Phase 1 & 2 Environmental Site Assessment

Dickson Commercial Centre

Block 21 Section 30, Dickson, ACT

Prepared for Land Development Agency | 27 February 2013

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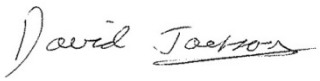
Signed: David Jackson. Reviewed Senior Hydrogeologist	

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Executive Summary

Environmental Strategies Pty Limited (ES) was commissioned by the Land Development Agency (LDA) to conduct a Limited Environmental Site Assessment (ESA) at Block 21, Section 30, Dickson Commercial Center, ACT.

The site is currently owned by the ACT Government and is zoned for CZ1 – Industrial Trades, Municipal depot, Store. The site is bounded by Antill Street to the north, an unnamed car park entrance road to the east and south, Badham Street to the west and is known as Block 21, Section 30 within the Dickson Commercial Center. The findings of this limited assessment are intended to be made available to prospective buyers to help facilitate the due diligence process associated with the proposed sale of the site.

The primary objective of the ESA completed by ES was to undertake an assessment to identify major issues, concerns or environmental risks and liabilities associated with the present and historical uses of the site. With particular focus on assessing whether there is potential for large scale soil and/or groundwater contamination issues associated with current/past land uses.

ES have also assumed that a basement carpark is likely to be built on the site which will require excess soils to be removed from site. Therefore preliminary advice on the potential beneficial re-use and waste classification of spoil material have also been included in this limited assessment.

The intrusive investigation identified the following:

- Fill (road base) was encountered at varying depths between 0.2m to 0.8m below ground level (bgl). It was observed to consist of large angular quartz gravels with fine grained sand with some minor dry clay content;
- The natural soils were encountered to a depth of 0.15 m to 4.5 m bgl and described as red silty clay / sandy clay, non-cohesive/non- plastic fines and dry;
- Weathered siltstone was encountered below 0.6 m and 4.5 m underlying the residual soils. The weathered siltstone was described as, pale yellow, brown-red, dry, extremely weathered (EW) with some siltstone angular gravels.
- Groundwater was not encountered to a maximum investigation depth of 18.2 m below ground level;
- The concentrations of total recoverable hydrocarbons (TRH); BTEX (benzene, toluene, ethylbenzene, xylene); polycyclic aromatic hydrocarbons (PAHs); heavy metals (As, Ca, Cr, Cu, Ni, Pb, Zn and Hg); organochlorine/organophosphate pesticides (OC/OPPs); and selected samples for asbestos in all soil samples analysed were reported to be below the commercial/industrial land use criteria as defined under the NEPM (1999) Schedule B (1) and the NSW EPA (1994) Guidelines for assessing service station sites;
- There was no evidence to suggest that underground storage tanks or commercial / industrial scale storage of chemicals or polluting industries had occurred at the site.

Based on the site history, field observation and soil sampling results ES concludes that the site is suitable for the proposed mixed commercial/high density residential land use. It is noted that these conclusions are based on a sampling plan for due diligence purposes only, therefore if a higher degree of confidence is required additional sampling should be undertaken.

Based on the laboratory results any material required to be disposed of offsite is likely to be suitable for the following re-use scenarios. These are currently only preliminary classifications and may require additional sampling by a suitably qualified consultant and subsequent

approval from the ACT Environmental Protection Unit (EPU) prior to haulage and offsite disposal:

- Fill material (road base), results indicate that the material may be re-used at a commercial industrial site, disposed of to the Borrow Pit in West Belconnen Resource Management Centre (WBRMC) or re-used onsite (assuming a commercial/industrial use);
- Natural soil material may likely be classified as virgin excavated natural material (VENM) and re-used on a commercial, open space, high density or standard residential site. Alternatively the soil could also be disposed of to the Borrow Pit at WBRMC or re-used onsite.

No soil should be removed from the site prior to gaining approval from the ACT EPU.

1 Introduction

1.1 Background

Environmental Strategies Pty Limited (ES) was commissioned by the Land Development Agency (LDA) to conduct a Limited Environmental Site Assessment (ESA) at Block 21, Section 30, Dickson Commercial Center, Australian Capital Territory (ACT). Refer to **Figure 1,** and **Figure 2,** Appendix **A** for a site location plan.

In addition to the ESA a geotechnical investigation was undertaken by ACT Geotechnical Engineers Pty Ltd and was reported separately.

This report details the findings of the limited ESA which was conducted as a due diligence exercise. The scope was designed to allow the site owner to identify the presence of any "big picture" contamination issues to provide a prospective buyer with land suitability data that may be used to help facilitate the sale of the property. At the time of preparing this report no previous environmental site investigations were known to have been conducted at the site.

1.2 Objectives

The primary objective of the ESA was to undertake an assessment to identify major issues, concerns or environmental risks and liabilities associated with the present and historical uses of the site. With particular focus on assessing whether there is potential for large scale soil and/or groundwater contamination issues associated with current/past land uses.

1.3 Scope of Work

ES completed the following scope of works:

- Preparation of an OHS plan to cover all site works in both stages;
- Site visit and walkover to characterise the property setting, including inspection of the site surface (to the extent practical) for obvious signs of potential contamination and / or contaminant sources (i.e. underground tanks);
- A visual evaluation of surrounding land uses to identify any neighbouring activities which may have affected or present a potential risk to the environmental quality of the site;
- Review of historical desktop based information including local and regional soil maps, geological and hydrogeological information, historical aerial photos and ACT EPU Contaminated Site Search Registers;
- An evaluation of aerial photographs to assist in assessing historical land uses and conditions on and adjacent to the site;
- Supervision of the drilling of 9 boreholes alongside the geotechnical investigation. Including the logging the soil strata and collection of samples at regular intervals, changes in geology or at zones of gross contamination;
- One (1) boreholes was extended to a maximum depth of 18.2 meters below grade and converted into a groundwater monitoring well;
- One soil sample of the fill/near surface soil per borehole and 9 natural soil samples (in total) were submitted to the NATA accredited laboratory Envirolab for selective analysis of:
    - total petroleum hydrocarbons (TPH);

- BTEX (benzene, toluene, ethylbenzene, xylene);
- polycyclic aromatic hydrocarbons (PAHs);
- metals (As, Ca, Cr, Cu, Ni, Pb, Zn and Hg);
- Polychlorinated biphenyls (PCBs) – surface samples only;
- organochlorine/organophosphate pesticides (OC/OPPs) – surface soils only; and
- asbestos– surface soils only.

- The groundwater level was gauged in the only well installed onsite approximately 7 days following well installation;
- Collection of QA/QC analysis at a rate of 1:20 duplicates, 1:20 triplicates;
- Assessment of the site investigation results against the relevant NEPM (1999) Commercial / Industrial Guidelines and the NSW EPA (1994) Guidelines for Assessing Service Station Sites (for TPH and BTEX only);
- Preliminary assessment of the results against the relevant ACT EPU beneficial reuse (BRU) guidelines; and
- Preparation of a report with reference to the relevant ACT EPU endorsed guidelines listed in the ACT Contaminated Sites Environmental Protection Policy (2009), including provision of conclusions on whether there is a potential risk associated with any identified contamination and whether remediation maybe required, for the proposed commercial landuse.

1.4 Report Limitations

The findings of this report are based on the scope of work outlined in section 1.3. ES performed its services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties, expressed or implied are made.

Subject to the scope of work, ES's assessment was limited strictly to identifying the environmental conditions associated with the subject property and does not include evaluation of any other issues. The absence of any identified hazardous or toxic materials should not be interpreted as a guarantee that such materials do not exist on the subject property.

This report does not comment on any regulatory obligations based on the findings. This report relates only to the objectives stated and does not relate to any other work undertaken for the Client. It is a report based on the concentrations of contaminants observed in soil at the time of the sample collection. These conditions may change with time and space.

All conclusions and recommendations regarding the property are the professional opinions of the ES personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, ES assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements or sources outside of ES, or developments resulting from situations outside the scope of this project.

ES is not engaged in environmental assessment and reporting for the purpose of advertising sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The client acknowledges that this report is for the exclusive use of the client.

2 Site Characteristics

2.1 Site Location

It is understood that currently the site is completely sealed and used as a car park for users of the nearby Dickson Commercial Center. The site is bounded by Antill Street to the north, an unnamed car park entrance road to the south and east, and Badham Street to the west. The site is approximately 7,867 m^2 and roughly trapezoidal in shape. The site is known as Block 21, Section 30 and forms part of the Dickson Center planning district, located in inner north Canberra approximately 4km north of the Civic Center. The site location and current site layout are presented as **Figures 1,** and **Figure 2,** in **Appendix A**.

2.2 Site Description Current Site Activities

The site occupies an area of approximately 7,867 m^2 and is roughly trapezoidal in shape and is owned by the ACT Government. The land is zoned as *CZ1 – Core Zone* and is currently used as a car park that services the adjacent Dickson Commercial Centre. Table 2.2 provides a summary of the site details. Refer to **Figure 2, Appendix A** for site layout information.

During the site walkover conducted on 18th December 2012, the site was observed to be vacant of any structures with the exception of ticketing machines, light poles and some charity collection bins across the site. The majority of the site surface was sealed with asphalt to provide a hardstand car park, with grassed areas with trees and shrubs along the northern and western boundaries. There were also a number of trees in planter boxes along the rows of parking spaces and along the southern boundary. The site was relatively flat with surface drainage in an approximately south westerly direction.

Table 2.2 Site Detail Summary

Site Characteristic	Detail
Street Address	N/A
Approximate Easting and Northing	35”1477.55 S, 149”0819.50 E
Approximate Elevation (AHD)	576m
Lot / DP	Block 21 , Section 30 Dickson Commercial Center
Land Zoning	CZ1 – Industrial Trades, Municipal depot, store
Current Landuse	237 spaced asphalt sealed car park
Site Area (approximately)	7,867m^2

2.3 Surrounding Land Uses

The current surrounding land use is as follows:

- North: Antill St beyond which are residential properties;
- South: Woolworths supermarket and a McDonald’s operation;
- West: Shell Service Station and a KFC operation; and
- East: Dickson library and a community building.

2.4 Sensitive Environments

The nearest sensitive environments are as follows:

- The nearest residential properties are located approximately 40 metres north of the site across Antill Street;
- A groundwater extraction bore is located approximately 900m west of the site and is licensed to the Brindabella Christian College for stock and domestic purposes;
- The closest environmental receptors are;
    - Sullivans Creek approximately 250m south; and
    - Daramalan College Oval approximately 400 m to the southwest

2.5 Proposed Landuse

At the time of preparing this limited ESA it was understood that LDA propose to facilitate the sale of the property for redevelop for a proposed mixed development with commercial/ residential uses. It is assumed that the ground and lower floors will be commercial with residential apartments on the upper floors.

3 Site History

3.1 Aerial Photograph Review

Aerial photos were reviewed to assist in identifying the site history. The selected photos were sourced from the NSW Department of Lands and included the 1944, 1959, 1968, 1985, 1998, 2005 and 2012 series. Table 3.1 represents a summary of the review of each of these photographs and the photos are presented in **Appendix B**.

Table 3.1: Summary of Aerial Photograph review

Date	Description of Subject Site	Description of Surrounding Land
1944	The site consists of cleared vacant land likely used for agricultural pastoral land. No signs of built infrastructure or agricultural infrastructure are present.	Surrounding land consists of scattered trees and cleared pastures most likely for agricultural use. High density residential housing is located to the south east of the site.
1959	No apparent changes appear to have occurred since the 1944 aerial photograph.	Urban development of the surrounding land to the south east and south west of the site. Land to the north and north west remains as open grazing land
1968	The site shows signs of development although poor photo quality makes it difficult to ascertain site usage. Trees appear to be present along the northern and eastern boundary and several vertical rows are visible, the layout appears to resemble that of the current car park. No structures are present on the site.	The layout of the Dickson Commercial centre has been developed within the areas immediately surrounding the site. Urban residential development is now visible in all directions around the site.
1985	The site is now visible as a car park with a layout very similar to the current setup.	No apparent changes appear to have occurred since the 1968 aerial photograph.
1998	Colored aerial photographs show the site is used as a car park. The same vertical rows as identified in the previous aerial photographs are evident, indicating the site usage has not changed since 1968.	No apparent changes appear to have occurred since the 1985 aerial photograph with the exception of the Current Woolworths building being extended to the south and the development of the McDonalds operation to the south.
2005	No apparent changes appear to have occurred since the 1998 aerial photograph.	No apparent changes appear to have occurred since the 1998 aerial photograph.
2012	No apparent changes appear to have occurred since the 2005 aerial photograph.	No apparent changes appear to have occurred since the 1998 aerial photograph.

It is noted that data obtained from the aerial photos is in some instances subjective due to small scales and resolutions and therefore should be treated with care.

3.2 Historical Title Deeds

A title search indicated that the site was Australian Territory Land controlled by the ACT Development Authority. Refer to **Appendix C** for a summary of the title search.

3.3 ACT EPU Contaminated Site Search

A search completed by the ACT EPU indicated the following:

- The block is not recorded on the EPA's contaminated sites management database;
- There have not been any orders issued under the relevant section of the Environment Protection Act 1997; and
- The EPA, at the time of the search, did not have any information on contamination at the block.

Refer to **Appendix D** for a copy of the ACT EPU contaminated land search

3.4 Summary Potential Contamination Sources

Based on the site visit and desktop information obtained during this ESA, the following areas of environmental concern (AEC) and contaminants of potential concern were identified. These are presented in Table 3.4 below:

Table 3.4: Areas of Environmental Concern and the Contaminants of Potential Concern.

Area of Environmental Concern (AEC)	Contaminants of Potential Concern (COPC)
Any Filled Areas across the site surface and spills/leakage of vehicles parked on the site	Heavy metals, TPH, BTEX, PAHs, Phenols, OCPs, OPPs and asbestos.
Pesticide usage across the site surface from former agricultural landuses	OCPs and OPPs.
Storage of plant equipment	Heavy metals, TPH, BTEX and PAHs
Shell service station adjacent to western boundary	Heavy metals, TPH, BTEX and PAHs

It is noted that base on the current desktop searches, with the exception of the adjacent Shell service station, to the west of the site boundary across Badham street there was no evidence of the historical use of any underground storage tanks (USTs) at the site. Based on this finding ES consider there is a low risk of groundwater contamination to exist at the site.

4 Environmental Setting

4.1 Topography

The site elevation was determined to be approximately 576m AHD and sloped gently toward the southwest. The site appeared to be relatively flat with no cut and minimal fill (road base).

4.2 Geology

The 1:250,000 Geological Series Sheet SI 55-16 shows the site to be underlain Quaternary soil, clay, silt, sand, gravels.

The geology observed across the site during the Geotechnical Investigation was as follows:

- Fill (bitumen/asphalt) was observed to be present across the majority of the site to depths of 0.03 m below ground level (bgl) with the exception of BH9 which was observed as silty sandy clay topsoil to 0.3 m.
- Fill (Road base) was observed to be present across the majority of the site to depths of 0.13 m to 0.15 m below ground level (bgl).
- The natural soils were described as red silty clay / sandy clay, non-cohesive/non- plastic fines, dry to a depth of 0.15 m to 4.5 m bgl.
- Weathered siltstone was encountered below 0.6 m to > 4.5 m underlying the residual soils. The weathered siltstone was described as, pale yellow, brown-red, dry, extremely weathered (EW) with siltstone gravels.

For further description of the soil profile refer to **Attachment F** for the bore logs.

4.3 Hydrogeology

A search of the ACT groundwater database indicated one (1) registered groundwater bore was within a 1 km radius of the site and one (1) registered groundwater bore within a 2.5 km radius of the site. Locations of the bores and copies of the water bore information sheets are provided in **Appendix E**. Table 4.3 below summaries the findings of the search:

Table 4.3: Summary of Groundwater Bores

Monitoring Well ID	Location Relative to the Site	Use
WU273	~ 900m west of the site	Stock and domestic purposes
WU102	~2500m northeast of the site	Agricultural irrigation, commercial purposes

A limited groundwater investigation was conducted as part of this ESA due to the depth to groundwater (greater than 18m) and the absence of historical evidence to suggest the presence of significant groundwater contamination sources. Only one groundwater monitoring well was installed along the western boundary of the site to target groundwater contamination that may be migrating from the Shell service station.

