- MW112 (1 water sample, comprising 2 vials, 1 filtered nitric plastic (HCL DELIVERED NOT NITRIC) and 1 amber)
- TPH (C10-C36)
  - PAH Ultratrace
  - 8 metals

Kind Regards

**Angela Mamalicos**

3/12/2010

**Environmental Services**  
Sample Administration Manager

Phone: +61 (0)2 8594 0400

---

**From:** Josh Girvin [mailto:Josh\_Girvin@coffey.com]  
**Sent:** Friday, 3 December 2010 10:43 AM  
**To:** AU.SampleReceipt.Sydney (Sydney); Nalin De Silva  
**Subject:** RE: Schedule of analysis for "ENAU RHOD04083AB - Sydney Adventist Hospital"

Hi,

I'm just checking our previous data...

We seem to have C6-9, C10-36, BTEX, and "PAHs-Ultra low level-ANZECC99% /ADWG" in Report SE83644. This was from 1L amber and 2 vials.

If it is possible to have the same as in this report please? If this is not possible let me know and we will re-schedule.

Sorry for the confusion,

Josh

---

**From:** AU.SampleReceipt.Sydney (Sydney) [mailto:AU.SampleReceipt.Sydney@sgs.com]  
**Sent:** Friday, 3 December 2010 10:19 AM  
**To:** Josh Girvin; Nalin De Silva  
**Subject:** RE: Schedule of analysis for "ENAU RHOD04083AB - Sydney Adventist Hospital"  
**Importance:** High

Thanks.

For MW112 only one 1L amber bottle received. You have requested TPH (C10-C36) and PAH Ultratrace. There is insufficient sample to do both.

For PAH Ultratrace, we need 1L amber bottle on its own. Another 500mL for TPH (C10-C36).

There is enough to do TPH (C6-C9) and PAH Ultratrace. Is this what you want or do you want to change to normal level PAH?

Please reply as soon as possible as this is an urgent job.

Kind Regards

Emily Yin  
**Environmental Services**  
Sample Administration Officer

Phone: +61 (0)2 8594 0400

---

**From:** Josh Girvin [mailto:Josh\_Girvin@coffey.com]  
**Sent:** Friday, 3 December 2010 9:48 AM  
**To:** AU.SampleReceipt.Sydney (Sydney)  
**Subject:** RE: Schedule of analysis for "ENAU RHOD04083AB - Sydney Adventist Hospital"

I had a feeling I had forgotten something!

Could we sub-sample and have the separate non-NATA report please.

3/12/2010



Thanks,

---

**From:** AU.SampleReceipt.Sydney (Sydney) [mailto:AU.SampleReceipt.Sydney@sgs.com]  
**Sent:** Friday, 3 December 2010 9:40 AM  
**To:** Josh Girvin; Nalin De Silva  
**Subject:** RE: Schedule of analysis for "ENAU RHOD04083AB - Sydney Adventist Hospital"

Thanks Josh.

A separate homogenised portion (~50g) was not supplied for Asbestos analysis.

To meet our NATA requirements we are unable to subsample from the glass jar supplied.

Please confirm if additional sample will be supplied for the samples marked for Asbestos otherwise SGS will be unable to proceed with the request of Asbestos analysis on a NATA endorsed report.

Alternately if additional sample cannot be supplied then SGS is able to subsample from the sample we have at hand however a NON-NATA endorsed report will be issued separately for asbestos analysis.

Please confirm which option will be undertaken.

Kind Regards

Emily Yin  
**Environmental Services**  
 Sample Administration Officer

Phone: +61 (0)2 8594 0400

---

**From:** Josh Girvin [mailto:Josh\_Girvin@coffey.com]  
**Sent:** Friday, 3 December 2010 9:20 AM  
**To:** AU.SampleReceipt.Sydney (Sydney)  
**Cc:** Nalin De Silva  
**Subject:** Schedule of analysis for "ENAU RHOD04083AB - Sydney Adventist Hospital"

Good morning,

With reference to the samples for "ENAU RHOD04083AB – Sydney Adventist Hospital", which I dropped off yesterday evening, please could we schedule the following tests:

**MW112** (1 water sample, comprising 2 vials, 1 filtered nitric plastic and 1 amber)

- TPH (C10-C36)
- PAH Ultratrace
- 8 metals

**SS123, SS124, SS125, SS126** (4 soil samples)

- Asbestos
- TPH BTEX
- 8 metals
- PAH Ultratrace

**QC** Please could you rename "QC" as "QC12" and schedule for the same tests as listed above.

All on a 24 hour turnaround please. We understand that we will get the results on Monday.

Any questions, please get in touch.

Thanks,

3/12/2010



## Client Details

Requested By : **Nalin De Silva**  
 Client : Coffey Environments Pty Ltd  
 Contact : Nalin De Silva  
 Address : Level 1, 3 Rider Boulevard  
 RHODES NSW 2138

Email : Nalin\_DeSilva@coffey.com  
 Telephone : 02 8083 1600  
 Facsimile : 02 8765 0762

Project : ENAURHOD04083AB - Sydney Adventist Hospital  
 Order Number : 92012  
 Samples : 5 Soils, 1 Water

## Laboratory Details

Laboratory : SGS Environmental Services  
 Manager : Edward Ibrahim  
 Address : Unit 16, 33 Maddox Street  
 Alexandria NSW 2015

Email : au.samplerreceipt.sydney@sgs.com  
 Telephone : 61 2 8594 0400  
 Facsimile : 61 2 8594 0499

Report No : **SE83722**  
 No. of Samples : 6  
 Due Date : 6/12/2010

Date Instructions Received : 3/12/2010  
 Sample Receipt Date : 2/12/10

Samples received in good order : YES  
 Samples received without headspace : YES  
 Upon receipt sample temperature : Cool  
 Sample containers provided by : SGS  
 Turnaround time requested : 1 Day

Samples received in correct container : NO  
 Sufficient quantity supplied : YES  
 Cooling Method : Ice Pack  
 Samples clearly Labelled : YES  
 Completed documentation received : YES

Samples will be held for 1 month for water samples and 3 months for soil samples from date of receipt of samples, unless otherwise instructed.

## Comments

Filtration/Acidification of water for Dissolved Metals analysis conducted at SGS laboratory.

Field Filtered container not supplied by client.

For Asbestos results refer SE83722A.

Metals in water should be preserved in Nitric preserved bottle.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

**The signed chain of custody will be returned to you with the original report.**



**SAMPLE RECEIPT ADVICE (SRA) - continued**

Client : Coffey Environments Pty Ltd Report No : SE83722  
 Project : ENAURHOD04083AB - Sydney Adventist Hospital

**Summary of Samples and Requested Analysis**

The table below represents SGS Environmental Service's understanding and interpretation of the customer supplied sample request.

Please indicate ASAP if your request differs from these details.

Testing shall commence immediately as per this table, unless the customer intervenes with a correction prior to testing.

Note that a small X in the table below indicates some testing has not been requested in the package.

Sample No.	Description	Metals Prep & Inorganics - All	BTEX in Soil	TRH in soil with C6-C9 by P/T	PAHs in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	BTEX in Water (µg/L)	TRH in water with C6-C9 by P/T	PAHs-Ultra low -ANZECC99%/ADWG	Trace HM (ICP-MS)-Dissolved	Mercury Cold Vapor/Hg Analyser	Moisture
1	MW112	x						X	X	X	X	X	
2	SS123	x	X	X	X	X	X						X
3	SS124	x	X	X	X	X	X						X
4	SS125	x	X	X	X	X	X						X
5	SS126	x	X	X	X	X	X						X
6	QC12	x	X	X	X	X	X						X

Sample No.	Description
1	MW112
2	SS123
3	SS124
4	SS125
5	SS126
6	QC12



## ANALYTICAL REPORT

6 December 2010

**Coffey Environments Pty Ltd**

Level 1, 3 Rider Boulevard

RHODES

NSW 2138

**Attention:** Nalin De Silva

Your Reference: ENAURHOD04083AB-Sydney Adventist Hospital-Asbestos

Our Reference: SE83722A

Samples: 4 Soils

Received: 2/12/10

Preliminary Report Sent: Not Issued

These samples were analysed in accordance with your written instructions.

For and on Behalf of:

SGS ENVIRONMENTAL SERVICES

Client Services: Simon Matthews

Simon.Matthews@sgs.com

Sample Receipt: Angela Mamalicos

AU.SampleReceipt.Sydney@sgs.com

Laboratory Manager: Edward Ibrahim

Edward.Ibrahim@sgs.com

*This report has been authorised by the undersigned:*

**Ravee Sivasubramaniam**

Asbestos Signatory

Asbestos ID in soil					
Our Reference:	UNITS	SE83722A-2	SE83722A-3	SE83722A-4	SE83722A-5
Your Reference	-----	SS123	SS124	SS125	SS126
Sample Matrix	-----	Soil	Soil	Soil	Soil
Depth		0.05	0.05	0.05	0.05
Date Sampled		2/12/2010	2/12/2010	2/12/2010	2/12/2010
Location		SS123	SS124	SS125	SS126
Date Analysed		6/12/2010	6/12/2010	6/12/2010	6/12/2010
Sample Description		26g Soil	22g Soil	19g Soil	22g Soil
Asbestos ID in soil	-	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*	No asbestos detected Organic fibres detected*

Method ID	Methodology Summary
<b>AN602</b>	Analysed using in house method AN602 - Qualitative identification of Asbestos Fibres, Synthetic Mineral Fibres and Organic Fibres in bulk samples (including building materials and soils) using Polarised Light Microscopy and Dispersion Staining Techniques. Our NATA Accreditation does not currently cover the identification of Synthetic Mineral Fibres and Organic Fibres, however, according to new NATA requirements, the reporting of these fibres is compulsory if detected.

