BERRIGAN SHIRE LIMITED ENVIRONMENTAL SITE ASSESSMENT LOT 32; DP 778129, TOCUMWAL, NSW

E10183/1-AC 17 October 2005 E10183/1-AC CB 17 October 2005

BERRIGAN SHIRE PO Box 137 BERRIGAN NSW 2712

Attention: Mr Wayne Chisholm

Dear Sir,

RE: LIMITED ENVIRONMENTAL SITE ASSESSMENT LOT 32; DP 778129, TOCUMWAL, NSW

Please find enclosed our limited Environmental Site Assessment completed at the above site. Three copies of the report are provided for your information.

Your attention is drawn to the enclosed sheet *"Important Information About Your Coffey Environmental Site Assessment."* If you have any further questions relating to this report or we can be of further assistance, please do not hesitate to contact the undersigned at your convenience.

For and on behalf of COFFEY GEOSCIENCES PTY LTD

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Important Information About Your Coffey Environmental Site Assessment

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1. INTRODUCTION

This report presents the findings of a limited Environmental Site Assessment (ESA) completed by Coffey Geosciences Pty Ltd (Coffey) at the site forming part of the former RAAF aerodrome in Tocumwal, NSW. The site comprises an area of approximately 21Ha and lies to the south of Hutsons Road and west of Burma Road. The site is legally referred to as Lot 32; DP 778129. The ESA was commissioned by Mr Wayne Chisholm of Berrigan Shire and confirmed by the correspondence of 23 June 2005. It is understood that an independent assessment of the site was required to facilitate the processing of the development application for the proposed residential subdivision on the property.

The location of the site is shown on the Locality Plan, Figure 1.

1.1 Scope of Work

The scope of work undertaken during the course of this assessment included:

- A review of the site history/background;
- Completion of a soil sampling program across the site to gain an overview of sub-surface soil conditions;
- Submission of soil samples to a NATA registered laboratory; and
- Data analysis and reporting.

2. BACKGROUND

The site history study undertaken by Coffey to gain background information relating to the site included:

- a site visit;
- discussions with persons familiar with the subject lands;
- a review of records held by Berrigan Shire Council;
- a review of historical aerial photography for the last 36 years;
- a check of NSW Department of Environment and Conservation (DEC) records for notices on the site; and
- a search of the Department of Infrastructure, Planning and Natural Resources (DIPNR) for registered water bores in the area.

3. SITE HISTORY REVIEW

Information for the site history review was retrieved from the a review of Berrigan Shire records for the site, personnel communication with the property owner and other persons familiar with the site and a review of DEC records.

3.1 Previous Assessment and Site History

3.2 Site Identification and Zoning

The site comprises an area of approximately 21 ha legally referred to as Lot 32; DP 778129.

The subject site was part of the Tocumwal Military Aerodrome that operated during World War II; prior to this

time the land was undeveloped and used as open grazing land.

Construction at the Aerodrome site commenced during 1942 and involved the completion of approximately 115 km of sealed pavements. Sealing of runways, taxiways and roadways during construction reportedly consumed three (3) months supply of "tar" from Broken Hill Pty Ltd and the total "tarred" surface of the site was approximately 115 hectares.

It was reported that no environmental assessments had been previously completed on the subject property.

3.3 Berrigan Shire Council Records

A review of the Berrigan Shore records for the subject site as provided by Mr Wayne Chisholm of Berrigan Shire indicated that the site formed part of the Aerodrome lands prior to divestment by the Crown circa 1975. The Shires records indicated that 12 buried and 20 exposed 200L steel drums, each containing a viscous, asphalt emulsion like substance, were identified on a property located approximately 600m to the west of the subject site during mid February 2000. The drums were identified within and directly east of Lot 35 DP790167 (No. 6 Ingo Renner Drive) owned by Mrs Valerie Riley. Following identification of the drums, a soil excavation of the impacted areas was completed under the direction of Mr Bill Riley during June 2000; material excavated during the work program was transported to the Berrigan Waste Disposal Centre for temporary storage. No formal site validation was completed at the site were the buried waste was excavated. No records of the presence of potentially contaminated material were noted for the subject site.

3.4 Aerial Photograph Review

Aerial photographs of the site were purchased from the Department of Lands and reviewed. The results of the assessment are summarised in Table 1. Copies of the relevant portions of the photographs are presented within Appendix D.