Based on site topography and the proximity of the site to the surrounding rivers, the shallow groundwater flow direction is inferred to be in a south westerly directly towards Sullivans Creek. It is noted however that the bedrock groundwater will be present within a fractured rock environment and the local groundwater flow directions will be driven by the connectivity and orientation of these fractures.

4.4 Environmental Receptors

Based on site topography, geology and hydrogeology the closest environmental receptor to receive groundwater flow (approximately 350m) is Sullivans Creek which is approximately 350m south of the site. Sullivans Creek runs flows south westerly across Northbourne Ave and then changes direction and flows in a southerly direction were if meets Lake Burley Griffin.

5 Sampling and Analysis Plan and Investigation Methodology

This section outlines the methodology adopted by ES during the intrusive works conducted as part of the ESA. This section also provides details on the sampling and analysis, rationale for borehole locations, description of field equipment used, decontamination procedures, field and laboratory quality assurance and control, laboratory analytical methods and sample preservation.

5.1 Data Quality Objectives (DQO)

The DQO process is a systematic planning tool based on the scientific method for establishing criteria for data quality and for developing data collection designs. The DQO defines the experimental process required to test a hypothesis. The DQO process has been developed to ensure that efforts relating to data collection are cost effective, by eliminating unnecessary, duplicative or overly precise data whilst at the same time, ensuring the data collected is of sufficient quality and quantity to support defensible decision making.

It is recognised that the most efficient way to accomplish these goals is to establish criteria for defensible decision making before data collection begins and develop a data collection design based on these criteria. By using the DQO process to plan the investigation effort, the relevant parties can improve the effectiveness, efficiency and defensibility of a decision in a resource and cost effective manner.

The DQO process consists of seven steps, which are designed to clarify the study objectives, define the appropriate type of data and specify tolerable levels of potential decision errors. The seven-step DQO process adopted for the ESA can be summarised as:

- **Step 1:** State the Problem – concisely describe the problem to be studied. Reviewprior studies and existing information to gain a sufficient understanding to define theproblem.
- **Step 2:** Identify the Decision – identify what questions the study will attempt toresolve, and what actions may result.
- **Step 3:** Identify the Inputs to the Decision – identify the information that needs to beobtained and the measurements that need to be taken to resolve the decision statement.
- **Step 4:** Define the Study Boundaries – specify the time periods and spatial area towhich decisions will apply. Determine when and where data should be collected.
- **Step 5:** Develop a Decision Rule – define the statistical parameter of interest, specifythe action level, and integrate the previous DQO outputs into a single statement thatdescribes the logical basis for choosing among alternative actions.
- **Step 6:** Specify Tolerable Limits on Decision Errors – define the decision maker'stolerable decision error rates1 based on a consideration of the consequences of making anincorrect decision.
- **Step 7:** Optimise the Design –evaluate information from the previous steps andgenerate alternative data collection designs. Choose the most resource-effective designthat meets allDQOs.

The DQOs for this ESAare provided in Table 5.1 and were derived in accordance with *AS 4482.1-1997.*

Table 5.1: Project DQOs

State the Problem	To assess whether contamination was present in near surface soil and groundwater on the site and to make recommendation for further investigation/remediation/management if required.
Identify the Decision	If contamination was identified on the site: ▪ What is the extent of the impact? ▪ Does any contamination at the subject site occur at concentrations that pose or may pose an unacceptable liability or risk to the environment and/or human health to occupants of the proposed commercial redevelopment? ▪ If so what is the order of priority to minimise the risk and what additional measures are required to mitigate or manage the risk?
Identify the Inputs to the Decision	Key data required to resolve the project problem included concentrations of contaminants of concern in the soil and groundwater collected in the study area and the structure of the underlying site geology. Groundwater was not considered to be a relevant media of concern, considering that controlled filling that had taken place on the site and that no underground storage tanks were present on site. Based on the desktop searches, the site history and the current site condition the following contaminants of concern were identified in the soil: ▪ BTEX (benzene, toluene, ethylbenzene, xylene); ▪ Total petroleum hydrocarbons (TPH) ▪ polycyclic aromatic hydrocarbons (PAHs); ▪ Heavy metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg); ▪ Polychlorinated biphenyls (PCBs) – surface samples only; ▪ OC/OPPs– surface soils only; and ▪ Asbestos – surface soils only. As the site is proposed to be redeveloped for commercial use, the guidelines adopted by ES to assess the soil results were the NEPM (1999) Commercial / Industrial Guidelines and the NSW EPA (1994) *Guidelines for Assessing Service Station Sites* (human health based threshold concentrations for sensitive land use) for BTEX and TPH.
Define the Study Boundaries	The intrusive ESA was limited to the surface soil between 0.1 and 6.0m within the physical site boundaries of the site, as shown in Figures 1 and 2, Appendix A. The vertical extent of the study boundaries was limited to a maximum depth of 6.0m into natural material. The temporal boundaries of the study were limited to those dates that the investigation was undertaken (as detailed in Table 5.2).
Develop a Decision Rule	If the concentrations of contaminants in the soil or groundwater are reported to be below the relevant adopted guidelines, then the soil and groundwater will be deemed suitable to remain on site for the proposed land use. If, however, the concentration of one or more contaminants is greater than the guidelines, then further investigation will be required to laterally and vertically delineate the extent of the contamination and recommendations made for the management of the contamination to make the site suitable for the proposed use.
Specify Tolerable Limits on Decision Errors	The acceptable limits for soil are as follows: ▪ % RPD for laboratory duplicates for TPH and BTEX analysis is less than 60%. ▪ Recovery of matrix spikes and surrogate spikes is as per the laboratory's Quality Assurance targets accepted under their National Association of Testing Authorities (NATA) accreditation. Precision is measured using the standard deviation 'SD' or Relative Percent Difference '%RPD'. Replicate data for field duplicates of organics is expected to be as follows: ▪ RPD criteria of 50% or less, for concentrations > or = 10 times EQL; ▪ RPD criteria of 75% or less, for concentrations between 5 and 10 times the EQL; and ▪ RPD criteria of 100% or less, for concentrations < 5 times EQL. Replicate data for field duplicates for inorganics, including metals is expected to be as follows: ▪ RPD criteria of 30% or less, for concentrations > or = 10 times EQL; ▪ RPD criteria of 75% or less, for concentrations between 5 and 10 times the EQL; and ▪ RPD criteria of 100% or less, for concentrations < 5 times EQL.

	Where acceptable limits for field duplicates were not met, a discussion on low biased error will be provided.
Optimise the Design	Soil samples were collected in a systematic and targeted approach to optimise the design for efficient and representative sampling.

5.2 Schedule of Works

Fieldworks including site inspection and surface soil sampling were conducted by ES Environmental Scientists David Jackson on 18th and 19th December 2012. The drilling of nine (9) boreholes was conducted alongside a geotechnical investigation. Each borehole was logged and samples collected at regular intervals, changes in geology or in zones of gross contamination.

The geotechnical investigation and soil logging was conducted by ACT Geotechnical Engineers.

At the time of drilling works, no groundwater was intercepted in BH1 to a depth of 18.2m, and at no other locations to a depth of 6.0m. BH1 was converted to a groundwater monitoring well due to its proximity to the service station site. No groundwater was present during construction or during groundwater gauging 5 days following installation.

5.3 Sampling and Analysis Plan

The intention of the sampling plan was to provide an assessment of the site with an appropriate number of locations to effectively allow conclusions to be made in relation to the status of the soil and groundwater, based on site history and past landuses, and its suitability for the proposed mixed commercial / residential land use.

Sampling locations were strategically placed to assess soil and groundwater quality to gain an understanding of the following:

- To assess the soil and groundwater quality across the site;
- To target areas of potential and historical contaminant sources (i.e. areas of filling);
- Determine concentrations of contaminants beneath proposed buildings; and
- Provide adequate site coverage.

5.3.1 Soil Sample Locations

Table 5.3: Rationale of soil sampling locations.

Sample Point	Reasoning For Sample Location	Analyte Suite
BH2 – BH9	To provide adequate site coverage and target various areas of site filling.	▪ Soil: TPH, BTEX, PAH, heavy metals, selective OCP, OPP and Asbestos
BH1/MW1	To provide adequate site coverage and target various areas of site filling and capture the groundwater (if any) along this site boundary	▪ Soil: TPH, BTEX, PAH, heavy metals, selective OCP, OPP and Asbestos ▪ Groundwater: No groundwater present to a depth of 18.2 metres.

5.3.2 Soil Logging and Sampling

Soil sampling was conducted using solid flight auguring techniques, fill and natural soil samples were collected directly from the augur using disposable nitrile gloves. Ensuring the sample was collected from the centre of the auger head to reduce the risk of cross

contamination. Part of the soil sample was then placed into snap lock plastic bags for screening with the PID and the other being placed directly into a laboratory prepared 250ml glass jar with the details of the sample, including the sample name, the job number, the date of sample and the sample depth. For additional sample integrity, the disposable nitrile gloves were replaced between each sampling event. Sample preservation was undertaken in accordance with NEPC (1999) with samples immediately placed and stored in an ice filled Esky to keep them chilled, prior to being couriered to the laboratory with the signed chain of custody form filled out with the required analysis.

Each soil sample was described in general accordance with the Unified Soil Classification System (USCS) and details of any discolouration, staining, odours or other indicators of contamination were also noted.

5.4 Laboratory Analysis and Methods

Table 5.4 lists the soil analytical laboratory methods for soil.

Table 5.4. Laboratory methods for soils

Analyte	Method	PQL (mg/kg)
Metals		
As	Metals.20 ICP-AES Determination of various metals by	4
Ca	ICP-AES.	0.5
Cr		1
Cu		1
Ni		1
Pb		1
Zn		1
Hg	Metals.21 CV-AAS Determination of Mercury by Cold Vapour AAS	0.1
BTEX		
Benzene	Org-016 Soil samples are extracted with methanol and	0.2
Toluene	spiked into water prior to analysing by purge and trap	0.5
Ethylbenzene	GC-MS.	1
Xylene		3
TRH		
C6-C9	Org-016 Soil samples are extracted with methanol and spiked into water prior to analysing by purges and traps GC-MS.	25
C10-C14		50
C15-C28	Org-003 Soil samples are extracted with	100
C28-C36	Dichloromethane/Acetone and analysed by GC-FID.	100
PAHs		
Benzo(a)pyrene	Org-012 subset Soil samples are extracted with	0.05
Total PAHs	Dichloromethane/Acetone and analysed by GC-MS.	--
OCPs		
Aldrin + Dieldrin	Org-005 Soil samples are extracted with	0.1
Chlordane	dichloromethane/acetone and analysed by GC with dual	0.1
DDT+DDD+DDE	ECD's.	0.1/0.1/0.1
Heptachlor		0.1
OPPs	Org-008 Soil samples are extracted with dichloromethane/acetone and analysed by GC with dual ECD's.	0.5
Asbestos	ASB.1 Asbestos ID - Qualitative identification of asbestos type fibres in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques.	--

6 Quality Assurance and Quality Control (QA/QC)

6.1 Field Quality Assurance

6.1.1 Details of Sampling Team

Soil sampling was conducted by Senior Hydrogeologist David Jackson from Environmental Strategies.

6.1.2 Decontamination Procedures Carried out Between Sampling Events

There were no reusable sampling tools used between events with the exception of the augers that were brushed clean with a wire brush. Considering the dry nature of the soils encountered ES consider this to be a suitable method of decontamination.

6.1.3 Chain of Custody Details

Soil samples were transported to the laboratory under a chain of custody (CoC). Information on the CoC included the sampler, sample identifier, sample matrix, collection date, analyses to be performed, sample preservation method, sample release date and sample received date. CoCs are provided in **Appendix G** along with the laboratory reports.

6.1.4 Sample Splitting Techniques

No soil samples were split during this investigation. Soil samples are spilt by collecting representative samples of the soil sample at the same depth interval. Due to the potential loss of volatiles, samples were not mixed and separated, but replicate samples were collected.

6.1.5 Statement of Duplicate Frequency

ES collects field duplicates for intra-laboratory QA/QC at a rate of at least 1:20 samples and collects field triplicates for inter-laboratory QA/QC at a rate of at least 1:20 samples.

For this project, the following QA/QC samples were collected:

- Dup 1 was a soil intra-laboratory duplicate of BH8;
- Trip1 was a soil inter-laboratory duplicate of BH8;

QA/QC samples were collected at a rate of 1:9 for soil which is in accordance with the Australian Standard Field procedures (AS1482.1 1997).

6.1.6 Rinsate Sample Results

Rinsate samples were not collected during the field work. ES considers that adequate decontamination procedures, dedicated sampling materials and best practice sampling methods and appropriate decontamination methods were used to prevent the potential for cross contamination to occur. Therefore ES does not consider the dataset to be compromised due to the lack of a rinsate sample.

6.1.7 Trip Blank

Trip-blanks were not considered appropriate for this investigation and ES does not consider the integrity of the dataset to be compromised. All samples were collected within laboratory supplied sample jars/bottles and stored and transported within an ice chilled Esky to prevent the loss of volatile compounds.

6.1.8 Trip Spike Results

Trip-spikes were not considered appropriate for this investigation and ES does not consider the integrity of the dataset to be compromised. All samples were collected within laboratory supplied sample jars/bottles and stored and transported within an ice chilled Esky to prevent the loss of volatile compounds.

6.2 Laboratory QA/QC

6.2.1 Holding Times

All holding times were reported as being within specified ranges.

6.2.2 Laboratory Accreditation for Analytical Methods Used

The primary laboratory used was Envirolab Services (Envirolab). Envirolab are accredited by NATA to ISO 17025, accreditation number 2901.

The secondary laboratory used for analysis of soil was the MGTLabmark Environmental Laboratories (MGT). MGT is accredited by NATA to ISO 17025, accreditation number 1261.

MGTLabmark forwarded a sample to Australian Safer Environment & Technology PTY LTD (ASET) for asbestos analysis of the soil. ASET is accredited by NATA to ISO/IEC 17025, accreditation number 14484

6.2.3 Percent Recoveries of Spikes and Surrogates

Laboratory QA/QC is provided on the laboratory reports in **Appendix I**. All spikes and surrogates were within acceptable ranges.

6.2.4 Standard solution results

All Envirolab standard solution (or LCS – laboratory control sample) were within acceptable ranges.

6.2.5 Laboratory duplicate results

All Envirolab laboratory duplicates were within acceptable ranges.

6.2.6 Laboratory blank results

All Envirolab laboratory blank results were within acceptable ranges.

6.3 QA/QC Data Evaluation

6.3.1 Evaluation of the QA/QC Information Compared to the DQOs

- Documentation completeness:
  - Soil logs and chain-of-custody forms were completed and appropriate.
- Data completeness:
  - All samples were received by the laboratories and analytical results reported including laboratory QA/QC.
- Data comparability:

- ES standard operating procedures, Australian Standards and industry best practice were followed during soil sampling.
- Consistent field conditions and staff were used during sampling.
- Standard analytical methods were used by the laboratories for all analyses.
- The limits of reporting are appropriate and consistent from each laboratory.

- Data representativeness:
  - Rinsate samples were not collected, however dedicated sampling equipment was used.
  - The frequency of laboratory blanks was acceptable and the results were within specified ranges.
- Precision:
  - Field duplicates were collected at a rate of 1:20 for soil samples. These rates are within the Australian Standard (AS1482.1 1997)and ES' QA frequency ranges.
  - Inter-laboratory duplicates were collected at the same rate as intra-laboratory duplicates.
  - Laboratory duplicates were collected at acceptable frequencies. The laboratory duplicate RPDs were within acceptable ranges.