#### **Result Codes**

[INS]	: Insufficient Sample for this test	[RPD]	: Relative Percentage Difference
[NR]	: Not Requested	*	: Not part of NATA Accreditation
[NT]	: Not tested	[N/A]	: Not Applicable

#### **Report Comments**

Sampled by the client

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

No respirable fibres detected using trace analysis technique.

Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

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

Date Organics extraction commenced:

NATA Corporate Accreditation No. 2562, Site No 4354

Note: Test results are not corrected for recovery (excluding Air-toxics and Dioxins/Furans\*)

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#### **Quality Control Protocol**

**Method Blank:** An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.

**Duplicate:** A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.

**Surrogate Spike:** An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.

**Internal Standard:** Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.

**Laboratory Control Sample:** A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.

**Matrix Spike:** An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

#### **Quality Acceptance Criteria**

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: <http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-09.pdf>



## ANALYTICAL REPORT

6 December 2010

**Coffey Environments Pty Ltd**

Level 1, 3 Rider Boulevard

RHODES

NSW 2138

**Attention:** Nalin De Silva

Your Reference: ENAURHOD04083AB - Sydney Adventist Hospital

Our Reference: SE83722

Samples: 5 Soils, 1 Water

Received: 2/12/10

Preliminary Report Sent: Not Issued

These samples were analysed in accordance with your written instructions.

For and on Behalf of:

SGS ENVIRONMENTAL SERVICES

Sample Receipt: Angela Mamalicos

AU.SampleReceipt.Sydney@sgs.com

Production Manager: Huong Crawford

Huong.Crawford@sgs.com

*Results Approved and/or Authorised by:*

**Edward Ibrahim**  
Laboratory Manager

**Ly Kim Ha**  
Organics Signatory

**Huong Crawford**  
Metals Signatory



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ACCREDITATION

SGS Australia Pty Ltd  
ABN 44 000 964 278

Environmental Services Unit 16/33 Maddox Street Alexandria NSW 2015 Australia  
t +61 (0)2 8594 0400 f + 61 (0)2 8594 0499  
www.au.sgs.com



BTEX in Soil						
Our Reference:	UNITS	SE83722-2	SE83722-3	SE83722-4	SE83722-5	SE83722-6
Your Reference	-----	SS123	SS124	SS125	SS126	QC12
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Depth		0.05	0.05	0.05	0.05	-
Date Sampled		2/12/2010	2/12/2010	2/12/2010	2/12/2010	2/12/2010
Location		SS123	SS124	SS125	SS126	-
Date Extracted (BTEX)		3/12/2010	3/12/2010	3/12/2010	3/12/2010	3/12/2010
Date Analysed (BTEX)		3/12/2010	3/12/2010	3/12/2010	3/12/2010	3/12/2010
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
BTEX Surrogate (%)	%	68	75	64	73	72



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TRH in soil with C6-C9 by P/T						
Our Reference:	UNITS	SE83722-2	SE83722-3	SE83722-4	SE83722-5	SE83722-6
Your Reference	-----	SS123	SS124	SS125	SS126	QC12
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Depth		0.05	0.05	0.05	0.05	-
Date Sampled		2/12/2010	2/12/2010	2/12/2010	2/12/2010	2/12/2010
Location		SS123	SS124	SS125	SS126	-
Date Extracted (TRH C6-C9 PT)		3/12/2010	3/12/2010	3/12/2010	3/12/2010	3/12/2010
Date Analysed (TRH C6-C9 PT)		3/12/2010	3/12/2010	3/12/2010	3/12/2010	3/12/2010
TRH C <sub>6</sub> - C <sub>9</sub> P&T	mg/kg	<20	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		3/12/2010	3/12/2010	3/12/2010	3/12/2010	3/12/2010
Date Analysed (TRH C10-C36)		3/12/2010	3/12/2010	3/12/2010	3/12/2010	3/12/2010
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<20	<20	<20	25	<20
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<50	<50	<50	140	<50
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	<50	<50	<50	130	<50



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PAHs in Soil						
Our Reference:	UNITS	SE83722-2	SE83722-3	SE83722-4	SE83722-5	SE83722-6
Your Reference	-----	SS123	SS124	SS125	SS126	QC12
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Depth		0.05	0.05	0.05	0.05	-
Date Sampled		2/12/2010	2/12/2010	2/12/2010	2/12/2010	2/12/2010
Location		SS123	SS124	SS125	SS126	-
Date Extracted		3/12/2010	3/12/2010	3/12/2010	3/12/2010	3/12/2010
Date Analysed		3/12/2010	3/12/2010	3/12/2010	3/12/2010	3/12/2010
Naphthalene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.10	<0.10	<0.10	0.53	<0.10
Phenanthrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	<0.10	<0.10	<0.10	0.14	<0.10
Pyrene	mg/kg	<0.10	<0.10	<0.10	0.14	<0.10
Benzo[a]anthracene	mg/kg	<0.10	<0.10	<0.10	0.13	<0.10
Chrysene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo[k]fluoranthene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[a]pyrene	mg/kg	<0.10	<0.10	<0.10	0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo[ah]anthracene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<2	<2	<2	<2.20	<2
Nitrobenzene-d5	%	91	98	76	86	83
2-Fluorobiphenyl	%	86	92	80	89	85
p -Terphenyl-d14	%	89	83	83	89	85



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Metals in Soil by ICP-OES						
Our Reference:	UNITS	SE83722-2	SE83722-3	SE83722-4	SE83722-5	SE83722-6
Your Reference	-----	SS123	SS124	SS125	SS126	QC12
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Depth		0.05	0.05	0.05	0.05	-
Date Sampled		2/12/2010	2/12/2010	2/12/2010	2/12/2010	2/12/2010
Location		SS123	SS124	SS125	SS126	-
Date Extracted (Metals)		6/12/2010	6/12/2010	6/12/2010	6/12/2010	6/12/2010
Date Analysed (Metals)		6/12/2010	6/12/2010	6/12/2010	6/12/2010	6/12/2010
Arsenic	mg/kg	<3	4	<3	5	<3
Cadmium	mg/kg	<0.3	<0.3	<0.3	0.4	<0.3
Chromium	mg/kg	6.3	11	7.6	8.6	6.3
Copper	mg/kg	8.4	18	10	23	8.2
Lead	mg/kg	36	51	36	83	36
Nickel	mg/kg	2.3	2.9	2.2	3.8	2.3
Zinc	mg/kg	34	57	50	110	35



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Mercury Cold Vapor/Hg Analyser						
Our Reference:	UNITS	SE83722-2	SE83722-3	SE83722-4	SE83722-5	SE83722-6
Your Reference	-----	SS123	SS124	SS125	SS126	QC12
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Depth		0.05	0.05	0.05	0.05	-
Date Sampled		2/12/2010	2/12/2010	2/12/2010	2/12/2010	2/12/2010
Location		SS123	SS124	SS125	SS126	-
Date Extracted (Mercury)		6/12/2010	6/12/2010	6/12/2010	6/12/2010	6/12/2010
Date Analysed (Mercury)		6/12/2010	6/12/2010	6/12/2010	6/12/2010	6/12/2010
Mercury	mg/kg	0.06	0.07	0.07	0.10	0.06

BTEX in Water (µg/L)		
Our Reference:	UNITS	SE83722-1
Your Reference	-----	MW112
Sample Matrix	-----	Water
Depth		-
Date Sampled		2/12/2010
Location		MW112
Date Extracted (BTEX)		3/12/2010
Date Analysed (BTEX)		3/12/2010
Benzene	µg/L	0.9
Toluene	µg/L	2
Ethylbenzene	µg/L	73
Total Xylenes	µg/L	50
Surrogate	%	75



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TRH in water with C6-C9 by P/T		
Our Reference:	UNITS	SE83722-1
Your Reference	-----	MW112
Sample Matrix	-----	Water
Depth		-
Date Sampled		2/12/2010
Location		MW112
Date Extracted (TRH C6-C9 PT)		3/12/2010
Date Analysed (TRH C6-C9 PT)		3/12/2010
TRH C <sub>6</sub> - C <sub>9</sub> P&T in µg/L	µg/L	780
Date Extracted (TRH C10-C36)		6/12/2010
Date Analysed (TRH C10-C36)		6/12/2010
TRH C <sub>10</sub> - C <sub>14</sub>	µg/L	<100
TRH C <sub>15</sub> - C <sub>28</sub>	µg/L	<200
TRH C <sub>29</sub> - C <sub>36</sub>	µg/L	<200



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PAHs-Ultra low level-ANZECC99% /ADWC		
Our Reference:	UNITS	SE83722-1
Your Reference	-----	MW112
Sample Matrix	-----	Water
Depth		-
Date Sampled		2/12/2010
Location		MW112
Date Extracted		6/12/2010
Date Analysed		6/12/2010
Naphthalene	µg/L	0.02
Acenaphthylene	µg/L	<0.01
Acenaphthene	µg/L	0.03
Fluorene	µg/L	0.06
Phenanthrene	µg/L	0.19
Anthracene	µg/L	0.07
Fluoranthene	µg/L	0.07
Pyrene	µg/L	0.05
Benzo[a]anthracene	µg/L	0.02
Chrysene	µg/L	0.01
Benzo[b]fluoranthene	µg/L	0.03
Benzo[k]fluoranthene	µg/L	0.01
Benzo[a]pyrene	µg/L	0.01
Indeno[123-cd]pyrene	µg/L	0.01
Dibenzo[ah]anthracene	µg/L	<0.01
Benzo[ghi]perylene	µg/L	0.01
Total PAHs (sum)	µg/L	<0.61
<i>p</i> -Terphenyl- <i>d</i> 14	%	128
Nitrobenzene- <i>d</i> 5	%	106
2-Fluorobiphenyl	%	91