6.3.2 Data Comparability

- All soil samples were collected using the same method. The weather conditions during both days of sampling remained relatively stable;
- All samples analysed by Envirolab used the same methodologies for each respective analyte.

6.4 Relative Percentage Difference

Refer to **Appendix I** for RPD calculations, it is noted that RPDs were only calculated for groups of compounds with detections above the laboratory detection limits.

Relative Percent Differences (RPDs) for soil were within acceptable ranges with the exceptions of some minor heavy metal results for copper, nickel and zinc . Concentrations of analytes that had RPD exceedences were all below the adopted site criteria. ES considers the data is of acceptable quality.

7 Assessment Criteria

7.1 Rationale for Selection of Soil Criteria

The selected assessment criteria for soils were based on the proposed commercial / high density residential development and relevant national criteria. Since there is likely to be a mixed use the most sensitive of the two uses was adopted. The adopted soil assessment criteria comprise the following:

- The NEPM (1999) Schedule B (1) Guideline on the Investigation Levels for Soil and Groundwater Health Investigation Level D – Residential with minimal opportunities for soil access.
- The NSW EPA (1994) Guidelines for Assessing Service Station Sites (threshold concentrations for sensitive land use) have been used for BTEX and TPH as the NEPM (1999) does not provide guidelines for these analytes.

7.2 Soil Assessment Criteria

Table 7.2.1 below lists the adopted soil assessment criteria (SAC) for the site.

Table 7.2.1 Soil Assessment Criteria

Analyte	Soil Assessment Criteria (mg/kg)
Benzene	1 [b]
Toluene	130 [a]
Ethylbenzene	50 [a]
Xylene	25 [a]
TRH C_6-C_9	65 [a]
TRH C_{10}-C_{36}	1,000 [a]
Arsenic	400 [b]
Cadmium	80 [b]
Chromium	400 [b]
Copper	4000 [b]
Lead	1200 [b]
Nickel	2400 [b]
Zinc	28000 [b]
Mercury	60 [b]
Benzo(a)pyrene	4 [b]
Naphthalene	-
Total PAH	80 [b]
Asbestos	No Detection [c]

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

b. NEPM (*1999) Schedule B (1) Guideline on the Investigation Levels for Soil and Groundwater Health Investigation Level F – Commercial/Industrial*

c. In the absence of any ACT endorsed criteria the limit of reporting has been adopted.

8 Observations and Analytical Results

The following section presents an overview of the field observations for soil encountered during the ESA. Bore logs are included in **Appendix F.**

8.1 Field Observations - Soil

The geology observed across the site during the ESA was as follows:

- Fill (bitumen/asphalt) was observed to be present across the majority of the site to depths of 0.03 m below ground level (bgl) with the exception of BH9 which was observed as silty sandy clay topsoil to 0.3 m.
- Fill (Road base) was observed to be present across the majority of the site to depths of 0.13 m to 0.15 m below ground level (bgl).
- The natural soils described as red silty clay / sandy clay, non-cohesive/non- plastic fines, dry to a depth of 0.15 m to 4.5 m bgl.
- Weathered siltstone was encountered below 0.6 m to > 4.5 m underlying the residual soils. The weathered siltstone was described as, pale yellow, brown-red, dry, extremely weathered (EW) with siltstone gravels.

No visual or olfactory evidence of contamination was noted during the field works. For further description of the soil profile refer to **Attachment F** for the bore logs.

8.2 Soil Analytical Results

The following presents a summary of results for soil samples. Result summary tables are included in **Appendix H** with copies of laboratory certificates included in **Appendix G**:

8.2.1 Heavy Metals, PAHs, OCPs and OPPs

Concentrations of heavy metals, PAHs, OCPs and OPPs in all soil samples submitted for analysis were reported below the SAC.

8.2.2 BTEX

Concentrations of BTEX in all soil samples submitted for analysis were reported below the SAC.

8.2.3 TRH

Concentrations of TRH in all soil samples submitted for analysis were reported below the SAC.

8.2.4 Asbestos

No asbestos fibres (visible or respirable) were detected in any of shallow soil samples submitted for analysis.

8.3 Groundwater

Groundwater was not encountered to a maximum investigation depth of 18.2m below ground level. Given the lack of onsite groundwater contamination sources and the relatively large low permeability attenuation zone ES considers there is a low risk of groundwater contamination to be present at the site.

9 Conclusions and Recommendations

Based on the field observations and review of analytical data collected during the ESA and Geotechnical Assessment at Block 21 Section 30 Dickson Commercial Center, the following conclusions have been reached:

9.1 Summary of Findings

The intrusive investigation identified the following:

- Fill (road base) was encountered at varying depths between 0.2m to 0.8m below ground level (bgl). It was observed to consist of large angular quartz gravels with fine grained sand with some minor dry clay content;
- The natural soils were encountered to a depth of 0.15 m to 4.5 m bgl and described as red silty clay / sandy clay, non-cohesive/non- plastic fines and dry;
- Weathered siltstone was encountered below 0.6 m and 4.5 m underlying the residual soils. The weathered siltstone was described as, pale yellow, brown-red, dry, extremely weathered (EW) with some siltstone angular gravels.
- Groundwater was not encountered to a maximum investigation depth of 18.2 m below ground level;
- The concentrations of total recoverable hydrocarbons (TRH); BTEX (benzene, toluene, ethylbenzene, xylene); polycyclic aromatic hydrocarbons (PAHs); heavy metals (As, Ca, Cr, Cu, Ni, Pb, Zn and Hg); organochlorine/organophosphate pesticides (OC/OPPs); and selected samples for asbestos in all soil samples analysed were reported to be below the commercial/industrial land use criteria as defined under the NEPM (1999) Schedule B (1) and the NSW EPA (1994) Guidelines for assessing service station sites;
- There was no evidence to suggest that underground storage tanks or commercial / industrial scale storage of chemicals or polluting industries had occurred at the site.

It is noted that these conclusions are based on a sampling plan for due diligence purposes only, therefore if a higher degree of confidence is required additional sampling should be undertaken.

9.2 Extent of Uncertainties in the Results

The sampling methodologies used by ES during this investigation have been designed to limit uncertainty in the results. ES is confident that the results of this investigation give an accurate representation of the current status of the site but note that in all subsurface investigations the potential remains for variation between sampling points and conditions different from that reported here may exist on site.

9.3 Limitations and Constraints on the Use of the Site

ES considers the site is suitable for the proposed mixed commercial / high density residential land use. It is noted that these conclusions are based on a sampling plan for due diligence purposes therefore if a higher degree of confidence is required additional sampling can be undertaken.

9.4 Recommendations

Based on the laboratory results any surplus material required to be disposed of offsite is likely to be suitable for the following re-use scenarios. These are currently only preliminary classifications and may require additional sampling by a suitably qualified consultant and

subsequent approval from the ACT Environmental Protection Unit (EPU) prior to haulage and offsite disposal:

- Fill material (road base), results indicate that the material may be re-used at a commercial industrial site, disposed of to the Borrow Pit in West Belconnen Resource Management Centre (WBRMC) or re-used onsite (assuming a commercial/industrial use);
- Natural soil material may likely be classified as virgin excavated natural material (VENM) and re-used on a commercial, open space, high density or standard residential site. Alternatively the soil could also be disposed of to the Borrow Pit at WBRMC or re-used onsite.

No soil should be removed from the site prior to gaining approval from the ACT EPU.

10 References

ACT EPA (November 2009) Contaminated Sites Environmental Protection Policy;

ANZECC/NHMRC (1992) Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites;

Department of Environment and Climate Change (2009) Guidelines on the Duty to Report Contamination Under the Contaminated Land Management Act 1997;

National Environment Protection Council (1999) National Environment Protection Measure (NEPM) 1999 – Assessment of Site Contamination Schedule B (1) and B (2);

NSW Environment Protection Authority (2006) Guidelines for the Site Auditor Scheme Environment Protection Authority;

NSW Environment Protection Authority (1994) Guidelines for Assessing Service Station Sites Environment Protection Authority, Chatswood;

NSW Environment Protection Authority (1995) Sampling Design Guidelines. Environment Protection Authority, Chatswood;

NSW DECC (2009) Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997.

ACT Geotechnical Engineers (January 2013) ACT LDA Block 21 Section 30, ACT.

Appendix A

Figures

1 – Site Location

2 – Site Layout and Borehole Location Plan

Appendix B

Aerial Photos

Appendix C

Title Deed Search

Appendix D

Contamination Land Search (ACT EPU)

Appendix E

Registered Groundwater Bore Information

Appendix F

Bore Logs

Appendix G

Laboratory Certificates

Appendix H

Results Summary Tables

Appendix I

RPD Calculations

Appendix A

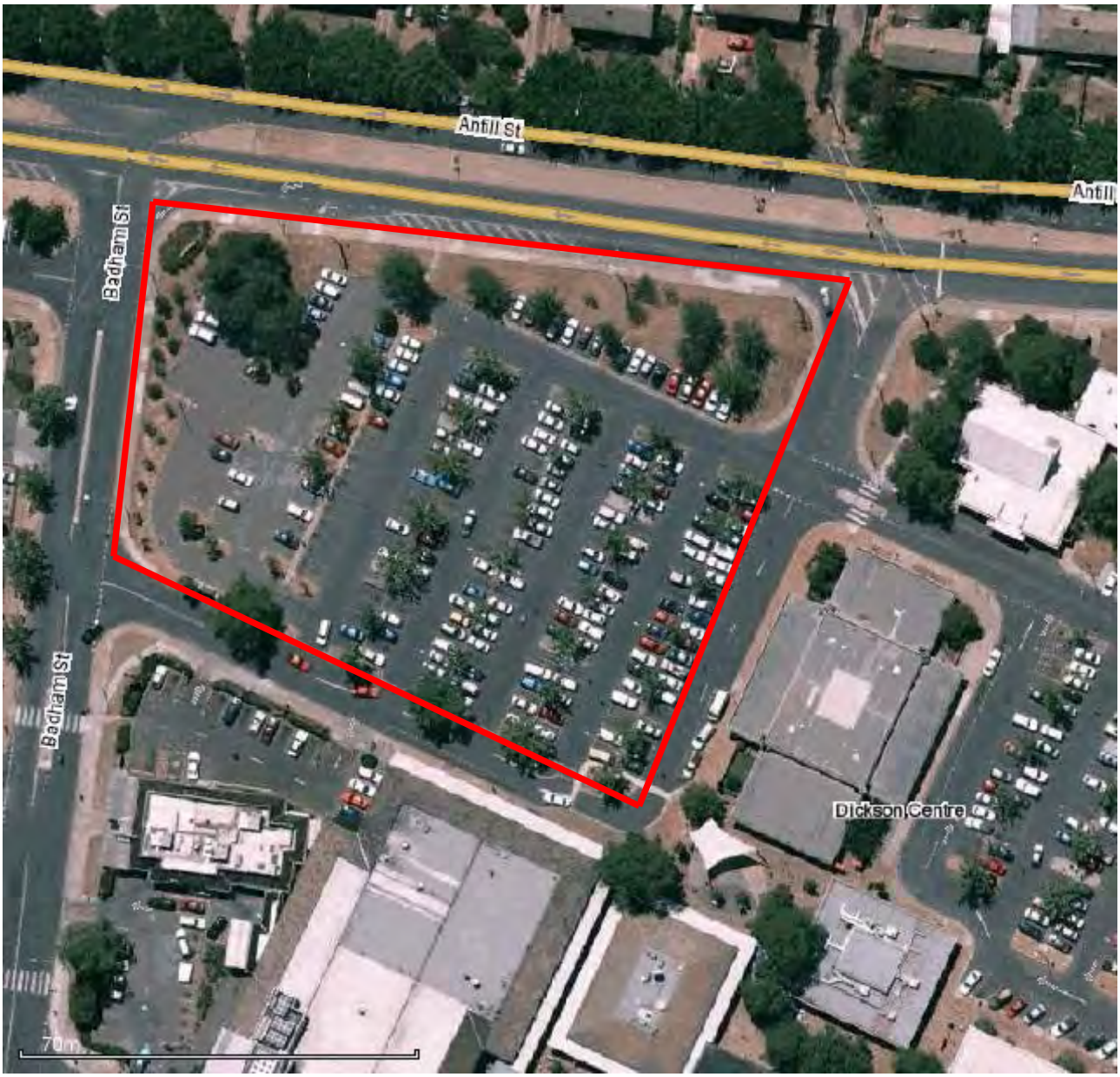
Figures

1 – Site Location

2 – Site Layout and Borehole Location Plan

Site Layout
Block 21, Section 30 Dickson Commercial Centre,
Dickson. VIC

FIGURE 2



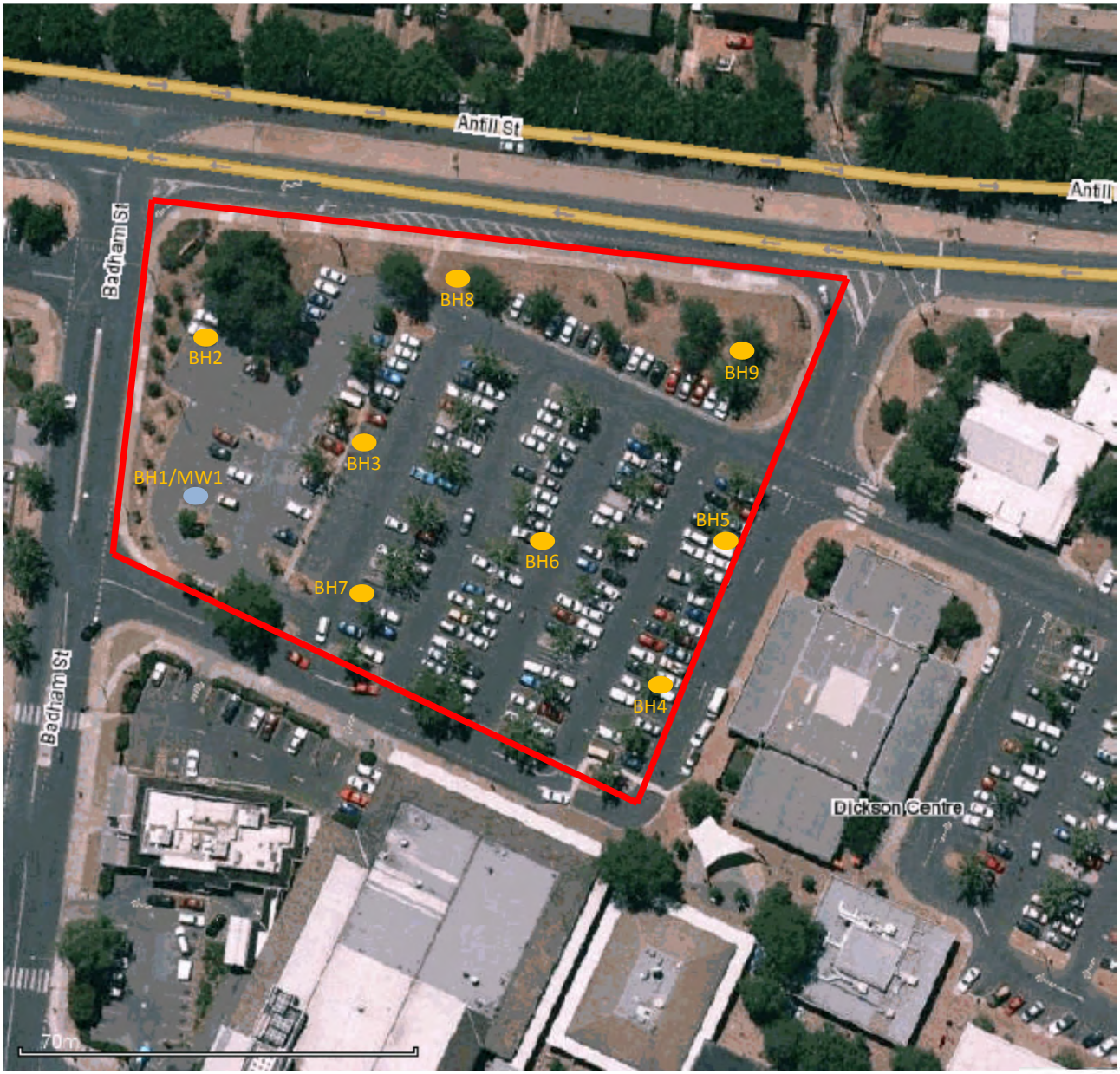
North

Key:

Site Boundary

Site Layout
Block 21, Section 30 Dickson Commercial Centre,
Dickson, NSW

FIGURE 2



North

Key:

- Site Boundary
- Soil borehole
- Groundwater monitoring bore

Appendix B

Aerial Photos

1944


12914
MAP 658 // CANBERRA RUN 1 : 16/DEC/44 : 153·4mm. 17000' RESTRICTED


C.A.C.157-5062
LANDS PHOTO
CAC157// CANBERRA. RUN.1.(57-72)8|APR|59.153·50HM. 25,000'RE

1959


N.S.W.
1598
5022
Canberra
RUN 1c
22/11/68
18,800' ASL
114.45 mm
CROWN
COPY N.S.W
LANDS PHOTO
LOG-E

1968


UAq 1025 151.45
NSW
3432
113
CANBERRA
1:40000
NSW 3432
RUN 4
6.2.85
6980 M ASL
151.45MM
IST COPY

1985


CANBERRA
1:25000 Approx. Scale
NSW4413 (M2092)
RUN 7
05-02-98
197-221
152.76 mm
© Surveyor-General's Department 1998
All Rights Reserved

1998

2005

CANBERRA
1:25000 Approx. Scale
NSW4889 (M2460)

RUN 7
21-01-05
76-100

152.76 mm

Appendix C

Title Deed Search

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

PO Box 149
Yagoona NSW 2199

Telephone: +612 9754 1590
Mobile: 0412 169 809
Facsimile: +612 8076 3026
Email: alsearch@optusnet.com.au

30th January, 2013

ENVIRONMENTAL STRATEGIES PTY LTD
Suite 2, Level 1,
20 Chandos Street,
ST. LEONARDS, NSW 2065

Attention: Margaret McGowan

RE: **Block 21 Section 30 Dickson ACT**

Current Search

Block 21 Section 30 Dickson ACT
Dated 25th January , 2013
Registered Proprietor:
AUSTRALIAN TERRITORY LAND
(controlled by The ACT Development Authority)

Title Tree
Block 21 Section 30 Dickson ACT

Australian Capital Territory Land

****

Summary of Proprietor(s)
Block 21 Section 30 Dickson ACT

Year **Proprietor**

	(**Block 21 Section 30 Dickson ACT)**
Prior – todate	Australian Territory Land *(controlled by The ACT Development Authority)*

****

Appendix D

Contamination Land Search (ACT EPU)

ACT Government
Environment and Sustainable Development

File Ref: 97/09729

Ms Margaret McGowan
Environmental Strategies Pty Ltd
Suite 2, Level 1, 20 Chandos Street
St Leonards NSW 2065

RE: CONTAMINATED LAND SEARCH

Dear Ms McGowan

Thank you for your search form request of 05/12/2012 enquiring about:

Block 21 Section 30 Dickson Canberra Central

Records held by the Environment Protection Authority (EPA) for the above block(s) indicate the following:

The block is not recorded on the EPA's contaminated sites management database or geographic information system.

The EPA has not issued any environment protection orders under sections 91C (1), 91D (1) or 125 (4) of the *Environment Protection Act 1997* (the Act) over the site and as a result the site is not recorded on the Register of contaminated sites under section 21(A) of the Act.

At present the EPA has no information on contamination of the above block(s). However, this does not absolutely rule out the possibility of contamination and should not be interpreted as a warranty that there is no contamination.

I appreciate that this does not absolutely rule out the existence of contamination of the soils. If you or your clients wish to be completely sure, you, or they, should arrange to conduct independent tests.

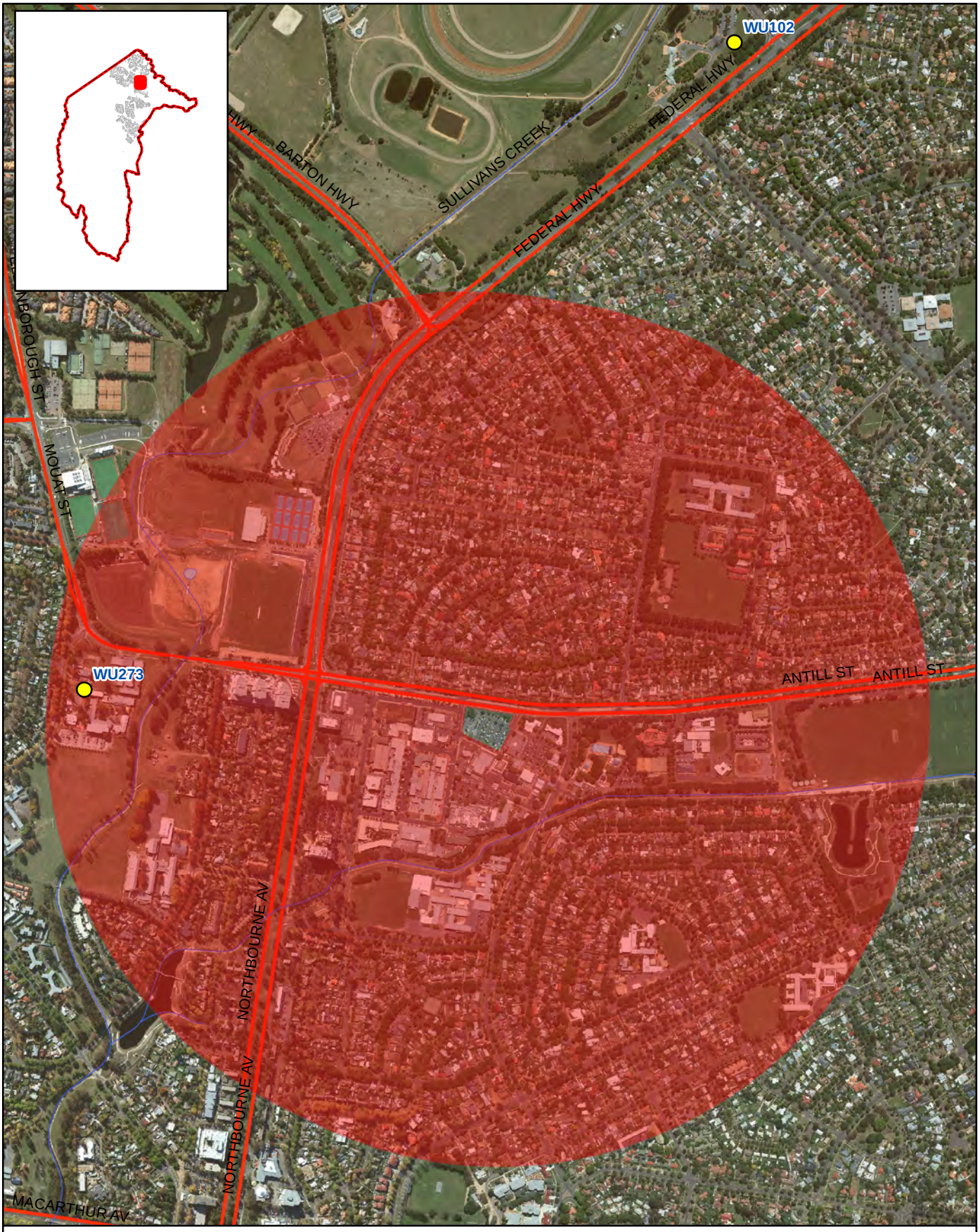
Yours sincerely

Mark Heckenberg
Project Officer
Environment Protection and Water Regulation

05/12/2012

Appendix E

Registered Groundwater Bore Information



Groundwater bore search
Site: block 21, section 30, Dickson.

Date:	05 December 2012
Produced by:	Water Regulation
Source:	Environment and Sustainable Development Directorate (ESDD)
Coordinate system:	MGA Zone 55
Datum:	GDA 1994
Contact:	Jill Harrap via Canberra Connect (TEL 132281)

Disclaimer: ESDD does not warrant that the data is free from errors.

N

Legend

- Registered water abstraction bores
- 1km buffer of site
- Inland water bodies
- Inland waterways
- Major road

ACT Government
Environment and Sustainable Development

0 0.25 0.5 0.75 1 Kilometers

AUSTRALIAN CAPITAL TERRITORY

Licence to take water

Issued under Part 5 of the Water Resources Act 2007

Licence No: WU273 **Expiry:** 06/01/2014

Details of Licence Holder

Business Name: Brindabella Christian College

Address: PO Box 5103

Lyneham ACT 2602

Details of Use

Annual Licensed Volume (ML): 4

Water Source: Groundwater

Permitted Use(s): Stock and domestic

Details of Extraction Point(s)

Water Management Area: Central Molonglo **Location Licenced Volume (ML):** 4

Property Address: 136 Brigalow Street **Suburb:** Lyneham

Property Name: Brindabella Christian College

District: Canberra Central **Division:** Lyneham **Block:** 4 **Section:** 41

Details of Application Area(s)

Water Management Area: Central Molonglo **Location Licenced Volume (ML):** 4

Property Address: 136 Brigalow Street **Suburb:** Lyneham

Property Name: Brindabella Christian College

District: Canberra Central **Division:** Lyneham **Block:** 4 **Section:** 41

Specific Conditions

1 If the Authority requires, the licensee must produce this licence.

2 The licensee must use water taken under this licence only:
a) at the property; and
b) in accordance with the permitted use shown in the licence.

3 At any time, the licensee must not have taken:
a) over the previous 12 month period, more than twice the licensed volume of water; and
b) over the previous 36 month period, a volume of water greater than three times the licensed volume.

4 If the licensee has not installed a metering system measuring licensed water use, the licensee must install such a system within six months of the date of grant of this licence.

5 A metering system shall include a meter or other means of measurement approved by the Authority.

6 If the licensee does not install a metering system within six months of the date of grant of this licence, the licensee must stop taking water until the licensee installs a metering system.

7 The licensee must have a metering system separately identifying:
a) water taken from bores; and
b) licensed water taken from surface water.

8 The licensee must not install a metering system if the Authority has not approved the metering system and its installation.

9 If the Authority requires, the licensee must produce a certificate from:
a) the metering system's manufacturer; or
b) other qualified person or authority concerning a metering system's accuracy.

10 The licensee must maintain the metering system in good working order and condition.

11 The licensee must record a metering system's readings at the end of every month.

12 If the Authority writes requesting monthly and aggregate meter readings, the licensee must provide that information within 14 days of receiving the request.

13 If the licensee cannot provide the required information, the Authority will estimate, by any method it wishes, the amount of water the licensee has taken.

14 If the licensee cannot comply with this licence, the licensee must:
a) notify the Authority as soon as possible, at most within two working days of becoming aware of the non-compliance; and
b) immediately act to ensure that the licensee complies with the licence as soon as possible.

Notes:

1. *A reference to the Authority means the Environment Protection Authority.*
2. *Terms in this licence have a meaning the same as the Water Resources Act 2007.*
3. *The Authority may, in writing and with reasonable justification and notice of intention as outlined in section 55 of the Water Resources Act, vary one or more conditions of this Licence.*
4. *The licensee may apply at any time in the duration of this Licence for the Authority to vary one or more conditions of this Licence.*
5. *Further information is available from:*

Water Regulation
Environment Protection Authority
GPO Box 158
Canberra ACT 2601
Telephone: 13 22 81
Fax: (02) 6207 6084
Email: water.resources@act.gov.au

or

Macarthur House
12 Wattle Street
Lyneham ACT 2602

Dated this day of 2012

Delegate, Environment Protection Authority

AUSTRALIAN CAPITAL TERRITORY

Licence to take water

Issued under Part 5 of the Water Resources Act 2007

Licence No: WU102 **Expiry:** 30/06/2015

Details of Licence Holder

Business Name: Elvin Global Pty Ltd

ABN: 17 124 103 911 ACN: 124 103 911

Address: PO Box 97

Mitchell ACT 2911

Details of Use

Annual Licensed Volume (ML): 2.5

Water Source: Groundwater

Permitted Use(s): Agricultural irrigation, commercial

Details of Extraction Point(s)

Water Management Area: Central Molonglo **Location Licenced Volume (ML):** 2.5

Property Address: 595 Northbourne Avenue **Suburb:** Lyneham

Property Name: Kamberra Wine and Tourism Complex

District: Canberra Central **Division:** Lyneham **Block:** 18 **Section:** 71

Details of Application Area(s)

Water Management Area: Central Molonglo **Location Licenced Volume (ML):** 2.5

Property Address: 595 Northbourne Avenue **Suburb:** Lyneham

Property Name: Kamberra Wine and Tourism Complex

District: Canberra Central **Division:** Lyneham **Block:** 18 **Section:** 71

Specific Conditions

1 If the Authority requires, the licensee must produce this licence.

2 The licensee must use water taken under this licence only:
a) at the location(s); and
b) in accordance with the permitted use shown in the licence.

3 At any time, the licensee must not have taken:
a) over the previous 12 month period, more than twice the licensed volume of water; or
b) over the previous 36 month period, a volume of water greater than three times the licensed volume.

4 A metering system must be installed prior to the commencement of water extraction.

5 If the Authority requires, the licensee must produce a certificate from:
a) the metering system's manufacturer; or
b) other qualified person or authority concerning a metering system's accuracy.

6 The licensee must maintain the metering system in good working order and legible condition.

7 The licensee must record a metering system's readings once per month.

8 If the Authority writes requesting monthly and aggregate meter readings, the licensee must provide that information within 14 days of receiving the request.

9 If the licensee cannot provide monthly and/or aggregate meter readings, the Authority will estimate, by any method, the amount of water the licensee has taken.

10 If the licensee cannot comply with this licence, the licensee must:
a) immediately cease taking water;
b) notify the Authority as soon as possible, at most within two working days of becoming aware of the non-compliance; and
c) immediately act to ensure that the licensee complies with the licence as soon as possible.

11 The licensee must allow the Authority, including Authorised Officers, access to the premises at any reasonable time to confirm that conditions of this Licence are being complied with.

12 Water taken is subject to the Water Abstraction Charge (WAC), in accordance with the relevant section of the Water Resources (Fees) Determination.