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Trace HM (ICP-MS)-Dissolved		
Our Reference:	UNITS	SE83722-1
Your Reference	-----	MW112
Sample Matrix	-----	Water
Depth		-
Date Sampled		2/12/2010
Location		MW112
Date Extracted (Metals-ICPMS)		3/12/2010
Date Analysed (Metals-ICPMS)		3/12/2010
Arsenic	µg/L	<1
Cadmium	µg/L	<0.1
Chromium	µg/L	<1
Copper	µg/L	2
Lead	µg/L	<1
Nickel	µg/L	9
Zinc	µg/L	26



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Mercury Cold Vapor/Hg Analyser		
Our Reference:	UNITS	SE83722-1
Your Reference	-----	MW112
Sample Matrix	-----	Water
Depth		-
Date Sampled		2/12/2010
Location		MW112
Date Extracted (Mercury)		6/12/2010
Date Analysed (Mercury)		6/12/2010
Mercury (Dissolved)	mg/L	<0.0001

Moisture						
Our Reference:	UNITS	SE83722-2	SE83722-3	SE83722-4	SE83722-5	SE83722-6
Your Reference	-----	SS123	SS124	SS125	SS126	QC12
Sample Matrix	-----	Soil	Soil	Soil	Soil	Soil
Depth		0.05	0.05	0.05	0.05	-
Date Sampled		2/12/2010	2/12/2010	2/12/2010	2/12/2010	2/12/2010
Location		SS123	SS124	SS125	SS126	-
Date Analysed (moisture)		3/12/2010	3/12/2010	3/12/2010	3/12/2010	3/12/2010
Moisture	%	34	37	34	35	34

Method ID	Methodology Summary
<b>SEO-018</b>	BTEX / C6-C9 Hydrocarbons - Soil samples are extracted with methanol, purged and concentrated by a purge and trap apparatus, and then analysed using GC/MS technique. Water samples undergo the same analysis without the extraction step. Based on USEPA 5030B and 8260B
<b>SEO-020</b>	Total Recoverable Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/FID. Where applicable Solid Phase Extraction Manifold technique is used for aliphatic / aromatic fractionation
<b>SEO-030</b>	Polynuclear Aromatic Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/MS SIM mode
<b>SEM-010</b>	Determination of elements by ICP-OES following appropriate sample preparation / digestion process. Based on USEPA 6010C / APHA 21st Edition, 3120B
<b>SEM-005</b>	Mercury - determined by Cold-Vapour AAS following appropriate sample preparation or digestion process. Based on APHA 21st Edition, 3112B
<b>PEO-720</b>	Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates, and Speciated Phenols in soils, sediments and waters are determined by GC/MS technique following appropriate solvent extraction process.
<b>AN318</b>	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020.
<b>AN002</b>	Preparation of soils, sediments and sludges undergo analysis by either air drying, compositing, subsampling and 1:5 soil water extraction where required. Moisture content is determined by drying the sample at 105±5°C.



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
BTEX in Soil								
Date Extracted (BTEX)				03/12/10	[NT]	[NT]	LCS	03/12/10
Date Analysed (BTEX)				03/12/10	[NT]	[NT]	LCS	03/12/10
Benzene	mg/kg	0.1	SEO-018	<0.1	[NT]	[NT]	LCS	74%
Toluene	mg/kg	0.1	SEO-018	<0.1	[NT]	[NT]	LCS	76%
Ethylbenzene	mg/kg	0.1	SEO-018	<0.1	[NT]	[NT]	LCS	77%
Total Xylenes	mg/kg	0.3	SEO-018	<0.3	[NT]	[NT]	LCS	82%
BTEX Surrogate (%)	%	0	SEO-018	93	[NT]	[NT]	LCS	97%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
TRH in soil with C6-C9 by P/T								
Date Extracted (TRH C6-C9 PT)				03/12/10	SE83722-2	3/12/2010    3/12/2010	LCS	03/12/10
Date Analysed (TRH C6-C9 PT)				03/12/10	SE83722-2	3/12/2010    3/12/2010	LCS	03/12/10
TRH C <sub>6</sub> - C <sub>9</sub> P&T	mg/kg	20	SEO-018	<20	SE83722-2	<20    [N/T]	LCS	77%
Date Extracted (TRH C10-C36)				3/12/2010	SE83722-2	3/12/2010    3/12/2010	LCS	3/12/2010
Date Analysed (TRH C10-C36)				3/12/2010	SE83722-2	3/12/2010    3/12/2010	LCS	3/12/2010
TRH C <sub>10</sub> - C <sub>14</sub>	mg/kg	20	SEO-020	<20	SE83722-2	<20    <20	LCS	119%
TRH C <sub>15</sub> - C <sub>28</sub>	mg/kg	50	SEO-020	<50	SE83722-2	<50    <50	LCS	127%
TRH C <sub>29</sub> - C <sub>36</sub>	mg/kg	50	SEO-020	<50	SE83722-2	<50    <50	LCS	130%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
PAHs in Soil								
Date Extracted				3/12/2010	SE83722-2	3/12/2010    3/12/2010	LCS	3/12/2010
Date Analysed				3/12/2010	SE83722-2	3/12/2010    3/12/2010	LCS	3/12/2010
Naphthalene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	LCS	86%
Acenaphthylene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	LCS	92%
Acenaphthene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	LCS	91%
Fluorene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	[NR]	[NR]
Phenanthrene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	LCS	82%
Anthracene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	LCS	94%
Fluoranthene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	LCS	95%
Pyrene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	LCS	97%
Benzo[a]anthracene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	[NR]	[NR]
Chrysene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	[NR]	[NR]
Benzo[b]fluoranthene	mg/kg	0.1	SEO-030	<0.1	SE83722-2	<0.1    <0.1	[NR]	[NR]
Benzo[k]fluoranthene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	[NR]	[NR]
Benzo[a]pyrene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	LCS	87%
Indeno[123-cd]pyrene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	[NR]	[NR]
Dibenzo[ah]anthracene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	[NR]	[NR]
Benzo[ghi]perylene	mg/kg	0.1	SEO-030	<0.10	SE83722-2	<0.10    <0.10	[NR]	[NR]
Total PAHs (sum)	mg/kg	1.6	SEO-030	<2	SE83722-2	<2    <2	[NR]	[NR]
Nitrobenzene-d5	%	0	SEO-030	98	SE83722-2	91    96    RPD: 5	LCS	98%
2-Fluorobiphenyl	%	0	SEO-030	93	SE83722-2	86    91    RPD: 6	LCS	90%
p - Terphenyl-d14	%	0	SEO-030	97	SE83722-2	89    90    RPD: 1	LCS	86%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
Metals in Soil by ICP-OES						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (Metals)				6/12/2010	[NT]	[NT]	LCS	6/12/2010
Date Analysed (Metals)				6/12/2010	[NT]	[NT]	LCS	6/12/2010
Arsenic	mg/kg	3	SEM-010	<3	[NT]	[NT]	LCS	118%
Cadmium	mg/kg	0.3	SEM-010	<0.3	[NT]	[NT]	LCS	121%
Chromium	mg/kg	0.3	SEM-010	<0.3	[NT]	[NT]	LCS	110%
Copper	mg/kg	0.5	SEM-010	<0.5	[NT]	[NT]	LCS	112%
Lead	mg/kg	1	SEM-010	<1	[NT]	[NT]	LCS	117%
Nickel	mg/kg	0.5	SEM-010	<0.5	[NT]	[NT]	LCS	114%
Zinc	mg/kg	0.5	SEM-010	<0.5	[NT]	[NT]	LCS	113%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
Mercury Cold Vapor/Hg Analyser						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (Mercury)				6/12/2010	[NT]	[NT]	LCS	6/12/2010
Date Analysed (Mercury)				6/12/2010	[NT]	[NT]	LCS	6/12/2010
Mercury	mg/kg	0.05	SEM-005	<0.05	[NT]	[NT]	LCS	104%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
BTEX in Water (µg/L)						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (BTEX)				03/12/10	[NT]	[NT]	LCS	03/12/10
Date Analysed (BTEX)				03/12/10	[NT]	[NT]	LCS	03/12/10
Benzene	µg/L	0.5	SEO-018	<0.5	[NT]	[NT]	LCS	100%
Toluene	µg/L	0.5	SEO-018	<0.5	[NT]	[NT]	LCS	99%
Ethylbenzene	µg/L	0.5	SEO-018	<0.5	[NT]	[NT]	LCS	98%
Total Xylenes	µg/L	1.5	SEO-018	<1.5	[NT]	[NT]	LCS	95%
Surrogate	%	0	SEO-018	124	[NT]	[NT]	LCS	74%