Notes:

1. *A reference to the Authority means the Environment Protection Authority.*
2. *Terms in this licence have a meaning the same as the Water Resources Act 2007.*
3. *The Authority may, in writing and with reasonable justification and notice of intention as outlined in section 55 of the Water Resources Act, vary one or more conditions of this Licence.*
4. *The licensee may apply at any time in the duration of this Licence for the Authority to vary one or more conditions of this Licence.*
5. *Further information is available from:*

Water Regulation
Environment Protection Authority
GPO Box 158
Canberra ACT 2601
Telephone: 13 22 81
Fax: (02) 6207 6084
Email: water.resources@act.gov.au

or

Macarthur House
12 Wattle Street
Lyneham ACT 2602

Dated this day of 2012

Delegate, Environment Protection Authority

Appendix F

Bore Logs

Appendix G

Laboratory Certificates

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client: Environmental Strategies	**Client Project Name and Number:** 12111 - Dickson
Project Mgr: David Jackson	**PO No.:**
Sampler: David Jackson	**Envirolab Services Quote No. :**
Address: Level 1, Suite 2, 20 Chandos Street, St Leonards	**Date results required:**
Email: environmentalstrategies.com.au	**Or choose:** standard / ~~1 day / 2 day / 3 day~~
Phone: 9437 4587 **Fax:**	*Note: Inform lab in advance if urgent turnaround is required - surcharge applies*

Envirolab Services
12 Ashley St, Chatswood, NSW, 2067

Phone: 02 9910 6200
Fax: 02 9910 6201
E-mail: ahie@envirolabservices.com.au

Contact: Aileen Hie

Sample information				Tests Required															Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Combo 6a	Comobo 6	Combo 3													Provide as much information about the sample as you can
1)	BH1/MW1@ 0.1m	18/12/2012		X															
2)	BH1/MW1@ 4.0m	18/12/2012				X													
3)	BH2 @ 0.1 m	18/12/2012		X															
4)	BH2 @ 0.5 m	18/12/2012				X													
5)	BH3 @ 0.1 m	19/12/2012		X															
6)	BH3 @ 0.5 m	19/12/2012				X													
7)	BH4 @ 0.1 m	19/12/2012		X															
8)	BH4 @ 6.0 m	19/12/2012				X													
9)	BH5 @ 0.1 m	19/12/2012		X															
10)	BH5 @ 1.0 m	19/12/2012				X													
11)	BH6 @ 0.1 m	19/12/2012		X															
12)	BH6 @ 1.0 m	19/12/2012			X														
13)	BH7 @ 2.0 m	19/12/2012				X													
14)	BH8 @ 3.0 m	19/12/2012			X														
15)	BH9 @ 0.1 m	19/12/2012		X															
16)	BH9 @ 1.0 m	19/12/2012				X													
17)	Dup 1	19/12/2012		X															
	Trip 1	19/12/2012		X															

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 83505
Date Received: 20/12/12
Time Received: 11:00
Received by: PT
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Forward to MGT

Relinquished by (company): Environmental Strategies	**Received by (company):** EL
Print Name: David Jackson	**Print Name:** Pat
Date & Time: 20-12-12	**Date & Time:** 20/12/12 11:00
	Signature: PT.

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: (if applicable)
Transported by: Hand delivered / courier

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Environmental Strategies Pty Ltd
Level 1, Suite 2
St Leonards NSW 2065

ph: 02 9437 4587
Fax:

Attention: David Jackson

Sample log in details:

Your reference:	**12111 - Dickson**
Envirolab Reference:	**83505**
Date received:	20/12/12
Date results expected to be reported:	**9/01/13**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	17 soils
Turnaround time requested:	Standard
Temperature on receipt	Cool
Cooling Method:	Ice
Sampling Date Provided:	YES

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 83505

Client:
Environmental Strategies Pty Ltd
Level 1, Suite 2
20 Chandos Street
St Leonards
NSW 2065

Attention: David Jackson

Sample log in details:

Your Reference:	**12111 - Dickson**		
No. of samples:	17 soils		
Date samples received / completed instructions received	20/12/12	/	20/12/12

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	9/01/13	/	7/01/13
Date of Preliminary Report:	Not issued		

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Results Approved By:

Nancy Zhang
Chemist

Rhian Morgan
Reporting Supervisor

Lulu Guo
Approved Signatory

Alex MacLean
Chemist

Jeremy Faircloth
Chemist

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	83505-1	83505-2	83505-3	83505-4	83505-5
Your Reference	----------	BH1/MW1	BH1/MW1	BH2	BH2	BH3
Depth	----------	0.1	4.0	0.1	0.5	0.1
Date Sampled		18/12/2012	18/12/2012	18/12/2012	18/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012	22/12/2012	22/12/2012	22/12/2012
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - C10 less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	107	100	106	106	108

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	83505-6	83505-7	83505-8	83505-9	83505-10
Your Reference	----------	BH3	BH4	BH4	BH5	BH5
Depth	----------	0.5	0.1	6.0	0.1	1.0
Date Sampled		19/12/2012	19/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012	22/12/2012	22/12/2012	22/12/2012
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - C10 less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	106	111	103	104	109

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	83505-11	83505-12	83505-13	83505-14	83505-15
Your Reference	----------	BH6	BH6	BH7	BH8	BH9
Depth	----------	0.1	1.0	2.0	3.0	0.1
Date Sampled		19/12/2012	19/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012	22/12/2012	22/12/2012	22/12/2012
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	122	108	108	103	107

vTRH(C6-C10)/BTEXN in Soil			
Our Reference:	UNITS	83505-16	83505-17
Your Reference	----------	BH9	DUP1
Depth	----------	1.0	-
Date Sampled		19/12/2012	19/12/2012
Type of sample		Soil	Soil
Date extracted	-	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012
TRHC$_6$ - C$_9$	mg/kg	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	107	109

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	83505-1	83505-2	83505-3	83505-4	83505-5
Your Reference	----------	BH1/MW1	BH1/MW1	BH2	BH2	BH3
Depth	----------	0.1	4.0	0.1	0.5	0.1
Date Sampled		18/12/2012	18/12/2012	18/12/2012	18/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	100	94	101	96	100

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	83505-6	83505-7	83505-8	83505-9	83505-10
Your Reference	----------	BH3	BH4	BH4	BH5	BH5
Depth	----------	0.5	0.1	6.0	0.1	1.0
Date Sampled		19/12/2012	19/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	160	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	210	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	160	<100	<100	<100
Surrogate o-Terphenyl	%	96	107	98	105	99

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	83505-11	83505-12	83505-13	83505-14	83505-15
Your Reference	----------	BH6	BH6	BH7	BH8	BH9
Depth	----------	0.1	1.0	2.0	3.0	0.1
Date Sampled		19/12/2012	19/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	96	99	99	95	100

svTRH (C10-C40) in Soil			
Our Reference:	UNITS	83505-16	83505-17
Your Reference	----------	BH9	DUP1
Depth	----------	1.0	-
Date Sampled		19/12/2012	19/12/2012
Type of sample		Soil	Soil
Date extracted	-	21/12/2012	21/12/2012
Date analysed	-	21/12/2012	21/12/2012
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100
Surrogate o-Terphenyl	%	96	97

PAHs in Soil						
Our Reference:	UNITS	83505-1	83505-2	83505-3	83505-4	83505-5
Your Reference	----------	BH1/MW1	BH1/MW1	BH2	BH2	BH3
Depth	----------	0.1	4.0	0.1	0.5	0.1
Date Sampled		18/12/2012	18/12/2012	18/12/2012	18/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012	22/12/2012	22/12/2012	22/12/2012
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.6
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.5
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.46
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.4
Benzo(a)pyrene TEQ	mg/kg	<0.5	<0.5	<0.5	<0.5	1
Surrogate p-Terphenyl-d_{14}	%	99	100	102	101	101

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	83505-6 BH3 0.5 19/12/2012 Soil	83505-7 BH4 0.1 19/12/2012 Soil	83505-8 BH4 6.0 19/12/2012 Soil	83505-9 BH5 0.1 19/12/2012 Soil	83505-10 BH5 1.0 19/12/2012 Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012	22/12/2012	22/12/2012	22/12/2012
Naphthalene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.4	<0.1	0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.5	<0.1	0.3	<0.1
Anthracene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.7	<0.1	0.4	<0.1
Pyrene	mg/kg	<0.1	1.4	<0.1	0.9	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.5	<0.1	0.3	<0.1
Chrysene	mg/kg	<0.1	0.7	<0.1	0.3	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	1.0	<0.2	0.4	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.92	<0.05	0.36	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.5	<0.1	0.2	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.5	<0.1	0.2	<0.1
Benzo(a)pyrene TEQ	mg/kg	<0.5	1	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d_{14}	%	99	101	105	105	105

PAHs in Soil						
Our Reference:	UNITS	83505-11	83505-12	83505-13	83505-14	83505-15
Your Reference	----------	BH6	BH6	BH7	BH8	BH9
Depth	----------	0.1	1.0	2.0	3.0	0.1
Date Sampled		19/12/2012	19/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012	22/12/2012	22/12/2012	22/12/2012
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.06	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d_{14}	%	101	104	104	105	105

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	83505-16 BH9 1.0 19/12/2012 Soil	83505-17 DUP1 - 19/12/2012 Soil
Date extracted	-	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Benzo(a)pyrene TEQ	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	101	99

Organochlorine Pesticides in soil						
Our Reference:	UNITS	83505-1	83505-3	83505-5	83505-7	83505-9
Your Reference	----------	BH1/MW1	BH2	BH3	BH4	BH5
Depth	----------	0.1	0.1	0.1	0.1	0.1
Date Sampled		18/12/2012	18/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012	22/12/2012	22/12/2012	22/12/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	101	96	104	94	97

Organochlorine Pesticides in soil						
Our Reference:	UNITS	83505-11	83505-12	83505-14	83505-15	83505-17
Your Reference	----------	BH6	BH6	BH8	BH9	DUP1
Depth	----------	0.1	1.0	3.0	0.1	-
Date Sampled		19/12/2012	19/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012	22/12/2012	22/12/2012	22/12/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	103	100	103	105

Organophosphorus Pesticides						
Our Reference:	UNITS	83505-1	83505-3	83505-5	83505-7	83505-9
Your Reference	----------	BH1/MW1	BH2	BH3	BH4	BH5
Depth	----------	0.1	0.1	0.1	0.1	0.1
Date Sampled		18/12/2012	18/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012	22/12/2012	22/12/2012	22/12/2012
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	101	96	104	94	97

Organophosphorus Pesticides						
Our Reference:	UNITS	83505-11	83505-12	83505-14	83505-15	83505-17
Your Reference	----------	BH6	BH6	BH8	BH9	DUP1
Depth	----------	0.1	1.0	3.0	0.1	-
Date Sampled		19/12/2012	19/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012	22/12/2012	22/12/2012	22/12/2012
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	103	100	103	105

PCBs in Soil						
Our Reference:	UNITS	83505-1	83505-3	83505-5	83505-7	83505-9
Your Reference	----------	BH1/MW1	BH2	BH3	BH4	BH5
Depth	----------	0.1	0.1	0.1	0.1	0.1
Date Sampled		18/12/2012	18/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012	22/12/2012	22/12/2012	22/12/2012
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	101	96	104	94	97

PCBs in Soil						
Our Reference:	UNITS	83505-11	83505-12	83505-14	83505-15	83505-17
Your Reference	----------	BH6	BH6	BH8	BH9	DUP1
Depth	----------	0.1	1.0	3.0	0.1	-
Date Sampled		19/12/2012	19/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	22/12/2012	22/12/2012	22/12/2012	22/12/2012	22/12/2012
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	94	103	100	103	105

Acid Extractable metals in soil						
Our Reference:	UNITS	83505-1	83505-2	83505-3	83505-4	83505-5
Your Reference	----------	BH1/MW1	BH1/MW1	BH2	BH2	BH3
Depth	----------	0.1	4.0	0.1	0.5	0.1
Date Sampled		18/12/2012	18/12/2012	18/12/2012	18/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	27/12/2012	27/12/2012	27/12/2012	27/12/2012	27/12/2012
Date analysed	-	27/12/2012	27/12/2012	27/12/2012	27/12/2012	27/12/2012
Arsenic	mg/kg	18	31	20	21	<4
Cadmium	mg/kg	1.1	<0.5	1.6	<0.5	<0.5
Chromium	mg/kg	39	48	7	94	4
Copper	mg/kg	83	63	92	40	2
Lead	mg/kg	25	87	36	69	8
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	20	14	18	23	2
Zinc	mg/kg	37	320	95	39	18

Acid Extractable metals in soil						
Our Reference:	UNITS	83505-6	83505-7	83505-8	83505-9	83505-10
Your Reference	----------	BH3	BH4	BH4	BH5	BH5
Depth	----------	0.5	0.1	6.0	0.1	1.0
Date Sampled		19/12/2012	19/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	27/12/2012	27/12/2012	27/12/2012	27/12/2012	27/12/2012
Date analysed	-	27/12/2012	27/12/2012	27/12/2012	27/12/2012	27/12/2012
Arsenic	mg/kg	9	<4	5	<4	23
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	55	7	30	10	97
Copper	mg/kg	26	2	30	4	26
Lead	mg/kg	27	5	58	8	55
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	12	3	4	3	18
Zinc	mg/kg	20	12	210	16	40

Acid Extractable metals in soil						
Our Reference:	UNITS	83505-11	83505-12	83505-13	83505-14	83505-15
Your Reference	----------	BH6	BH6	BH7	BH8	BH9
Depth	----------	0.1	1.0	2.0	3.0	0.1
Date Sampled		19/12/2012	19/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	27/12/2012	27/12/2012	27/12/2012	27/12/2012	27/12/2012
Date analysed	-	27/12/2012	27/12/2012	27/12/2012	27/12/2012	27/12/2012
Arsenic	mg/kg	5	17	9	11	9
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	25	80	57	48	54
Copper	mg/kg	11	22	23	23	18
Lead	mg/kg	11	36	29	51	39
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	16	13	13	9
Zinc	mg/kg	16	38	35	31	36

Acid Extractable metals in soil			
Our Reference:	UNITS	83505-16	83505-17
Your Reference	----------	BH9	DUP1
Depth	----------	1.0	-
Date Sampled		19/12/2012	19/12/2012
Type of sample		Soil	Soil
Date digested	-	27/12/2012	27/12/2012
Date analysed	-	27/12/2012	27/12/2012
Arsenic	mg/kg	11	9
Cadmium	mg/kg	<0.5	<0.5
Chromium	mg/kg	59	40
Copper	mg/kg	24	22
Lead	mg/kg	40	46
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	19	18
Zinc	mg/kg	26	27

Moisture						
Our Reference:	UNITS	83505-1	83505-2	83505-3	83505-4	83505-5
Your Reference	----------	BH1/MW1	BH1/MW1	BH2	BH2	BH3
Depth	----------	0.1	4.0	0.1	0.5	0.1
Date Sampled		18/12/2012	18/12/2012	18/12/2012	18/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	27/12/2012	27/12/2012	27/12/2012	27/12/2012	27/12/2012
Moisture	%	7.3	18	1.8	7.5	5.5

Moisture						
Our Reference:	UNITS	83505-6	83505-7	83505-8	83505-9	83505-10
Your Reference	----------	BH3	BH4	BH4	BH5	BH5
Depth	----------	0.5	0.1	6.0	0.1	1.0
Date Sampled		19/12/2012	19/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	27/12/2012	27/12/2012	27/12/2012	27/12/2012	27/12/2012
Moisture	%	19	5.4	19	1.9	7.1

Moisture						
Our Reference:	UNITS	83505-11	83505-12	83505-13	83505-14	83505-15
Your Reference	----------	BH6	BH6	BH7	BH8	BH9
Depth	----------	0.1	1.0	2.0	3.0	0.1
Date Sampled		19/12/2012	19/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	21/12/2012	21/12/2012	21/12/2012	21/12/2012	21/12/2012
Date analysed	-	27/12/2012	27/12/2012	27/12/2012	27/12/2012	27/12/2012
Moisture	%	4.3	10	13	15	6.6

Moisture			
Our Reference:	UNITS	83505-16	83505-17
Your Reference	----------	BH9	DUP1
Depth	----------	1.0	-
Date Sampled		19/12/2012	19/12/2012
Type of sample		Soil	Soil
Date prepared	-	21/12/2012	21/12/2012
Date analysed	-	27/12/2012	27/12/2012
Moisture	%	11	13

Asbestos ID - soils						
Our Reference:	UNITS	83505-1	83505-3	83505-5	83505-7	83505-9
Your Reference	----------	BH1/MW1	BH2	BH3	BH4	BH5
Depth	----------	0.1	0.1	0.1	0.1	0.1
Date Sampled		18/12/2012	18/12/2012	19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	7/01/2013	7/01/2013	7/01/2013	7/01/2013	7/01/2013
Sample mass tested	g	Approx 45g	Approx 45g	Approx 45g	Approx 45g	Approx 45g
Sample Description	-	Dark grey fine-grained soil & rocks	Dark grey fine-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Light brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils				
Our Reference:	UNITS	83505-11	83505-15	83505-17
Your Reference	----------	BH6	BH9	DUP1
Depth	----------	0.1	0.1	-
Date Sampled		19/12/2012	19/12/2012	19/12/2012
Type of sample		Soil	Soil	Soil
Date analysed	-	7/01/2013	7/01/2013	7/01/2013
Sample mass tested	g	Approx 45g	Approx 45g	Approx 45g
Sample Description	-	Light brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown clay soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 draft Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 draft Guideline on Investigation Levels for Soil and Groundwater.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM draft B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			21/12/2012	83505-1	21/12/2012 || 21/12/2012	LCS-2	21/12/2012
Date analysed	-			22/12/2012	83505-1	22/12/2012 || 22/12/2012	LCS-2	22/12/2012
TRH C_6 - C_9	mg/kg	25	Org-016	<25	83505-1	<25 || <25	LCS-2	110%
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	83505-1	<25 || <25	LCS-2	110%
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	25	Org-016	[NT]	83505-1	<25 || <25	[NR]	[NR]
Benzene	mg/kg	0.2	Org-016	<0.2	83505-1	<0.2 || <0.2	LCS-2	113%
Toluene	mg/kg	0.5	Org-016	<0.5	83505-1	<0.5 || <0.5	LCS-2	109%
Ethylbenzene	mg/kg	1	Org-016	<1	83505-1	<1 || <1	LCS-2	105%
m+p-xylene	mg/kg	2	Org-016	<2	83505-1	<2 || <2	LCS-2	111%
o-Xylene	mg/kg	1	Org-016	<1	83505-1	<1 || <1	LCS-2	112%
naphthalene	mg/kg	1	Org-014	<1	83505-1	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	109	83505-1	107 || 110 || RPD: 3	LCS-2	114%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			21/12/2012	83505-1	21/12/2012 || 21/12/2012	LCS-2	21/12/2012
Date analysed	-			22/12/2012	83505-1	21/12/2012 || 21/12/2012	LCS-2	22/12/2012
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	83505-1	<50 || <50	LCS-2	109%
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	83505-1	<100 || <100	LCS-2	107%
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	83505-1	<100 || <100	LCS-2	85%
TRH>C_{10}-C_{16}	mg/kg	50	Org-003	<50	83505-1	<50 || <50	LCS-2	109%
TRH>C_{10} - C_{16} less Naphthalene (F2)	mg/kg	50	Org-003	[NT]	83505-1	<50 || <50	[NR]	[NR]
TRH>C_{16}-C_{34}	mg/kg	100	Org-003	<100	83505-1	<100 || <100	LCS-2	85%
TRH>C_{34}-C_{40}	mg/kg	100	Org-003	<100	83505-1	<100 || <100	LCS-2	90%
Surrogate o-Terphenyl	%		Org-003	102	83505-1	100 || 100 || RPD: 0	LCS-2	128%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			21/12/2012	83505-1	21/12/2012 || 21/12/2012	LCS-2	21/12/2012
Date analysed	-			22/12/2012	83505-1	22/12/2012 || 22/12/2012	LCS-2	22/12/2012
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	LCS-2	110%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	LCS-2	108%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	LCS-2	110%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	LCS-2	113%
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	LCS-2	112%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	LCS-2	105%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	83505-1	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	83505-1	<0.05 || <0.05	LCS-2	122%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Benzo(a)pyrene TEQ	mg/kg	0.5	Org-012 subset	[NT]	83505-1	<0.5 || <0.5	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		Org-012 subset	103	83505-1	99 || 102 || RPD: 3	LCS-2	92%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			21/12/2012	83505-1	21/12/2012 || 21/12/2012	LCS-2	21/12/2012
Date analysed	-			22/12/2012	83505-1	22/12/2012 || 22/12/2012	LCS-2	22/12/2012
HCB	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	LCS-2	85%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	LCS-2	104%
Heptachlor	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	LCS-2	82%
delta-BHC	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	LCS-2	98%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	LCS-2	90%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	LCS-2	90%
Dieldrin	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	LCS-2	87%
Endrin	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	LCS-2	85%
pp-DDD	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	LCS-2	90%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	LCS-2	95%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	93	83505-1	101 || 96 || RPD: 5	LCS-2	91%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			21/12/2012	83505-1	21/12/2012 || 21/12/2012	LCS-2	21/12/2012
Date analysed	-			22/12/2012	83505-1	22/12/2012 || 22/12/2012	LCS-2	22/12/2012
Diazinon	mg/kg	0.1	Org-008	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	Org-008	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	Org-008	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	83505-1	<0.1 || <0.1	LCS-2	96%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	83505-1	<0.1 || <0.1	LCS-2	97%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	83505-1	<0.1 || <0.1	LCS-2	103%
Surrogate TCMX	%		Org-008	93	83505-1	101 || 96 || RPD: 5	LCS-2	97%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			21/12/2012	83505-1	21/12/2012 || 21/12/2012	LCS-2	21/12/2012
Date analysed	-			22/12/2012	83505-1	22/12/2012 || 22/12/2012	LCS-2	22/12/2012
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	83505-1	<0.1 || <0.1	LCS-2	125%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	83505-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	93	83505-1	101 || 96 || RPD: 5	LCS-2	101%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			27/12/2012	83505-1	27/12/2012 || 27/12/2012	LCS-1	27/12/2012
Date analysed	-			27/12/2012	83505-1	27/12/2012 || 27/12/2012	LCS-1	27/12/2012
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	83505-1	18 || 13 || RPD: 32	LCS-1	93%
Cadmium	mg/kg	0.5	Metals-020 ICP-AES	<0.5	83505-1	1.1 || 0.7 || RPD: 44	LCS-1	95%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	83505-1	39 || 24 || RPD: 48	LCS-1	95%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	83505-1	83 || 56 || RPD: 39	LCS-1	95%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	83505-1	25 || 18 || RPD: 33	LCS-1	93%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	83505-1	<0.1 || <0.1	LCS-1	97%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	83505-1	20 || 14 || RPD: 35	LCS-1	95%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	83505-1	37 || 26 || RPD: 35	LCS-1	95%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	83505-11	21/12/2012 || 21/12/2012	83505-2	21/12/2012
Date analysed	-	83505-11	22/12/2012 || 22/12/2012	83505-2	22/12/2012
TRH C_6 - C_9	mg/kg	83505-11	<25 || <25	83505-2	96%
TRH C_6 - C_{10}	mg/kg	83505-11	<25 || <25	83505-2	96%
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	83505-11	<25 || <25	[NR]	[NR]
Benzene	mg/kg	83505-11	<0.2 || <0.2	83505-2	99%
Toluene	mg/kg	83505-11	<0.5 || <0.5	83505-2	95%
Ethylbenzene	mg/kg	83505-11	<1 || <1	83505-2	91%
m+p-xylene	mg/kg	83505-11	<2 || <2	83505-2	98%
o-Xylene	mg/kg	83505-11	<1 || <1	83505-2	97%
naphthalene	mg/kg	83505-11	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	83505-11	122 || 108 || RPD: 12	83505-2	100%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	83505-11	21/12/2012 || 21/12/2012	83505-3	21/12/2012
Date analysed	-	83505-11	21/12/2012 || 21/12/2012	83505-3	21/12/2012
TRH C_{10} - C_{14}	mg/kg	83505-11	<50 || <50	83505-3	91%
TRH C_{15} - C_{28}	mg/kg	83505-11	<100 || <100	83505-3	99%
TRH C_{29} - C_{36}	mg/kg	83505-11	<100 || <100	83505-3	93%
TRH>C_{10}-C_{16}	mg/kg	83505-11	<50 || <50	83505-3	91%
TRH>C_{10} - C_{16} less Naphthalene (F2)	mg/kg	83505-11	<50 || <50	[NR]	[NR]
TRH>C_{16}-C_{34}	mg/kg	83505-11	<100 || <100	83505-3	93%
TRH>C_{34}-C_{40}	mg/kg	83505-11	<100 || <100	83505-3	89%
Surrogate o-Terphenyl	%	83505-11	96 || 97 || RPD: 1	83505-3	120%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	83505-11	21/12/2012 || 21/12/2012	83505-2	21/12/2012
Date analysed	-	83505-11	22/12/2012 || 22/12/2012	83505-2	22/12/2012
Naphthalene	mg/kg	83505-11	<0.1 || <0.1	83505-2	113%
Acenaphthylene	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	83505-11	<0.1 || <0.1	83505-2	110%
Phenanthrene	mg/kg	83505-11	<0.1 || <0.1	83505-2	112%
Anthracene	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	83505-11	<0.1 || <0.1	83505-2	111%
Pyrene	mg/kg	83505-11	<0.1 || 0.1	83505-2	110%
Benzo(a)anthracene	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	83505-11	<0.1 || <0.1	83505-2	103%
Benzo(b+k)fluoranthene	mg/kg	83505-11	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	83505-11	0.06 || <0.05	83505-2	116%
Indeno(1,2,3-c,d)pyrene	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Benzo(a)pyrene TEQ	mg/kg	83505-11	<0.5 || <0.5	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%	83505-11	101 || 101 || RPD: 0	83505-2	93%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	83505-11	21/12/2012 || 21/12/2012	83505-2	21/12/2012
Date analysed	-	83505-11	22/12/2012 || 22/12/2012	83505-2	22/12/2012
HCB	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	83505-11	<0.1 || <0.1	83505-2	84%
gamma-BHC	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	83505-11	<0.1 || <0.1	83505-2	99%
Heptachlor	mg/kg	83505-11	<0.1 || <0.1	83505-2	79%
delta-BHC	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	83505-11	<0.1 || <0.1	83505-2	136%
Heptachlor Epoxide	mg/kg	83505-11	<0.1 || <0.1	83505-2	88%
gamma-Chlordane	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	83505-11	<0.1 || <0.1	83505-2	91%
Dieldrin	mg/kg	83505-11	<0.1 || <0.1	83505-2	89%
Endrin	mg/kg	83505-11	<0.1 || <0.1	83505-2	93%
pp-DDD	mg/kg	83505-11	<0.1 || <0.1	83505-2	91%
Endosulfan II	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	83505-11	<0.1 || <0.1	83505-2	95%
Methoxychlor	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	83505-11	94 || 101 || RPD: 7	83505-2	91%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	83505-11	21/12/2012 || 21/12/2012	83505-2	21/12/2012
Date analysed	-	83505-11	22/12/2012 || 22/12/2012	83505-2	22/12/2012
Diazinon	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	83505-11	<0.1 || <0.1	83505-2	97%
Fenitrothion	mg/kg	83505-11	<0.1 || <0.1	83505-2	99%
Bromophos-ethyl	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	83505-11	<0.1 || <0.1	83505-2	98%
Surrogate TCMX	%	83505-11	94 || 101 || RPD: 7	83505-2	93%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	83505-11	21/12/2012 || 21/12/2012	83505-2	21/12/2012
Date analysed	-	83505-11	22/12/2012 || 22/12/2012	83505-2	22/12/2012
Arochlor 1016	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	83505-11	<0.1 || <0.1	83505-2	130%
Arochlor 1260	mg/kg	83505-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	83505-11	94 || 101 || RPD: 7	83505-2	91%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	83505-11	27/12/2012 || 27/12/2012	LCS-2	27/12/2012
Date analysed	-	83505-11	27/12/2012 || 27/12/2012	LCS-2	27/12/2012
Arsenic	mg/kg	83505-11	5 || 5 || RPD: 0	LCS-2	93%
Cadmium	mg/kg	83505-11	<0.5 || <0.5	LCS-2	94%
Chromium	mg/kg	83505-11	25 || 24 || RPD: 4	LCS-2	95%
Copper	mg/kg	83505-11	11 || 7 || RPD: 44	LCS-2	94%
Lead	mg/kg	83505-11	11 || 9 || RPD: 20	LCS-2	92%
Mercury	mg/kg	83505-11	<0.1 || <0.1	LCS-2	84%
Nickel	mg/kg	83505-11	6 || 6 || RPD: 0	LCS-2	95%
Zinc	mg/kg	83505-11	16 || 15 || RPD: 6	LCS-2	95%

Client Reference: 12111 - Dickson

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	83505-2	27/12/2012
Date analysed	-	[NT]	[NT]	83505-2	27/12/2012
Arsenic	mg/kg	[NT]	[NT]	83505-2	##
Cadmium	mg/kg	[NT]	[NT]	83505-2	71%
Chromium	mg/kg	[NT]	[NT]	83505-2	82%
Copper	mg/kg	[NT]	[NT]	83505-2	71%
Lead	mg/kg	[NT]	[NT]	83505-2	80%
Mercury	mg/kg	[NT]	[NT]	83505-2	86%
Nickel	mg/kg	[NT]	[NT]	83505-2	71%
Zinc	mg/kg	[NT]	[NT]	83505-2	#

Report Comments:

Acid Extractable Metals in Soil:# Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Acid Extractable Metals in Soil:## Low spike recovery was obtained for this sample. The sample was re-digested and re-spiked and the low recovery was confirmed. This is due to matrix interferences. However, an acceptable recovery was obtained for the LCS.

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.

Asbestos ID was analysed by Approved Identifier:	Alex Tam
Asbestos ID was authorised by Approved Signatory:	Lulu Guo

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batched of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

mgt LabMark ENVIRONMENTAL LABORATORIES

ABN – 50 005 085 521 e.mail : enviro@mgtlabmark.com.au web : www.mgtlabmark.com.au

Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F6, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Sample Receipt Advice

Company name: **Environmental Strategies - NSW**

Contact name: David Jackson
Client job number: 12111- DICKSON
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Dec 20, 2012 2:25 PM
mgt-LabMark reference: **364107**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Organic samples had Teflon liners.