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QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
TRH in water with C6-C9 by P/T								
Date Extracted (TRH C6-C9 PT)				03/12/10	[NT]	[NT]	LCS	03/12/10
Date Analysed (TRH C6-C9 PT)				03/12/10	[NT]	[NT]	LCS	03/12/10
TRH C <sub>6</sub> - C <sub>9</sub> P&T in µg/L	µg/L	40	SEO-018	<40	[NT]	[NT]	LCS	122%
Date Extracted (TRH C10-C36)				6/12/2010	[NT]	[NT]	LCS	6/12/2010
Date Analysed (TRH C10-C36)				6/12/2010	[NT]	[NT]	LCS	6/12/2010
TRH C <sub>10</sub> - C <sub>14</sub>	µg/L	100	SEO-020	<100	[NT]	[NT]	LCS	114%
TRH C <sub>15</sub> - C <sub>28</sub>	µg/L	200	SEO-020	<200	[NT]	[NT]	LCS	114%
TRH C <sub>29</sub> - C <sub>36</sub>	µg/L	200	SEO-020	<200	[NT]	[NT]	LCS	111%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
PAHs-Ultra low level-ANZECC99% /ADWG								
Date Extracted				06/12/10	[NT]	[NT]	LCS	06/12/10
Date Analysed				06/12/10	[NT]	[NT]	LCS	06/12/10
Naphthalene	µg/L	0.02	PEO-720	<0.02	[NT]	[NT]	LCS	89%
Acenaphthylene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	87%
Acenaphthene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	105%
Fluorene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Phenanthrene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	100%
Anthracene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	94%
Fluoranthene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	100%
Pyrene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	100%
Benzo[a]anthracene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Benzo[b]fluoranthene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Benzo[k]fluoranthene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Benzo[a]pyrene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	LCS	112%
Indeno[123-cd]pyrene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Dibenzo[ah]anthracene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Benzo[ghi]perylene	µg/L	0.01	PEO-720	<0.01	[NT]	[NT]	[NR]	[NR]
Total PAHs (sum)	µg/L	0.16	PEO-720	<0.2	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
PAHs-Ultra low level-ANZECC99% /ADWG						Base + Duplicate + %RPD		Duplicate + %RPD
<i>p</i> -Terphenyl- <i>d</i> 14	%	0	PEO-720	118	[NT]	[NT]	LCS	90%
Nitrobenzene- <i>d</i> 5	%	0	PEO-720	100	[NT]	[NT]	LCS	86%
2-Fluorobiphenyl	%	0	PEO-720	113	[NT]	[NT]	LCS	93%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
Trace HM (ICP-MS)-Dissolved						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (Metals-ICPMS)				3/12/2010	[NT]	[NT]	LCS	3/12/2010
Date Analysed (Metals-ICPMS)				3/12/2010	[NT]	[NT]	LCS	3/12/2010
Arsenic	µg/L	1	AN318	<1	[NT]	[NT]	LCS	97%
Cadmium	µg/L	0.1	AN318	<0.1	[NT]	[NT]	LCS	101%
Chromium	µg/L	1	AN318	<1	[NT]	[NT]	LCS	99%
Copper	µg/L	1	AN318	<1	[NT]	[NT]	LCS	102%
Lead	µg/L	1	AN318	<1	[NT]	[NT]	LCS	102%
Nickel	µg/L	1	AN318	<1	[NT]	[NT]	LCS	103%
Zinc	µg/L	1	AN318	<1	[NT]	[NT]	LCS	103%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
Mercury Cold Vapor/Hg Analyser						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (Mercury)				6/12/2010	[NT]	[NT]	LCS	6/12/2010
Date Analysed (Mercury)				6/12/2010	[NT]	[NT]	LCS	6/12/2010
Mercury (Dissolved)	mg/L	0.0001	SEM-005	<0.0001	[NT]	[NT]	LCS	106%



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ABN 44 000 964 278

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Environmental Services Unit 16/33 Maddox Street Alexandria NSW 2015 Australia  
t +61 (0)2 8594 0400 f + 61 (0)2 8594 0499  
www.au.sgs.com

QUALITY CONTROL Moisture	UNITS	LOR	METHOD	Blank
Date Analysed (moisture)				[NT]
Moisture	%	1	AN002	<1

**Result Codes**

[INS]	: Insufficient Sample for this test	[RPD]	: Relative Percentage Difference
[NR]	: Not Requested	*	: Not part of NATA Accreditation
[NT]	: Not tested	[N/A]	: Not Applicable
[LOR]	: Limit of reporting		

**Report Comments**

Filtration/Acidification of water for Dissolved Metals analysis conducted at SGS laboratory.

Field Filtered container not supplied by client.

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

Date Organics extraction commenced:

NATA Corporate Accreditation No. 2562, Site No 4354

Note: Test results are not corrected for recovery (excluding Air-toxics and Dioxins/Furans\*)

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**Quality Control Protocol**

**Method Blank:** An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.

**Duplicate:** A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.

**Surrogate Spike:** An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.

**Internal Standard:** Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.

**Laboratory Control Sample:** A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.

**Matrix Spike:** An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

**Quality Acceptance Criteria**

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: <http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-09.pdf>



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## Appendix B: Borelogs

**Targeted Contamination Assessment  
SAN Hospital, Wahroonga NSW**

## Engineering Log - Piezometer

Borehole No. **MW101**

Sheet 1 of 1

Office Job No.: **ENAU RHOD04083AB**Date started: **25.11.2010**Date completed: **25.11.2010**

Logged by: **JG**





Checked by: **PGH**

Client: ***Morris Bray Architects***

Principal:

Project:

Borehole Location: **Sydney Adventist Hospital, Wahroonga**

drill model & mounting: Push Tube/ Solid Stem						Eastings:		slope: -90°		R.L. Surface:							
hole diameter:						Northing:		bearing:		datum:							
<b>drilling information</b>						<b>material substance</b>											
method	penetration 1 2 3			support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material  soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	structure and additional observations		
PT						E+2.1ppm						TOPSOIL: Medium to coarse grained, brown, slightly gravelly sand. Gravel is subangular to subrounded with rootlets.					
						E+1.4ppm						CLAYEY SAND: Dark brown.					
						E+1.6ppm			1			CLAY: Orange to brown, medium plasticity, with shale fragments.					
						E, QC1, QC1a+1.2ppm						Becoming firm.					
									2			Increasing shale fragments.					
SS						E+1.7ppm						SHALE: Moderately to slightly weathered, grey shale.	M		Refusal at 2.0m with Push Tube rig, continued with Solid Stem auger.		
						E+1.4ppm			3						Sample collected unlikely to be from base of hole due to collapse as auger withdrawn.		
						E+3.1ppm			4						Becoming moist.		
															No samples taken.		
									5								
									6			SANDSTONE: Fresh to slightly weathered.					
												Borehole terminated at 6m					
									7								
									8								
									9								
									10								
<b>method</b> AS      auger screwing* AD      auger drilling* RR      roller/tricone W       washbore CT      cable tool DT      diatube B       blank bit V       V bit T       TC bit TBX     Tubex *bit shown by suffix e.g.    ADT						<b>support</b> C casing      N nil  <b>penetration</b> 1 2 3 4  no resistance ranging to refusal <b>water</b>  10/1/98 water level on date shown  water inflow  water outflow		<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter D       disturbed sample N       standard penetration test (SPT) N*      SPT - sample recovered Nc      SPT with solid cone P       pressure meter Bs      bulk sample R       refusal E       environmental sample PID     PID measurement WS      water sample PZ      piezometer ALT     air lift test						<b>classification symbols and soil description</b> based on unified classification system  <b>moisture</b> D       dry M       moist W       wet Wp      plastic limit WL      liquid limit		<b>consistency/density index</b> VS       very soft S       soft F       firm St       stiff VSt      very stiff H       hard Fb       friable VL       very loose L       loose MD      medium dense D       dense VD      very dense	



Borehole No. **MW102**

# Engineering Log - Piezometer

Sheet 1 of 1  
Office Job No.: **ENAU RHOD04083AB**

Client: **Morris Bray Architects**

Date started: **25.11.2010**

Principal:

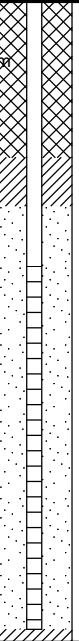





Date completed: **25.11.2010**

Project:

Logged by: **JG**

Borehole Location: **Sydney Adventist Hospital, Wahroonga**

Checked by: **PGH**

drill model & mounting: Push Tube/ Solid Stem				Easting:		slope: -90°		R.L. Surface:					
hole diameter:				Northing:		bearing:		datum:					
drilling information					material substance								
method	penetration	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	structure and additional observations
PT	1 2 3			E+3.1ppm E QC2+2.8ppm E+1.4ppm E+1.1ppm E+0.9ppm E+1.6ppm E+1.4ppm E+1.2ppm E+0.9ppm			1 2 3 4 5			<b>TOPSOIL:</b> Dark brown, medium to fine grained sand, with frequent rootlets. <b>CLAY:</b> Dark brown, slightly sandy, firm clay.  Becoming orange to grey in colour.  <b>CLAY:</b> Grey to orange, firm clay with shale fragments.  Becoming grey with increasing shale fragments.  <b>SHALE:</b> Moderately to slightly weathered, grey.  <b>SANDSTONE:</b> Slightly weathered to fresh, grey to light orange. Borehole terminated at 5.3m	M		Refusal at 3.0m with Push Tube, continued with Solid Stem auger. Becoming moist.
SS							6 7 8 9 10						
<b>method</b> AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool DT diatube B blank bit V V bit T TC bit TBX Tubex *bit shown by suffix e.g. ADT				<b>support</b> C casing N nil  <b>penetration</b>  1 2 3 4 no resistance ranging to refusal  <b>water</b>  10/1/98 water level on date shown  water inflow  water outflow		<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone P pressure meter Bs bulk sample R refusal E environmental sample PID PID measurement WS water sample PZ piezometer ALT air lift test			<b>classification symbols and soil description</b> based on unified classification system  <b>moisture</b> D dry M moist W wet Wp plastic limit WL liquid limit		<b>consistency/density index</b> VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense		

Borehole No. **MW112**

Sheet 1 of 1  
Office Job No.: **ENAU RHOD04083AB**

# Engineering Log - Piezometer

Client: **Morris Bray Architects**

Date started: **29.11.2010**

Principal:

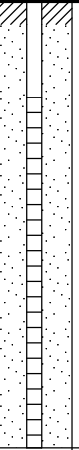

Date completed: **29.11.2010**





Project:

Logged by: **JG**

Borehole Location: **Sydney Adventist Hospital, Wahroonga**

Checked by: **PGH**

drill model & mounting: Push Tube/ Solid Stem				Easting:		slope: -90°		R.L. Surface:					
hole diameter:				Northing:		bearing:		datum:					
drilling information						material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material  soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	structure and additional observations
SS				E+2.6ppm E+1.8ppm E+1.2ppm E+1.6ppm E+1.1ppm			1 2 3			<b>ASPHALT:</b> (Road Surface). <b>FILL:</b> Dark brown, firm sandy clay. <b>CLAY:</b> Brown, slightly gravelly firm clay.  Becoming orange.  <b>SANDSTONE:</b> Moderately weathered.			
							4 5 6 7 8 9 10			Borehole terminated at 3.7m			

<b>method</b> AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool DT diatube B blank bit V V bit T TC bit TBX Tubex *bit shown by suffix e.g. ADT	<b>support</b> C casing N nil  <b>penetration</b> 1 2 3 4  no resistance ranging to refusal  <b>water</b>  10/1/98 water level on date shown  water inflow  water outflow	<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone P pressure meter Bs bulk sample R refusal E environmental sample PID PID measurement WS water sample PZ piezometer ALT air lift test	<b>classification symbols and soil description</b> based on unified classification system  <b>moisture</b> D dry M moist W wet W <sub>p</sub> plastic limit W <sub>L</sub> liquid limit	<b>consistency/density index</b> VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
--	---	---	--	---

Borehole No. **BH103**

Sheet 1 of 1  
Office Job No.: **ENAU RHOD04083AB**

# Engineering Log - Borehole

Client: **Morris Bray Architects**

Date started: **25.11.2010**

Principal:






Date completed: **25.11.2010**

Project:

Logged by: **JG**

Borehole Location: **Sydney Adventist Hospital, Wahroonga**

Checked by: **PGH**

drill model and mounting: Push Tube/ Soild Stem		Easting:		slope: -90°		R.L. Surface:					
hole diameter: mm		Northing		bearing:		datum:					
drilling information				material substance							
method	penetration	support	notes samples, tests, etc	depth metres	graphic log	classification symbol	material				
PT	1 2 3		E+2.7ppm E+1.2ppm E+1.8ppm E+1.2ppm E+1.5ppm E+2.3ppm	1 2 3 4 5 6 7 8 9 10			<b>TOPSOIL:</b> Dark brown, slightly clayey, fine to medium grained sand. <b>CLAY:</b> Dark brown, medium grained, gravelly sand. <b>CLAY:</b> Firm, orange to red with occasional shale fragments. Increasing shale fragments. <b>SHALE:</b> Red to grey, moderately weathered.				
Borehole BH103 terminated at 2.7m											
<b>method</b> AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT				<b>support</b> M mud C casing <b>penetration</b> 1 2 3 4  <b>water</b>  10/1/98 water level on date shown  water inflow  water outflow		<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal		<b>classification symbols and soil description</b> based on unified classification system <b>moisture</b> D dry M moist W wet Wp plastic limit WL liquid limit		<b>consistency/density index</b> VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

Borehole No. **BH111**

# Engineering Log - Borehole

Client: ***Morris Bray Architects***

Principal:

Project:

Borehole Location: **Sydney Adventist Hospital, Wahroonga**

Sheet 1 of 1

Office Job No.: **ENAU RHOD04083AB**

Date started: **29.11.2010**

Date completed: **29.11.2010**

Logged by: **JG**

Checked by: **PGH**

[illegible]

Borehole No. **BH113**

Sheet 1 of 1  
Office Job No.: **ENAU RHOD04083AB**

# Engineering Log - Borehole

Client: **Morris Bray Architects**

Date started: **29.11.2010**

Principal:



Date completed: **29.11.2010**

Project:

Logged by: **JG**

Borehole Location: **Sydney Adventist Hospital, Wahroonga**

Checked by: **PGH**

drill model and mounting: Push Tube/ Soild Stem		Easting:		slope: -90°		R.L. Surface:					
hole diameter: mm		Northing		bearing:		datum:					
drilling information				material substance							
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log				
PT	1 2 3			E E+QC7							
						1					
						2					
				E		3					
						4					
						5					
						6					
						7					
						8					
						9					
						10					
<b>method</b> AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT				<b>support</b> M mud N nil C casing <b>penetration</b> 1 2 3 4  no resistance ranging to refusal <b>water</b> 10/1/98 water level on date shown  water inflow water outflow		<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal		<b>classification symbols and soil description</b> based on unified classification system <b>moisture</b> D dry M moist W wet Wp plastic limit WL liquid limit		<b>consistency/density index</b> VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

# Engineering Log - Borehole

Borehole No. **BH114**

Sheet 1 of 1

Office Job No.: **ENAU RHOD04083AB**

Client: ***Morris Bray Architects***

Date started: **25.11.2010**

Principal:

Date completed: **25.11.2010**

Project:

Logged by: **JG**

Borehole Location: **Sydney Adventist Hospital, Wahroonga**

Checked by: **PGH**

drill model and mounting:						Push Tube/ Soil Stem						Easting:						slope: -90°						R.L. Surface:					
hole diameter:						mm						Northing						bearing:						datum:					
drilling information												material substance																	
method		penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material  soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer				structure and additional observations										
		1	2	3											kPa 100 200 300 400														
PT							E+2.1ppm					TOPSOIL: Brown, silty gravelly sand. FILL: Dark brown, clayey sand, with weathered shale, ceramic and brick fragments.																	
							E+6.4ppm																						
							E+1.8ppm	1				CLAY: Brown to orange, firm clay, with weathered shale fragments.																	
							E+1.7ppm					Becoming shale.																	
							E+1.1ppm	2				Borehole BH114 terminated at 2m																	
								3																					
								4																					
								5																					
								6																					
								7																					
								8																					
								9																					
								10																					
<b>method</b> AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT							<b>support</b> M mud N nil C casing <b>penetration</b> 1 2 3 4  no resistance ranging to refusal <b>water</b> 10/1/98 water level on date shown water inflow water outflow			<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal							<b>classification symbols and soil description</b> based on unified classification system  <b>moisture</b> D dry M moist W wet Wp plastic limit WL liquid limit				<b>consistency/density index</b> VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense								

Borehole No. **BH115**

Sheet 1 of 1  
Office Job No.: **ENAU RHOD04083AB**

# Engineering Log - Borehole

Client: **Morris Bray Architects**

Date started: **25.11.2010**

Principal:






Date completed: **25.11.2010**

Project:

Logged by: **JG**

Borehole Location: **Sydney Adventist Hospital, Wahroonga**

Checked by: **PGH**

drill model and mounting: Push Tube/ Soild Stem		Easting:		slope: -90°		R.L. Surface:			
hole diameter: mm		Northing		bearing:		datum:			
drilling information				material substance					
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log		
PT	1 2 3			E+1.2ppm E+2.0ppm E+1.6ppm		1			
				<b>TOPSOIL:</b> Brown, gravelly sand. <b>CLAY:</b> Red to brown, firm clay, with shale fragments. Becoming shale. Borehole BH115 terminated at 1.1m					
				2					
				3					
				4					
				5					
				6					
				7					
				8					
				9					
				10					
<b>method</b> AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT		<b>support</b> M mud C casing <b>penetration</b> 1 2 3 4  no resistance ranging to refusal <b>water</b>  10/1/98 water level on date shown  water inflow  water outflow		<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal		<b>classification symbols and soil description</b> based on unified classification system <b>moisture</b> D dry M moist W wet Wp plastic limit WL liquid limit		<b>consistency/density index</b> VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	



# Engineering Log - Borehole

Borehole No. **BH116**

Sheet 1 of 1

Office Job No.: **ENAU RHOD04083AB**

Client: ***Morris Bray Architects***

Date started: **25.11.2010**

Principal:





Date completed: **25.11.2010**

Project:

Logged by: **JG**

Borehole Location: **Sydney Adventist Hospital, Wahroonga**

Checked by: **PGH**

drill model and mounting:						Push Tube/ Soil Stem						Easting:						slope: -90°						R.L. Surface:					
hole diameter:						mm						Northing						bearing:						datum:					
drilling information												material substance																	
method		penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material  soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer				structure and additional observations										
		1	2	3											100 kPa	200	300	400											
PT						E+2.4ppm						TOPSOIL: Brown, silty gravelly, medium to fine grained sand, with frequent rootlets.																	
						E+1.6ppm						CLAY: Brown to orange, firm clay, with shale fragments.																	
						E+1.3ppm		1																					
						E+0.9ppm																							
						E+1.2ppm		2				Becoming shale.																	
						E+0.7ppm						Borehole BH116 terminated at 2.3m																	
								3																					
								4																					
								5																					
								6																					
								7																					
								8																					
								9																					
								10																					
<b>method</b> AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V' bit T TC bit *bit shown by suffix e.g. ADT						<b>support</b> M mud N nil C casing <b>penetration</b> 1 2 3 4  no resistance ranging to refusal <b>water</b>  10/1/98 water level on date shown  water inflow  water outflow						<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal						<b>classification symbols and soil description</b> based on unified classification system  <b>moisture</b> D dry M moist W wet Wp plastic limit WL liquid limit						<b>consistency/density index</b> VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense					

Borehole No. **BH120**

Sheet 1 of 1

Office Job No.: **ENAU RHOD04083AB**

# Engineering Log - Borehole

Client: **Morris Bray Architects**

Date started: **29.11.2010**

Principal:





Date completed: **29.11.2010**

Project:

Logged by: **JG**

Borehole Location: **Sydney Adventist Hospital, Wahroonga**

Checked by: **PGH**

drill model and mounting: Push Tube/ Soild Stem		Easting:		slope: -90°		R.L. Surface:			
hole diameter: mm		Northing		bearing:		datum:			
drilling information				material substance					
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	structure and additional observations		
PT	1 2 3			E+QC8 E E E		1 2 3 4 5 6 7 8 9 10	<b>ASPHALT</b> <b>FILL:</b> Grey, gravelly sand. <b>FILL:</b> pale orange to grey, gravelly sand with sandstone and asphalt fragments. <b>CLAY:</b> Orange, firm clay, with shale and sandstone fragments. <b>SHALE:</b> Highly weathered, orange, shale with sandstone bases. Becoming grey. Borehole BH120 terminated at 2m		
<b>method</b> AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT				<b>support</b> M mud C casing <b>penetration</b> 1 2 3 4  no resistance ranging to refusal <b>water</b>  10/1/98 water level on date shown  water inflow  water outflow		<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal		<b>classification symbols and soil description</b> based on unified classification system <b>moisture</b> D dry M moist W wet Wp plastic limit WL liquid limit	<b>consistency/density index</b> VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

Borehole No. **BH122**

Sheet 1 of 1  
Office Job No.: **ENAU RHOD04083AB**

# Engineering Log - Borehole

Client: **Morris Bray Architects**

Date started: **29.11.2010**

Principal:



Date completed: **29.11.2010**

Project:

Logged by: **JG**

Borehole Location: **Sydney Adventist Hospital, Wahroonga**

Checked by: **PGH**

drill model and mounting: Push Tube/ Soild Stem		Easting:		slope: -90°		R.L. Surface:					
hole diameter: mm		Northing		bearing:		datum:					
drilling information				material substance							
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	structure and additional observations				
PT	1 2 3			E		0	<b>ASPHALT:</b> (Car park) <b>FILL:</b> Grey, gravelly medium to coarse grained sand. <b>CLAY:</b> Orange to brown, gravelly firm clay.  <b>SHALE:</b> Moderately weatherd.  Borehole BH122 terminated at 2m				
				E		1					
				E		2					
						3					
						4					
						5					
						6					
						7					
						8					
						9					
						10					
<b>method</b> AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT				<b>support</b> M mud N nil C casing <b>penetration</b> 1 2 3 4  no resistance ranging to refusal <b>water</b> 10/1/98 water level on date shown  water inflow water outflow		<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal		<b>classification symbols and soil description</b> based on unified classification system  <b>moisture</b> D dry M moist W wet Wp plastic limit WL liquid limit		<b>consistency/density index</b> VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

Borehole No. **BH127**

# Engineering Log - Borehole

Sheet 1 of 1  
Office Job No.: **ENAU RHOD04083AB**

Client: **Morris Bray Architects**

Date started: **25.11.2010**

Principal:





Date completed: **25.11.2010**

Project:

Logged by: **JG**

Borehole Location: **Sydney Adventist Hospital, Wahroonga**

Checked by: **PGH**

drill model and mounting: Push Tube/ Soild Stem		Easting:		slope: -90°		R.L. Surface:					
hole diameter: mm		Northing		bearing:		datum:					
drilling information				material substance							
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log				
1 2 3											
				E+1.9ppm		1	<b>TOPSOIL:</b> Dark brown, medium grained gravelly sand. <b>FILL:</b> Grey, medium grained gravelly sand. <b>SAND:</b> Brown to dark brown, clayey, gravelly sand.				
				E+2.1ppm							
				E+1.3ppm							
				E+0.9ppm		2	<b>SANDSTONE:</b> Highly weathered. Becoming moderately weathered. Borehole BH127 terminated at 1.6m				
						3					
						4					
						5					
						6					
						7					
						8					
						9					
						10					
<b>method</b> AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT				<b>support</b> M mud C casing <b>penetration</b> 1 2 3 4  no resistance ranging to refusal <b>water</b>  10/1/98 water level on date shown  water inflow  water outflow		<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal		<b>classification symbols and soil description</b> based on unified classification system <b>moisture</b> D dry M moist W wet Wp plastic limit WL liquid limit		<b>consistency/density index</b> VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

# Engineering Log - Excavation

Client: **Morris Bray Architects**

Principal:

Project:

Test pit location: **Sydney Adventist Hospital, Wahroonga**

Excavation No. **TP104**

Sheet 1 of 1

Office Job No.: **ENAHURHOD04083AB**

Date started: **26.11.2010**

Date completed: **26.11.2010**

Logged by: **JG**

Checked by: **PGH**

equipment type and model: Pit Orientation: Easting: m R.L. Surface:  
excavation dimensions: m long m wide Northing: m datum:

excavation information						material substance					
method	penetration	support	water	notes samples, tests, etc	depth RL metres	graphic log	classification symbol	material	moisture condition	consistency/density index	pocket penetrometer kPa
BH	1 2 3							soil type: plasticity or particle characteristics, colour, secondary and minor components.			100 200 300 400
				E+2.4ppm				<b>TOPSOIL:</b> Dark brown, slightly clayey, slightly silty sand with occasional rootlets.			
				E+1.2ppm	0.5			<b>CLAY:</b> Orange to brown, slightly medium to firm gravelly clay. Gravel is of highly weathered shale fragments.			
				E+1.5ppm	1.0						
					1.5			Test pit TP104 terminated at 1.2m			
					2.0						

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil  penetration 1 2 3 4 no resistance ranging to refusal  water water level on date shown water inflow water outflow	U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	based on unified classification system  moisture D dry M moist W wet W <sub>p</sub> plastic limit W <sub>L</sub> liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

# Engineering Log - Excavation

Client: **Morris Bray Architects**

Principal:

Project:

Test pit location: **Sydney Adventist Hospital, Wahroonga**

Excavation No. **TP105**

Sheet 1 of 1

Office Job No.: **ENAHURHOD04083AB**

Date started: **26.11.2010**

Date completed: **26.11.2010**

Logged by: **JG**

Checked by: **PGH**

equipment type and model: Pit Orientation: Easting: m R.L. Surface:  
excavation dimensions: m long m wide Northing: m datum:

excavation information						material substance					
method	penetration	support	water	notes samples, tests, etc	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter kPa
BH	1 2 3				RL			soil type: plasticity or particle characteristics, colour, secondary and minor components.			100 200 300 400
				E+1.9ppm				<b>TOPSOIL:</b> Dark brown, clayey sand with occasional rootlets.			
				E+1.3ppm	0.5			<b>CLAY:</b> Red to brown, firm.			
				E+2.1ppm	1.0			Test pit TP105 terminated at 1m			
					1.5						
					2.0						

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil  penetration 1 2 3 4 no resistance ranging to refusal  water water level on date shown water inflow water outflow	U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	based on unified classification system  moisture D dry M moist W wet Wp plastic limit WL liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

# Engineering Log - Excavation

Client: **Morris Bray Architects**

Principal:

Project:

Test pit location: **Sydney Adventist Hospital, Wahroonga**

Excavation No. **TP106**

Sheet 1 of 1

Office Job No.: **ENAHURHOD04083AB**

Date started: **26.11.2010**

Date completed: **26.11.2010**

Logged by: **JG**

Checked by: **PGH**

equipment type and model: Pit Orientation: Easting: m R.L. Surface:  
excavation dimensions: m long m wide Northing: m datum:

excavation information						material substance					
method	penetration	support	water	notes samples, tests, etc	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter kPa
BH	1 2 3				RL			soil type: plasticity or particle characteristics, colour, secondary and minor components.			100 200 300 400
				E+2.1ppm				<b>TOPSOIL:</b> Dark brown, sandy, clay, with shale fragments.			
				E+1.9ppm	0.5			<b>FILL:</b> Dark brown, gravelly sand with concrete and brick pieces.			
								<b>CLAY:</b> Red to orange, sandy firm clay, with shale fragments.			
				E+2.3ppm	1.0			<b>CLAY:</b> Grey, firm clay, with shale fragments.			
					1.5			Test pit TP106 terminated at 1.2m			
					2.0						

Sketch

<b>method</b> N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	<b>support</b> S shoring N nil <b>penetration</b> 1 2 3 4 no resistance ranging to refusal <b>water</b> water level on date shown water inflow water outflow	<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	<b>classification symbols and soil description</b> based on unified classification system <b>moisture</b> D dry M moist W wet W <sub>p</sub> plastic limit W <sub>L</sub> liquid limit	<b>consistency/density index</b> VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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# Engineering Log - Excavation

Excavation No. **TP107**

Sheet 1 of 1

Office Job No.: **ENAHURHOD04083AB**

Client: **Morris Bray Architects**

Date started: **26.11.2010**

Principal:

Date completed: **26.11.2010**

Project:

Logged by: **JG**

Test pit location: **Sydney Adventist Hospital, Wahroonga**

Checked by: **PGH**

equipment type and model: Pit Orientation: Easting: m R.L. Surface: excavation dimensions: m long m wide Northing: m datum:

excavation information						material substance					
method	penetration	support	water	notes samples, tests, etc	depth RL metres	graphic log	classification symbol	material	moisture condition	consistency/density index	pocket penetrometer kPa
BH	1 2 3							soil type: plasticity or particle characteristics, colour, secondary and minor components.			100 200 300 400
				E+1.9ppm				TOPSOIL: Dark brown, silty sand.			
				E+1.8ppm	0.5			CLAY: Red to brown, with shale fragments.			
				E+,QC5+1.3ppm	1.0						
					1.5			Test pit TP107 terminated at 1.2m			
					2.0						

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil  penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	based on unified classification system  moisture D dry M moist W wet W <sub>p</sub> plastic limit W <sub>L</sub> liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

# Engineering Log - Excavation

Excavation No. **TP108**

Sheet 1 of 1

Office Job No.: **ENAHURHOD04083AB**

Client: **Morris Bray Architects**

Date started: **26.11.2010**

Principal:

Date completed: **26.11.2010**

Project:

Logged by: **JG**

Test pit location: **Sydney Adventist Hospital, Wahroonga**

Checked by: **PGH**

equipment type and model: Pit Orientation: Easting: m R.L. Surface:  
excavation dimensions: m long m wide Northing: m datum:

excavation information						material substance					
method	penetration	support	water	notes samples, tests, etc	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter kPa
BH	1 2 3				RL			soil type: plasticity or particle characteristics, colour, secondary and minor components.			100 200 300 400
				E+2.2ppm	0.5			<b>TOPSOIL:</b> Dark brown, clayey sand.			
				E QC6+1.8ppm				<b>SAND:</b> Dark brown, clayey, fine grained sand.			
				E+1.6ppm	1.0			<b>CLAY:</b> Orange to brown, firm clay, with shale fragments.			
					1.5			Test pit TP108 terminated at 1.2m			
					2.0						

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil  penetration 1 2 3 4 no resistance ranging to refusal  water water level on date shown water inflow water outflow	U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	based on unified classification system  moisture D dry M moist W wet W <sub>p</sub> plastic limit W <sub>L</sub> liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

# Engineering Log - Excavation

Client: **Morris Bray Architects**

Principal:

Project:

Test pit location: **Sydney Adventist Hospital, Wahroonga**

Excavation No. **TP109**

Sheet 1 of 1

Office Job No.: **ENAHURHOD04083AB**


Date started: **26.11.2010**

Date completed: **26.11.2010**




Logged by: **JG**

Checked by: **PGH**

equipment type and model: Pit Orientation: Easting: m R.L. Surface:  
excavation dimensions: m long m wide Northing: m datum:

excavation information						material substance						
method	penetration	support	water	notes samples, tests, etc	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
BH	1 2 3			E+1.9ppm  E+1.7ppm  E+1.4ppm	0.5  1.0			TOPSOIL: Dark brown, clayey, fine to medium grained sand. CLAY: Red to orange, with shale fragments.			100 200 300 400	
					1.5  2.0			Test pit TP109 terminated at 1.1m				

Sketch

<b>method</b> N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	<b>support</b> S shoring N nil  <b>penetration</b> 1 2 3 4 no resistance ranging to refusal  <b>water</b>  water level on date shown  water inflow  water outflow	<b>notes, samples, tests</b> U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	<b>classification symbols and soil description</b> based on unified classification system  <b>moisture</b> D dry M moist W wet W <sub>p</sub> plastic limit W <sub>L</sub> liquid limit	<b>consistency/density index</b> VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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# Engineering Log - Excavation

Client: **Morris Bray Architects**

Principal:

Project:

Test pit location: **Sydney Adventist Hospital, Wahroonga**

Excavation No. **TP110**

Sheet 1 of 1

Office Job No.: **ENAU RHOD04083AB**

Date started: **26.11.2010**

Date completed: **26.11.2010**

Logged by: **JG**

Checked by: **PGH**

equipment type and model: Pit Orientation: Easting: m R.L. Surface:  
excavation dimensions: m long m wide Northing: m datum:

excavation information						material substance						
method	penetration	support	water	notes samples, tests, etc	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
1	2	3			RL			soil type: plasticity or particle characteristics, colour, secondary and minor components.			100 200 300 400	
BH				E+2.1ppm				<b>TOPSOIL:</b> Dark brown, clayey, fine to medium grained sand with frequent rootlets.				
				E+1.7ppm	0.5			<b>CLAY:</b> Orange to brown, with shale fragments.				
				E, QC4, QC4a+1.2ppm	1.0			Increasing shale gravel.				
					1.5			Test pit TP110 terminated at 1.2m				
					2.0							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil  penetration 1 2 3 4 no resistance ranging to refusal  water water level on date shown water inflow water outflow	U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	based on unified classification system  moisture D dry M moist W wet Wp plastic limit WL liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

# Appendix C: Data Validation and QAQC

**Targeted Contamination Assessment  
SAN Hospital, Wahroonga NSW**

# Coffey Environments Australia Pty Ltd

A.C.N. 140 765 902

A.B.N. 65 140 765 902



## QA/QC DATA VALIDATION REPORT

Job No: ENAURHOD04083AB Batch: SGS – SE83544, SE83545,  
SE83596, SE83644, SE83722. MGT/LABMARK - 284283, 284185

### I. SAMPLE HANDLING

	Yes	No (Comment below)
1. Were the sample <b>holding times</b> met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Were the samples in <b>proper custody</b> between the field and reaching the laboratory?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Were the samples <b>properly and adequately</b> preserved? <i>This includes keeping the samples chilled, where applicable.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Were the samples received by the laboratory in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### COMMENTS:

Issues on sample condition on receipt:

TB2 was not received by the laboratory, however another trip blank was taken on 25/11/2010 (TB1) and considered sufficient to cover the sampling works undertaken.

Due to a lack of water in the monitoring well the initial sample from MW112 (lab batch number SE83644, sample taken on 30/11/2010), only consist of 2 glass vials, enabling only BTEX + VTRH (TRHC6-C9) analysis rather than the TPH/BTEX/PAH/Phenol/M8 required. However, re-sampling was done and the sample was analysed for the suite analysis required (SE83722 sample taken on 2/12/2010). As such, the first result of MW112 which is incomplete, is disregarded and replaced by the second MW112 sample taken on 2/12/2010.

For batch number 83722, the filtration/Acidification of water for Dissolved Metals analysis was conducted at SGS laboratory. A field Filtered container was not supplied. Metals in water should be preserved in Nitric preserved bottle. As such, the laboratory sub sampled from the non preserved sample, acidified and filtered the sample in the lab.

As the samples were sent to the laboratory following each day of sampling and put on 1 day turn around the potential for change in the sample prior to reaching the laboratory was minimal. The results for this sample are also consistent with the results from the other wells sampled across the site. Therefore, Coffey consider the results are suitable for the objectives of the current work.

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Sample Handling was:

☒ Satisfactory

☐ Unsatisfactory

☐ Partially Satisfactory



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## II PRECISION/ACCURACY ASSESSMENT

1. Was a NATA registered laboratory used?
2. Did the laboratory perform the requested tests?
3. Were the laboratory methods adopted NATA endorsed?
4. Were the appropriate test procedures followed?
5. Were the reporting limits satisfactory?
6. Was the NATA Seal on the reports?
7. Were the reports signed by an authorised person?

Yes	No (Comment below)
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

### COMMENTS:

Precision/Accuracy of the Laboratory Report	<input checked="" type="checkbox"/> Satisfactory	<input type="checkbox"/> Unsatisfactory
	<input type="checkbox"/> Partially Satisfactory	

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SOCIAL AND SAFETY PERFORMANCE

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### III. FIELD QA/QC

1. Number of Samples Analysed                      Soil: 52  
Water: 4 (1 was resampling, so effectively is 3)
2. Number of Days of Sampling:                      Soil: 4  
Water: 2

### 3. Number and Type of QA/QC Samples Collected:

					SOIL	WATER
Overall	Field	Duplicates	(duplicate		1 interlab samples (2% of	1 interlab samples (30%
number/percentage to the total primary samples)			number/percentage to the total primary samples)		primary samples)	of primary samples)
					6 intralab samples (11% of primary samples)	1 intralab samples (30% of primary samples)
Trip Blanks					0	1
Trip Spike					0	0
Wash Blanks					NA – disposable equipment used	NA – disposable equipment used
Other (Rinsate blank, etc.)					-	-

#### Soil

	TPH	BTEX	M8	PAH	OC	Asbestos	VOC	SVOC
Total primary samples	50	50	52	51	4	33	4	4
Total intralab dups	6	6	6	6	1	NA	0	0
Total interlab dups	1	1	1	1	0	NA	0	0

#### Water

	TPH	BTEX	M8	PAH	Phenols
Total primary samples	3	3	3	3	2
Total intralab dups	1	1	1	1	1
Total interlab dups	1	1	1	1	1

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### 4. FIELD DUPLICATES

A. Were an Adequate Number of field duplicates analysed for each chemical (approximately 10% for intralab and 5% for interlab)?

B. Were RPDs within Control Limits?

a. Organics ( $\leq 50\%$ )

b. Metals/Inorganics ( $\leq 30\%$ )

Yes	No (Comment below)
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>

### COMMENTS:

- Total number of duplicate is adequate except for the soil interlab duplicate. One of the interlab duplicate was analysed by the same lab, thus the number of interlab duplicate became below the target. Concentrations of analytes in analysed soil sample were reported below the site criteria. Therefore, it is considered that the precision and accuracy for analysis is adequate for the current investigation.
- Soil RPDs exceedances are shown in the soil RPD table (Table 5). However, both primary and inter/intralab samples are below the criteria for the site. The RPD exceedance in these samples may be caused by heterogeneity of analytes in soil. The sample cannot be homogenised because volatiles are also the potential contaminant of concern subject for analysis. Sampling was done by experienced staff following Coffey standard SOP, thus this is not considered to affect the usability of the data.

### 5. TRIP BLANKS

A. Were an Adequate Number of trip blanks collected?

B. Were the Trip Blanks free of contaminants?

Yes	No (Comment below)
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 6. WASH BLANKS

A. Were an adequate number of Wash Blanks collected?

B. Were the Wash Blanks free of contaminants?

Yes	No (Comment below)
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

### COMMENTS:

Disposable equipments were used, thus wash blank is not considered necessary.