☑ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

Asbestos analysis conducted by ASET

Contact notes

If you have any questions with respect to these samples please contact:

Jean Heng on Phone : (+61) (2) 9900 8400 or by e.mail: jean.heng@mgtlabmark.com.au

Results will be delivered electronically via e.mail to David Jackson - davidjackson@environmentalstrategies.com.au.

mgt-LabMark Sample Receipt

mgt LabMark ENVIRONMENTAL LABORATORIES

ABN – 50 005 085 521 e.mail : enviro@mgtlabmark.com.au web : www.mgtlabmark.com.au

Melbourne
3-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F6, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: Environmental Strategies - NSW
Address: Level 1, Suite 2/ 20 Chandos St
St Leonards
NSW 2065

Client Job No.: 12111- DICKSON

Order No.:
Report #: 364107
Phone: 02 94374587
Fax:

Received: Dec 20, 2012 2:25 PM
Due: Jan 3, 2013
Priority: 5 Day
Contact Name: David Jackson

mgt-LabMark Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	Metals M8	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Organophosphorus Pesticides (OP)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory						X							
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
TRIP 1	Dec 19, 2012		Soil	S12-De18241	X	X	X	X	X	X	X	X	X

mgt LabMark
ENVIRONMENTAL LABORATORIES

Certificate of Analysis

Environmental Strategies - NSW
Level 1, Suite 2/ 20 Chandos St
St Leonards
NSW 2065

Attention:David Jackson

NATA WORLD RECOGNISED ACCREDITATION

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Report	**364107-S**
Client Reference	12111- DICKSON
Received Date	Dec 20, 2012

Client Sample ID			**TRIP 1**
Sample Matrix			**Soil**
mgt-LabMark Sample No.			**S12-De18241**
Date Sampled			**Dec 19, 2012**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	10	mg/kg	< 10
TRH C10-C14	50	mg/kg	< 50
TRH C15-C28	100	mg/kg	< 100
TRH C29-C36	100	mg/kg	< 100
TRH C10-36 (Total)	100	mg/kg	< 100
BTEX			
Benzene	0.5	mg/kg	< 0.5
Toluene	0.5	mg/kg	< 0.5
Ethylbenzene	0.5	mg/kg	< 0.5
m&p-Xylenes	1	mg/kg	< 1
o-Xylene	0.5	mg/kg	< 0.5
Xylenes - Total	1.5	mg/kg	< 1.5
Total BTEX	1.5	mg/kg	< 1.5
4-Bromofluorobenzene (surr.)	1	%	90
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
Polychlorinated Biphenyls (PCB)			
Aroclor-1016	0.5	mg/kg	< 0.5
Aroclor-1232	0.5	mg/kg	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5
Total PCB	0.5	mg/kg	< 0.5
Dibutylchlorendate (surr.)	1	%	83
Organochlorine Pesticides (OC)			
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.2	mg/kg	< 0.2
a-BHC	0.05	mg/kg	< 0.05
a-Chlordane	0.05	mg/kg	< 0.05

Client Sample ID			TRIP 1
Sample Matrix			Soil
mgt-LabMark Sample No.			S12-De18241
Date Sampled			Dec 19, 2012
Test/Reference	LOR	Unit	
Organochlorine Pesticides (OC)			
Aldrin	0.05	mg/kg	< 0.05
b-BHC	0.05	mg/kg	< 0.05
d-BHC	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05
g-Chlordane	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2
Dibutylchlorendate (surr.)	1	%	83
Tetrachloro-m-xylene (surr.)	1	%	[Q09A]1
Organophosphorus Pesticides (OP)			
Chlorpyrifos	0.5	mg/kg	< 0.5
Coumaphos	0.5	mg/kg	< 0.5
Demeton (total)	1	mg/kg	< 1
Diazinon	0.5	mg/kg	< 0.5
Dichlorvos	0.5	mg/kg	< 0.5
Dimethoate	0.5	mg/kg	< 0.5
Disulfoton	0.5	mg/kg	< 0.5
Ethoprop	0.5	mg/kg	< 0.5
Fenitrothion	0.5	mg/kg	< 0.5
Fensulfothion	0.5	mg/kg	< 0.5
Fenthion	0.5	mg/kg	< 0.5
Methyl azinphos	0.5	mg/kg	< 0.5
Malathion	0.5	mg/kg	< 0.5
Methyl parathion	0.5	mg/kg	< 0.5
Mevinphos	0.5	mg/kg	< 0.5
Monocrotophos	10	mg/kg	< 10
Parathion	0.5	mg/kg	< 0.5
Phorate	0.5	mg/kg	< 0.5
Profenofos	0.5	mg/kg	< 0.5
Prothiofos	0.5	mg/kg	< 0.5
Ronnel	0.5	mg/kg	< 0.5
Stirophos	0.5	mg/kg	< 0.5
Trichloronate	0.5	mg/kg	< 0.5
Triphenylphosphate (surr.)	1	%	85
Polyaromatic Hydrocarbons (PAH)			
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5

Client Sample ID			TRIP 1
Sample Matrix			**Soil**
mgt-LabMark Sample No.			**S12-De18241**
Date Sampled			**Dec 19, 2012**
Test/Reference	LOR	Unit	
Polyaromatic Hydrocarbons (PAH)			
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH	1	mg/kg	< 1
2-Fluorobiphenyl (surr.)	1	%	90
p-Terphenyl-d14 (surr.)	1	%	95
Heavy Metals			
Arsenic	2	mg/kg	19
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	56
Copper	5	mg/kg	34
Lead	5	mg/kg	68
Mercury	0.05	mg/kg	0.05
Nickel	5	mg/kg	14
Zinc	5	mg/kg	46
% Moisture	0.1	%	13
Asbestos			see attached

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Dec 20, 2012	14 Day
- Method: E004 Petroleum Hydrocarbons (TPH)			
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *	Sydney	Dec 20, 2012	14 Day
- Method: LM-LTM-ORG2010			
BTEX	Sydney	Dec 20, 2012	14 Day
- Method: E029/E016 BTEX			
Polychlorinated Biphenyls (PCB)	Sydney	Dec 20, 2012	14 Day
- Method: E013 Polychlorinated Biphenyls (PCB)			
Organochlorine Pesticides (OC)	Sydney	Dec 20, 2012	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Organophosphorus Pesticides (OP)	Sydney	Dec 20, 2012	14 Day
- Method: E014 Organophosphorus Pesticides (OP)			
Polyaromatic Hydrocarbons (PAH)	Sydney	Dec 20, 2012	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Metals M8	Sydney	Dec 20, 2012	28 Day
- Method: E022 Acid Extractable metals in Soils & E026 Mercury			
% Moisture	Sydney	Dec 20, 2012	28 Day
- Method: E005 Moisture Content			

mgt LabMark ENVIRONMENTAL LABORATORIES

ABN – 50 005 085 521 e.mail : enviro@mgtlabmark.com.au web : www.mgtlabmark.com.au

Melbourne
3-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F6, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: Environmental Strategies - NSW
Address: Level 1, Suite 2/ 20 Chandos St
St Leonards
NSW 2065

Client Job No.: 12111- DICKSON

Order No.:
Report #: 364107
Phone: 02 94374587
Fax:

Received: Dec 20, 2012 2:25 PM
Due: Jan 3, 2013
Priority: 5 Day
Contact Name: David Jackson

mgt-LabMark Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	Metals M8	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Organophosphorus Pesticides (OP)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory						X							
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
TRIP 1	Dec 19, 2012		Soil	S12-De18241	X	X	X	X	X	X	X	X	X

mgt-LabMark Internal Quality Control Review

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

UNITS

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Units

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environment Protection Authority
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC was performed on samples not pertaining to this report, however QC is representative of the sequence or batch that client samples were analysed within

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	mg/kg	< 10			10	Pass	
TRH C10-C14	mg/kg	< 50			50	Pass	
TRH C15-C28	mg/kg	< 100			100	Pass	
TRH C29-C36	mg/kg	< 100			100	Pass	
Method Blank							
BTEX E029/E016 BTEX							
Benzene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.5			0.5	Pass	
m&p-Xylenes	mg/kg	< 1			1	Pass	
o-Xylene	mg/kg	< 0.5			0.5	Pass	
Xylenes - Total	mg/kg	< 1.5			1.5	Pass	
Total BTEX	mg/kg	< 1.5			1.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions * LM-LTM-ORG2010							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10 less BTEX (F1)	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polychlorinated Biphenyls (PCB) E013 Polychlorinated Biphenyls (PCB)							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB	mg/kg	0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides (OC) E013 Organochlorine Pesticides (OC)							
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.2			0.2	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
a-Chlordane	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
g-Chlordane	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Organophosphorus Pesticides (OP) E014 Organophosphorus Pesticides (OP)							
Chlorpyrifos	mg/kg	< 0.5			0.5	Pass	
Coumaphos	mg/kg	< 0.5			0.5	Pass	
Demeton (total)	mg/kg	< 1			1	Pass	
Diazinon	mg/kg	< 0.5			0.5	Pass	
Dichlorvos	mg/kg	< 0.5			0.5	Pass	
Dimethoate	mg/kg	< 0.5			0.5	Pass	
Disulfoton	mg/kg	< 0.5			0.5	Pass	
Ethoprop	mg/kg	< 0.5			0.5	Pass	
Fenitrothion	mg/kg	< 0.5			0.5	Pass	
Fensulfothion	mg/kg	< 0.5			0.5	Pass	
Fenthion	mg/kg	< 0.5			0.5	Pass	
Methyl azinphos	mg/kg	< 0.5			0.5	Pass	
Malathion	mg/kg	< 0.5			0.5	Pass	
Methyl parathion	mg/kg	< 0.5			0.5	Pass	
Mevinphos	mg/kg	< 0.5			0.5	Pass	
Monocrotophos	mg/kg	< 10			10	Pass	
Parathion	mg/kg	< 0.5			0.5	Pass	
Phorate	mg/kg	< 0.5			0.5	Pass	
Profenofos	mg/kg	< 0.5			0.5	Pass	
Prothiofos	mg/kg	< 0.5			0.5	Pass	
Ronnel	mg/kg	< 0.5			0.5	Pass	
Stirophos	mg/kg	< 0.5			0.5	Pass	
Trichloronate	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polyaromatic Hydrocarbons (PAH) E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	mg/kg	< 1			1	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Metals M8 E022 Acid Extractable metals in Soils & E026 Mercury							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	%	109			70-130	Pass	
TRH C10-C14	%	80			70-130	Pass	
LCS - % Recovery							
BTEX E029/E016 BTEX							
Benzene	%	108			70-130	Pass	
Toluene	%	107			70-130	Pass	
Ethylbenzene	%	107			70-130	Pass	
m&p-Xylenes	%	108			70-130	Pass	
o-Xylene	%	107			70-130	Pass	
Xylenes - Total	%	107			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions * LM-LTM-ORG2010							
Naphthalene	%	106			70-130	Pass	
TRH C6-C10	%	108			70-130	Pass	
TRH >C10-C16	%	74			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB) E013 Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	80			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides (OC) E013 Organochlorine Pesticides (OC)							
4.4'-DDD	%	82			70-130	Pass	
4.4'-DDE	%	79			70-130	Pass	
4.4'-DDT	%	79			70-130	Pass	
a-BHC	%	78			70-130	Pass	
a-Chlordane	%	77			70-130	Pass	
Aldrin	%	74			70-130	Pass	
b-BHC	%	99			70-130	Pass	
d-BHC	%	82			70-130	Pass	
Dieldrin	%	77			70-130	Pass	
Endosulfan I	%	81			70-130	Pass	
Endosulfan II	%	82			70-130	Pass	
Endosulfan sulphate	%	87			70-130	Pass	
Endrin	%	86			70-130	Pass	
Endrin aldehyde	%	76			70-130	Pass	
Endrin ketone	%	84			70-130	Pass	
g-BHC (Lindane)	%	92			70-130	Pass	
g-Chlordane	%	79			70-130	Pass	
Heptachlor	%	91			70-130	Pass	
Heptachlor epoxide	%	83			70-130	Pass	
Hexachlorobenzene	%	82			70-130	Pass	
Methoxychlor	%	82			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides (OP) E014 Organophosphorus Pesticides (OP)							
Chlorpyrifos	%	101			70-130	Pass	
Coumaphos	%	73			70-130	Pass	
Diazinon	%	96			70-130	Pass	
Dichlorvos	%	104			70-130	Pass	
Dimethoate	%	86			70-130	Pass	
Disulfoton	%	96			70-130	Pass	
Ethoprop	%	95			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fenitrothion	%	86			70-130	Pass	
Fensulfothion	%	91			70-130	Pass	
Fenthion	%	95			70-130	Pass	
Methyl azinphos	%	93			70-130	Pass	
Malathion	%	92			70-130	Pass	
Methyl parathion	%	89			70-130	Pass	
Mevinphos	%	95			70-130	Pass	
Monocrotophos	%	89			70-130	Pass	
Parathion	%	98			70-130	Pass	
Phorate	%	97			70-130	Pass	
Profenofos	%	92			70-130	Pass	
Prothiofos	%	97			70-130	Pass	
Ronnel	%	101			70-130	Pass	
Stirophos	%	95			70-130	Pass	
Trichloronate	%	101			70-130	Pass	
LCS - % Recovery							
Polyaromatic Hydrocarbons (PAH) E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	%	92			70-130	Pass	
Acenaphthylene	%	86			70-130	Pass	
Anthracene	%	95			70-130	Pass	
Benz(a)anthracene	%	92			70-130	Pass	
Benzo(a)pyrene	%	87			70-130	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	%	86			70-130	Pass	
Benzo(g.h.i)perylene	%	89			70-130	Pass	
Chrysene	%	91			70-130	Pass	
Dibenz(a.h)anthracene	%	87			70-130	Pass	
Fluoranthene	%	92			70-130	Pass	
Fluorene	%	89			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	89			70-130	Pass	
Naphthalene	%	91			70-130	Pass	
Phenanthrene	%	85			70-130	Pass	
Pyrene	%	93			70-130	Pass	
LCS - % Recovery							
Metals M8 E022 Acid Extractable metals in Soils & E026 Mercury							
Arsenic	%	98			70-130	Pass	
Cadmium	%	94			70-130	Pass	
Chromium	%	95			70-130	Pass	
Copper	%	94			70-130	Pass	
Lead	%	98			70-130	Pass	
Mercury	%	123			70-130	Pass	
Nickel	%	99			70-130	Pass	
Zinc	%	107			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S12-De17227	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				Result 1					
TRH >C10-C16	S12-De17227	NCP	%	86			70-130	Pass	
Spike - % Recovery									
Polyaromatic Hydrocarbons (PAH)				Result 1					
Acenaphthene	S12-De15728	NCP	%	86			70-130	Pass	
Acenaphthylene	S12-De15728	NCP	%	83			70-130	Pass	
Anthracene	S12-De15728	NCP	%	90			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	S12-De15728	NCP	%	88			70-130	Pass	
Benzo(a)pyrene	S12-De15728	NCP	%	82			70-130	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S12-De15728	NCP	%	85			70-130	Pass	
Benzo(g.h.i)perylene	S12-De15728	NCP	%	83			70-130	Pass	
Chrysene	S12-De15728	NCP	%	87			70-130	Pass	
Dibenz(a.h)anthracene	S12-De15728	NCP	%	82			70-130	Pass	
Fluoranthene	S12-De15728	NCP	%	89			70-130	Pass	
Fluorene	S12-De15728	NCP	%	83			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S12-De15728	NCP	%	84			70-130	Pass	
Naphthalene	S12-De15728	NCP	%	86			70-130	Pass	
Phenanthrene	S12-De15728	NCP	%	84			70-130	Pass	
Pyrene	S12-De15728	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Metals M8				Result 1					
Arsenic	S12-De17558	NCP	%	114			70-130	Pass	
Cadmium	S12-De17558	NCP	%	104			70-130	Pass	
Chromium	S12-De17558	NCP	%	101			70-130	Pass	
Copper	S12-De15763	NCP	%	127			70-130	Pass	
Lead	S12-De15763	NCP	%	110			70-130	Pass	
Mercury	S12-De18181	NCP	%	104			70-130	Pass	
Nickel	S12-De17558	NCP	%	114			70-130	Pass	
Zinc	S12-De16263	NCP	%	101			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S12-De17227	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C15-C28	S12-De17227	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH C29-C36	S12-De17227	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				Result 1	Result 2	RPD			
TRH >C10-C16	S12-De17227	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S12-De17227	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S12-De17227	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides (OP)				Result 1	Result 2	RPD			
Chlorpyrifos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Coumaphos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Diazinon	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorvos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dimethoate	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Disulfoton	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethoprop	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fenitrothion	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fensulfothion	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fenthion	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methyl azinphos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Malathion	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methyl parathion	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Mevinphos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Monocrotophos	S12-De15156	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Parathion	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phorate	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Profenofos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Prothiofos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides (OP)				Result 1	Result 2	RPD			
Ronnel	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Stirophos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloronate	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polyaromatic Hydrocarbons (PAH)				Result 1	Result 2	RPD			
Acenaphthene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S12-De15728	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Benzo(g.h.i)perylene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S12-De15728	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Metals M8				Result 1	Result 2	RPD			
Arsenic	S12-De18081	NCP	mg/kg	5.9	5.7	3.0	30%	Pass	
Cadmium	S12-De18081	NCP	mg/kg	< 0.4	< 0.4	120	30%	Fail	Q15
Chromium	S12-De18081	NCP	mg/kg	9.1	11	16	30%	Pass	
Copper	S12-De18081	NCP	mg/kg	51	51	1.0	30%	Pass	
Lead	S12-De18081	NCP	mg/kg	65	74	13	30%	Pass	
Mercury	S12-De17254	NCP	mg/kg	0.12	0.12	3.0	30%	Pass	
Nickel	S12-De18081	NCP	mg/kg	11	13	12	30%	Pass	
Zinc	S12-De18081	NCP	mg/kg	190	210	7.0	30%	Pass	

Comments

Please note: Asbestos analysed by ASET (Job : ASET32005/35185/1-1) NATA Accreditation : 14484

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
Q09A	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference and is unquantifiable. A result of 1 has been reported for the purposes of providing a numerical result. Acceptance criteria were met for all other QC.
Q15	The RPD reported passes mgt-LabMark's Acceptance Criteria as stipulated in SOP 05. Refer to Glossary Page of this report for further details

Authorised By

Jean Heng	Client Services
Laura Schofield	Senior Analyst-Volatile (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
James Norford	Senior Analyst-Metal (NSW)

Dr. Bob Symons

Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref: ASET32005/ 35185 / 1 - 1
Your ref: 364107
NATA Accreditation No: 14484

2 January 2013

MGT- Labmark Environmental Pty Ltd
Unit F3, Building F, 16, Mars Road
Lane Cove
NSW 2066

Attn: Mr Robert Symonds

Dear Bob

Asbestos Identification
This report presents the results of one sample, forwarded by MGT- Labmark Environmental Pty Ltd on 21 December 2012, for analysis for asbestos.