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Field QA/QC was:	<input checked="" type="checkbox"/> Satisfactory	<input type="checkbox"/> Unsatisfactory
	<input type="checkbox"/> Partially Satisfactory	

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### IV LABORATORY INTERNAL QUALITY CONTROL PROCEDURES

#### 1. Type of QA/QC Samples Soils

	TPH (C <sub>6</sub> -C <sub>9</sub> ), BTEX	TPH (C <sub>10</sub> -C <sub>36</sub> )	PAH	Metals (8)	OC	VOC	SVOC	Asbestos
Laboratory Blanks/Reagent Blanks (at least 1 per batch)	Y	Y	Y	Y	Y	Y	Y	N/A
Laboratory Duplicates (at least 1 per batch or 1 per 10 samples whichever is the smaller)	Y	Y	Y	Y	Y	Y	Y	N/A
Matrix Spikes/Matrix Spike Duplicates (1 for each type)	Y	Y	Y	Y	Y	Y	Y	N/A
Laboratory Control Spike (1 for each soil type)	Y	Y	Y	Y	Y	Y	Y	N/A
Surrogate (where appropriate)*	NA, 1	NA	3	NA	1	4	3	N/A

\*Number of surrogate spikes carried out on each sample

2. Were the laboratory blanks free of contamination?
3. Were the spike recoveries within control limits (70% to 130%)?
4. Were the RPDs of the laboratory duplicates within control limits?
5. Were the surrogate recoveries within control limits (70% to 130%)?

Yes	No (Comment below)
<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### COMMENTS:

- One soil samples in batch SE83545 recorded TPH C10 - C14 spike recoveries (68%) marginally below the control limit which is 70%. Concentrations of TRH C10 - C14 reported in soil samples were below the detection limit including those with spike recovery within an acceptable range. Therefore, the spike recoveries reported below control limits for these analytes are not considered to affect the interpretation of results.
- A few sample laboratory duplicates in batches SE83544 and SE83545 recorded RPDs exceeding the control limit of 30% (for metal) and 50% (for organic). This result indicates poor precision during the analytical process for these analytical batches. However, the RPD result is not considered to affect the interpretation of results as concentrations of analytes reported above LOR were well above or well below the adopted remediation acceptance criteria.

5. The laboratory internal QA/QC was: ☒ Satisfactory ☐ Unsatisfactory  
☐ Partially Satisfactory

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### V. DATA USABILITY

- |    |  |                                     |
|----|--|-------------------------------------|
| 1. | Data Directly Usable   | <input checked="" type="checkbox"/> |
| 2. | Data Usable with the following corrections/modifications (see comment below) | <input type="checkbox"/>            |
| 3. | Data Not Usable.   | <input type="checkbox"/>            |

### COMMENTS:

The data is considered to be usable for the purposes of this assessment.

QA/QC Report Prepared by

Cissillia Young

QA/QC Report Reviewed by:

Philip Hutson

(Reviewer)

# Appendix D: Proposed Development Areas and Previous Borehole Locations

Targeted Contamination Assessment  
SAN Hospital, Wahroonga NSW



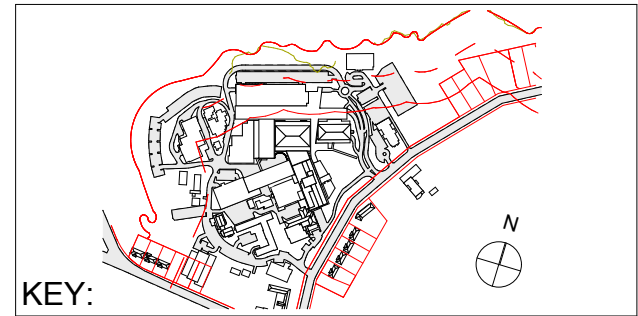


**LEGEND**

JK    JEFFERY & KATASKAS BOREHOLE  
EIS   ENVIRONMENTAL INVESTIGATION SERVICES  
CG    COFFEY GEOTECHNICS

○ ——— COMPANY COMPLETING THE INVESTIGATION  
○ ——— DATE OF THE INVESTIGATION  
○ ——— JK 6/10 BH###  
○ ——— TYPE & NUMBER, BH=BOREHOLE, DC=DIAMOND CUT

(REFER ATTACHED GEOTECHNICAL REPORTS FOR FURTHER INFORMATION)



**Sydney Adventist Hospital**  
185 Fox Valley Road  
Wahroonga NSW

**SYDNEY ADVENTIST HOSPITAL**

STREET ADDRESS  
SUBURB STATE AND POSTCODE  
phone : (02) 0000 0000  
fax : (02) 0000 0000  
email : email address

**morrisbrayarchitects**

Morris Bray Architects  
185-188 Willoughby Rd  
Crows Nest NSW 2067 Australia  
ABN 16 001 268 211  
NSW Architects Registration Board Nominated  
Architects: Terry Morris 3354 Garry Bray 3555

**MASTERPLAN**  
Borehole Investigations Summary

SCALE: 1:1000 @A1  
PLOT DATE: 5/07/2010

10001 A/E-A-8 P02  
JOB NO. DRAWING NUMBER: ISSUE:

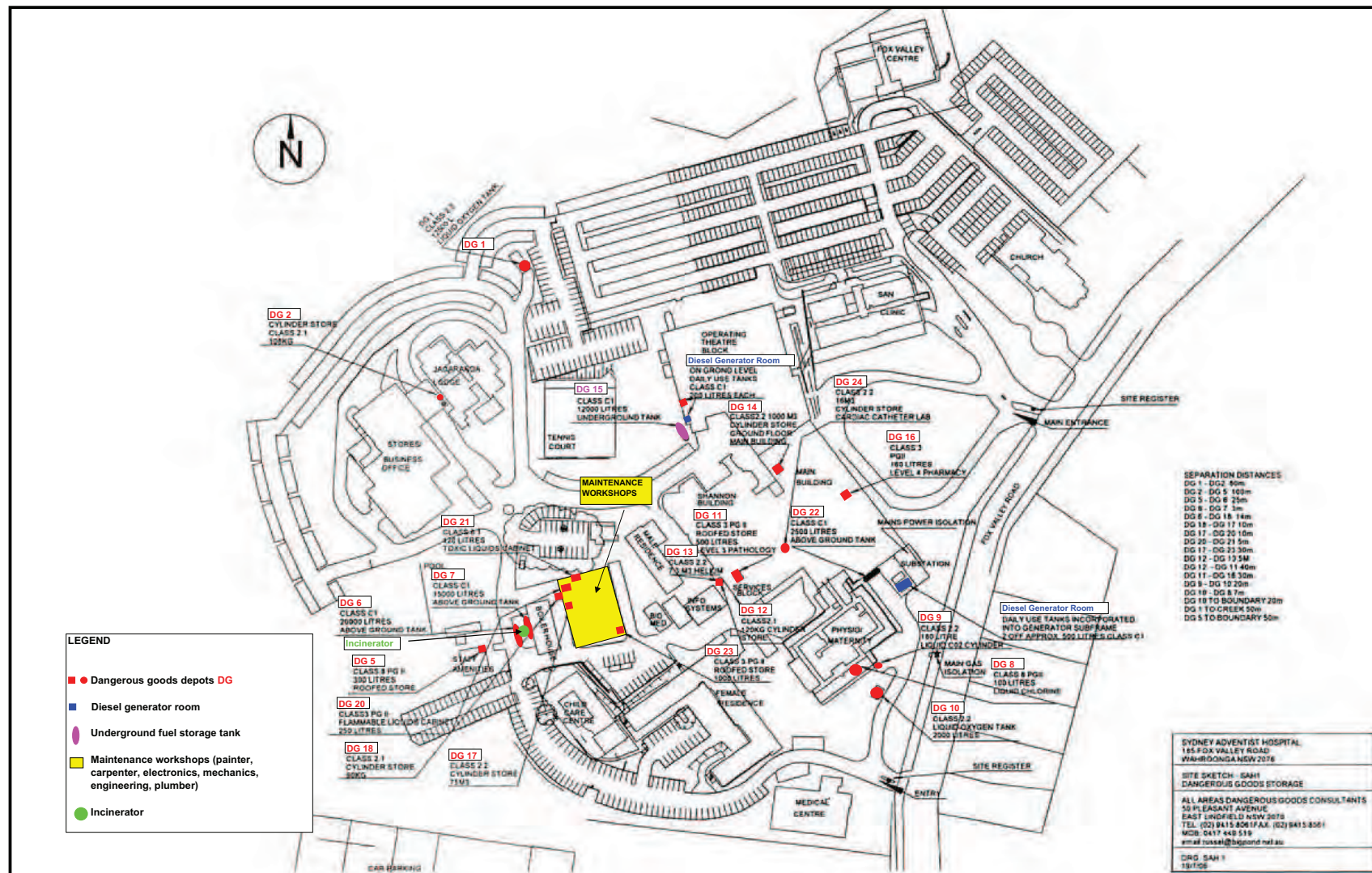
8

NOTES	No.	Initial	DATE	REVISION / ISSUE DETAILS	Check	PROJECT	CONSULTANT	CLIENT
Copyright © All Rights Reserved. This drawing may not be reproduced or transmitted in any form or by any means in part or in whole without permission of Morris Bray Architects Pty. Ltd.	P02	MB	02.07.10	Preliminary Information				
ALL LEVELS AND DIMENSIONS TO BE VERIFIED PRIOR TO COMMENCEMENT OF WORK. USE FIGURED DIMENSIONS ONLY. DO NOT SCALE.								
ALL WORK TO COMPLY WITH CURRENT REGULATIONS AND S.A.A. STANDARDS.								

# Appendix E: Areas of Potential Environmental Concern

**Targeted Contamination Assessment  
SAN Hospital, Wahroonga NSW**





Wahroonga Estate, Location of workshops and dangerous goods depots (DGP)  
148 Fox Valley Road  
Wahroonga NSW 2076

Project  
45569.01

June  
2008

Drawing  
3