1.Introduction: One sample forwarded was examined and analysed for the presence of asbestos.

2. Methods : The sample was examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method. **(Safer Environment Method 1.)**

3. Results : **Sample No. 1. ASET32005 / 35185 / 1. TRIP 1 - De18241.**
Approx dimensions 4.6 cm x 3.5 cm x 3.2 cm
The sample consisted of a mixture of clayish soil, stones and plant matter.
No asbestos detected.

Analysed and reported by,

Laxman Dias. BSc
Analyst / Approved Identifier.
Approved Signatory

NATA
WORLD RECOGNISED
ACCREDITATION

This document is issued in accordance with NATA's Accreditation requirements. Accredited for compliance with ISO/IEC 17025.

Appendix H

Results Summary Tables

12111
,Land Development Agency,
Block 21, Section 30.
Dickson Commercial Center

Results Table

			TPH										BTEX							
			C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)	C6-C10	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 less BTEX (F1)
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			50	100	100	50	10	50	100	100	100	20	0.2	0.5	0.5	1.5	1	0.5	1.5	20
NSW EPA 1994 Health and Ecological							65						1	50	130				25	
NEPM 1999 HIL D - Residential with minimal access to soil (proposed use)																				
NEPM 1999 HIL A - Accessible soils (BRU)																				
SampleCode	**Field_ID**	**Sampled_Date-Time**																		
83505-1	BH1/MW1	18/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-2	BH1/MW1	18/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-3	BH2	18/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-4	BH2	18/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-5	BH3	19/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-6	BH3	19/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-7	BH4	19/12/2012	<50	210	160	<50	<25	<50	<100	160	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-8	BH4	19/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-9	BH5	19/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-10	BH5	19/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-11	BH6	19/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-12	BH6	19/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-13	BH7	19/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-14	BH8	19/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-15	BH9	19/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-16	BH9	19/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
83505-17	DUP1	19/12/2012	<50	<100	<100	<50	<25	<50	<100	<100	-	<25	<0.2	<1	<0.5	-	<2	<1	-	<25
Statistical Summary																				
Number of Results			17	17	17	17	17	17	17	17	0	17	17	17	17	0	17	17	0	17
Number of Detects			0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Minimum Concentration			<50	<100	<100	<50	<25	<50	<100	<100	0	<25	<0.2	<1	<0.5	0	<2	<1	0	<25
Minimum Detect			ND	210	160	ND	ND	ND	ND	160	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration			<50	210	160	<50	<25	<50	<100	160	0	<25	<0.2	<1	<0.5	0	<2	<1	0	<25
Maximum Detect			ND	210	160	ND	ND	ND	ND	160	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration			25	59	56	25	13	25	50	56		13	0.1	0.5	0.25		1	0.5		13
Median Concentration			25	50	50	25	12.5	25	50	50		12.5	0.1	0.5	0.25		1	0.5		12.5
Standard Deviation			0	39	27	0	0	0	0	27		0	0	0	0		0	0		0
Number of Guideline Exceedances			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

				PAH/Phenols															
			Hexachlorobenzene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)&(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.05	0.1	0.1	0.1	0.1	0.05	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	0.1	0.1
NSW EPA 1994 Health and Ecological																	20		
NEPM 1999 HIL D - Residential with minimal access to soil (proposed use)								1									80		
NEPM 1999 HIL A - Accessible soils (BRU)								5									20		
SampleCode	**Field_ID**	**Sampled_Date-Time**																	
83505-1	BH1/MW1	18/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-2	BH1/MW1	18/12/2012	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-3	BH2	18/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-4	BH2	18/12/2012	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-5	BH3	19/12/2012	<0.1	<0.1	0.2	<0.1	0.3	0.46	0.5	0.4	0.3	<0.1	0.3	<0.1	0.3	<1 - 0.1	2.76	0.2	0.6
83505-6	BH3	19/12/2012	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-7	BH4	19/12/2012	<0.1	<0.1	0.4	0.1	0.5	0.92	1	0.5	0.7	<0.1	0.7	<0.1	0.5	<1 - 0.2	4.62	0.5	1.4
83505-8	BH4	19/12/2012	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-9	BH5	19/12/2012	<0.1	<0.1	0.1	<0.1	0.3	0.36	0.4	0.2	0.3	<0.1	0.4	<0.1	0.2	<0.1	2.16	0.3	0.9
83505-10	BH5	19/12/2012	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-11	BH6	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	0.06	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-12	BH6	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-13	BH7	19/12/2012	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-14	BH8	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-15	BH9	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-16	BH9	19/12/2012	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
83505-17	DUP1	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
Statistical Summary																			
Number of Results			10	17	17	17	17	17	17	17	17	17	17	17	17	17	3	17	17
Number of Detects			0	0	3	1	3	4	3	3	3	0	3	0	3	2	3	3	3
Minimum Concentration			<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.16	<0.1	<0.1
Minimum Detect			ND	ND	0.1	0.1	0.3	0.06	0.4	0.2	0.3	ND	0.3	ND	0.2	ND	2.16	0.2	0.6
Maximum Concentration			<0.1	<0.1	0.4	0.1	0.5	0.92	1	0.5	0.7	<0.1	0.7	<0.1	0.5	0.2	4.62	0.5	1.4
Maximum Detect			ND	ND	0.4	0.1	0.5	0.92	1	0.5	0.7	ND	0.7	ND	0.5	0.2	4.62	0.5	1.4
Average Concentration			0.05	0.05	0.082	0.053	0.11	0.13	0.19	0.11	0.12	0.05	0.12	0.05	0.1	0.082	3.2	0.1	0.21
Median Concentration			0.05	0.05	0.05	0.05	0.05	0.025	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	2.76	0.05	0.05
Standard Deviation			0	0	0.09	0.012	0.13	0.24	0.24	0.14	0.17	0	0.18	0	0.12	0.092	1.3	0.12	0.39
Number of Guideline Exceedances			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Results Table

	Metals								Polychlorinated Biphenyls								Organochlorine Pesticides																
	Lead	Arsenic	Cadmium	Chromium (III+VI)	Copper	Mercury	Nickel	Zinc	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	2	0.4	1	1	0.05	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NSW EPA 1994 Health and Ecological																																	
NEPM 1999 HIL D - Residential with minimal access to soil (proposed us	1200	400	80	400	4000	60	2400	28,000								40																	40
NEPM 1999 HIL A - Accessible soils (BRU)	300	100	20	100	1000	15	600	7000								10																	10
SampleCode **Field_ID** **Sampled_Date-Time**																																	
83505-1 BH1/MW1 18/12/2012	25	18	1.1	39	83	<0.1	20	37	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-2 BH1/MW1 18/12/2012	87	31	<0.5	48	63	<0.1	14	320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83505-3 BH2 18/12/2012	36	20	1.6	7	92	<0.1	18	95	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-4 BH2 18/12/2012	69	21	<0.5	94	40	<0.1	23	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83505-5 BH3 19/12/2012	8	<4	<0.5	4	2	<0.1	2	18	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-6 BH3 19/12/2012	27	9	<0.5	55	26	<0.1	12	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83505-7 BH4 19/12/2012	5	<4	<0.5	7	2	<0.1	3	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	<0.1	<0.1	<0.1	<0.1	<0.1
83505-8 BH4 19/12/2012	58	5	<0.5	30	30	<0.1	4	210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83505-9 BH5 19/12/2012	8	<4	<0.5	10	4	<0.1	3	16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-10 BH5 19/12/2012	55	23	<0.5	97	26	<0.1	18	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83505-11 BH6 19/12/2012	11	5	<0.5	25	11	<0.1	6	16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-12 BH6 19/12/2012	36	17	<0.5	80	22	<0.1	16	38	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-13 BH7 19/12/2012	29	9	<0.5	57	23	<0.1	13	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83505-14 BH8 19/12/2012	51	11	<0.5	48	23	<0.1	13	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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-15 BH9 19/12/2012	39	9	<0.5	54	18	<0.1	9	36	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-16 BH9 19/12/2012	40	11	<0.5	59	24	<0.1	19	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83505-17 DUP1 19/12/2012	46	9	<0.5	40	22	<0.1	18	27	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Statistical Summary																																	
Number of Results	17	17	17	17	17	17	17	17	10	10	10	10	10	10	10	0	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Number of Detects	17	14	2	17	17	0	17	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	5	<4	<0.5	4	2	<0.1	2	12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	5	5	1.1	4	2	ND	2	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	87	31	1.6	97	92	<0.1	23	320	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Detect	87	31	1.6	97	92	ND	23	320	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	37	12	0.38	44	30	0.05	12	60	0.05	0.05	0.05	0.05	0.05	0.05	0.05		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Median Concentration	36	9	0.25	48	23	0.05	13	35	0.05	0.05	0.05	0.05	0.05	0.05	0.05		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation	23	8.4	0.38	29	26	0	6.8	82	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Results Table

	Heptachlor epoxide	Methoxychlor	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dimethoate	Ethion	Fenitrothion	Ronnel
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NSW EPA 1994 Health and Ecological										
NEPM 1999 HIL D - Residential with minimal access to soil (proposed us										
NEPM 1999 HIL A - Accessible soils (BRU)										

SampleCode	Field_ID	Sampled_Date-Time									
83505-1	BH1/MW1	18/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-2	BH1/MW1	18/12/2012	-	-	-	-	-	-	-	-	-	-
83505-3	BH2	18/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-4	BH2	18/12/2012	-	-	-	-	-	-	-	-	-	-
83505-5	BH3	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-6	BH3	19/12/2012	-	-	-	-	-	-	-	-	-	-
83505-7	BH4	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-8	BH4	19/12/2012	-	-	-	-	-	-	-	-	-	-
83505-9	BH5	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-10	BH5	19/12/2012	-	-	-	-	-	-	-	-	-	-
83505-11	BH6	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-12	BH6	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-13	BH7	19/12/2012	-	-	-	-	-	-	-	-	-	-
83505-14	BH8	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-15	BH9	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
83505-16	BH9	19/12/2012	-	-	-	-	-	-	-	-	-	-
83505-17	DUP1	19/12/2012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Statistical Summary

Number of Results	10	10	10	10	10	10	10	10	10	10
Number of Detects	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Median Concentration	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0

Appendix I

RPD Calculations

Appendix I
RPD Calculcations

SDG	83505	83505		83505	Interlab_D	
Field_ID	BH8	DUP1	RPD	BH8	TRIP 1	RPD
Sampled_Date-Time	19/12/2012	19/12/2012		19/12/2012	19/12/2012	
ChemName	**Units**	**EQL**						
Benzene	mg/kg	0.2 (Primary): 0.5 (Interlab)	<0.2	<0.2	0	<0.2	<0.5	0
Ethylbenzene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
Toluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
Xylene (m & p)	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<2.0	0	<2.0	<1.0	0
Xylene (o)	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
C6-C10 less BTEX (F1)	mg/kg	25 (Primary): 20 (Interlab)	<25.0	<25.0	0	<25.0	<20.0	0
Hexachlorobenzene	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
Moisture	%	0.1	15.0	13.0	14	15.0		
Lead	mg/kg	1 (Primary): 5 (Interlab)	51.0	46.0	10	51.0	68.0	29
Arsenic	mg/kg	4 (Primary): 2 (Interlab)	11.0	9.0	20	11.0	19.0	53
Cadmium	mg/kg	0.5 (Primary): 0.4 (Interlab)	<0.5	<0.5	0	<0.5	<0.4	0
Chromium (III+VI)	mg/kg	1 (Primary): 5 (Interlab)	48.0	40.0	18	48.0	56.0	15
Copper	mg/kg	1 (Primary): 5 (Interlab)	23.0	22.0	4	**23.0**	**34.0**	**39**
Mercury	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	0.05	0
Nickel	mg/kg	1 (Primary): 5 (Interlab)	**13.0**	**18.0**	**32**	13.0	14.0	7
Zinc	mg/kg	1 (Primary): 5 (Interlab)	31.0	27.0	14	**31.0**	**46.0**	**39**
4,4-DDE	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
a-BHC	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
Aldrin	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
b-BHC	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
Chlordane (cis)	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
Chlordane (trans)	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
d-BHC	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
DDD	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
DDT	mg/kg	0.1 (Primary): 0.2 (Interlab)	<0.1	<0.1	0	<0.1	<0.2	0
Dieldrin	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
Endosulfan I	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
Endosulfan II	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
Endosulfan sulphate	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
Endrin	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
Endrin aldehyde	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
g-BHC (Lindane)	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
Heptachlor	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
Heptachlor epoxide	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0
Methoxychlor	mg/kg	0.1 (Primary): 0.2 (Interlab)	<0.1	<0.1	0	<0.1	<0.2	0
Bromophos-ethyl	mg/kg	0.1	<0.1	<0.1	0	<0.1		
Chlorpyrifos	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Chlorpyrifos-methyl	mg/kg	0.1	<0.1	<0.1	0	<0.1		
Diazinon	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Dimethoate	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Ethion	mg/kg	0.1	<0.1	<0.1	0	<0.1		
Fenitrothion	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Ronnel	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Acenaphthene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Acenaphthylene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Anthracene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Benz(a)anthracene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Benzo(a) pyrene	mg/kg	0.05 (Primary): 0.5 (Interlab)	<0.05	<0.05	0	<0.05	<0.5	0
Benzo(b)&(k)fluoranthene	mg/kg	0.2 (Primary): 1 (Interlab)	<0.2	<0.2	0	<0.2	<1.0	0
Benzo(g,h,i)perylene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Chrysene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Dibenz(a,h)anthracene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Fluoranthene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Fluorene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Naphthalene	mg/kg	1 (Primary): 0.5 (Interlab)	<1.0	<1.0	0	<1.0	<0.5	0
Naphthalene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Phenanthrene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Pyrene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Arochlor 1016	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Arochlor 1221	mg/kg	0.1	<0.1	<0.1	0	<0.1		
Arochlor 1232	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Arochlor 1242	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Arochlor 1248	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Arochlor 1254	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
Arochlor 1260	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0
C10-C16	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0
C16-C34	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0
C34-C40	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0
F2-NAPHTHALENE	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0
C6 - C9	mg/kg	25 (Primary): 10 (Interlab)	<25.0	<25.0	0	<25.0	<10.0	0
C10 - C14	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0
C15 - C28	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0
C29-C36	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0
C6-C10	mg/kg	25 (Primary): 20 (Interlab)	<25.0	<25.0	0	<25.0	<20.0	0

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 100 (1-5 x EQL); 75 (5-10 x EQL); 30 (> 10 x EQL))
***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

Environmental Strategies
PROVIDING BENEFITS

EnvironmentalStrategies
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Sydney

T +61 (0)2 9690 2555
Suite 15201, Locomotive Workshop 2
Locomotive Street, Eveleigh NSW 2015

Melbourne

T +61 (0)3 9029 7300
28A, Blazey Street
Richmond, Victoria 3121

Dunsborough

T +61 (0)8 97 553 698
17/31 Dunn Bay Road / PO Box 731
Dunsborough, Western Australia 6281

Fremantle

Suite 15 & 16,
Ground Floor, 185 High Street,
Fremantle, Western Australia 6160