YEAR	SITE	SURROUNDING LAND
1969	The site consists of cleared improved pasture with a few small trees or shrubs. In the north of the site there is a small dam while a dirt track runs diagonally through the site from the northeast to the southwest. Several large buildings and runways associated with the aerodrome are situated northeast of the site.	The land to the north of the subject site is mostly rural while residential development is apparent to the south and west.
1976	Similar to the previous photograph. Many of the small trees and shrubs have been removed from the site. The dirt track running diagonally through the subject site is still visible, but appear to be disused. The fields to the north appear to have been recently used for cropping.	A golf course has been developed immediately south of the subject site.

TABLE 1.1: AERIAL PHOTOGRAPH REVIEW

1991	The site is similar to the previous photograph. Most of the buildings associated with the aerodrome to the north east of the site have been removed. The disused dirt track running through the subject site in the previous photograph is still visible.	Considerable development has occurred to the west of the subject site.
1996	Similar to previous photograph. A new subdivision been constructed immediately west of the subject site.	Similar to previous photographs.
2003	Similar to previous photograph, with new houses constructed in the residential subdivision immediately west of the subject site.	Similar to previous photographs.

3.5 NSW DEC Notices Search

A check with the NSW Contaminated Land public record of DEC notices revealed that no notices have been issued within the area.

The contaminated land public record is a searchable database of:

- actions taken by the EPA under section 15, 17, 19, 21, 23, 26 or 28 of the *Contaminated_Land Management Act 1997* (CLM Act)
- actions taken by the EPA under section 35 or 36 of the *Environmentally Hazardous Chemicals Act* 1985 (EHC Act) *
- site audit statements provided to the EPA under section 52 of the CLM Act on sites subject to an inforce declaration or order (<u>http://www.environment.nsw.gov.au/clm/aboutclmrecord.htm</u>)

3.6 Groundwater Bore Search

NSW Department of Infrastructure Planning and Natural Resources (DIPNR) records were checked for registered groundwater bores within a 1km radius of the site to assess groundwater usage and quality within the vicinity of the site. The DIPNR records search is presented within Appendix E. Summary information from DIPNR indicated that no registered bores were located within a 1km radius of the site.

3.7 Contamination Potential

The documented site history indicated that the potential contamination sources at the site were likely related to burial of coal tar waste utilised during construction of roads, runways and taxi ways of the former Tocumwal Aerodrome facility.

On this basis, a relatively limited range of Potential Contaminants of Concern (PCOCs) may have been introduced onto the site, a summary of which is included in Table 3-1.

Possible Source	Potential Contaminants of Concern (PCOCs)						
Wastes containing coal tar	Polycyclic Aromatic Hydrocarbons (PAHs), Heavy Metals, total petroleum hydrocarbons (TPHs) and Phenols						
Use of general pesticides and herbicides associated with agriculture	Organochlorine & Organophosphorous Pesticides						

TABLE 3-1. POSSIBLE CONTAMINANT SOURCES AND POTENTIAL CONTAMINANTS OF CONCERN

3.8 Regional Geology and Hydrogeology

The Geological Survey of New South Wales, 1:253,440 Series, Jerilderie S1/55-15 mapsheet, indicates that the site is likely located on *"Tertiary sediments consisting of clay, silt, sand and gravels".* The natural soils encountered in the boreholes were considered to be consistent with the geological map indication. Groundwater was not encountered within any of the boreholes.

4. FIELD INVESTIGATIONS

4.1 Sampling Strategy and Procedures

A Coffey Environmental Scientist and Geotechnician conducted the environmental fieldwork on 19 and 20 September 2005, which involved the collection of soil samples from a total of 46 boreholes, designated BH1 to BH46. The boreholes were completed using a 100mm hand auger and extended to a depth of approximately 0.6m. Boreholes were placed in a grid pattern across the site. Discrete soil samples were generally collected at 0.1 below grade and from 0.5 – 0.6m below grade.

Soil types were described in the field and borehole logs are provided in Appendix A together with explanatory sheets outlining the descriptive terms and symbols used.

All work was conducted in general accordance with standard Coffey environmental protocols with respect to sampling procedures, containers, sample handling, chain-of-custody documentation procedures and dispatched to the laboratory, i.e. following collection, soil samples were transferred to glass jars (125mL) and immediately sealed. These protocols are based on normal industry practice for these type of works. All sample containers were uniquely labelled, placed in eskys with ice packs and dispatched for analysis to the laboratory under standard chain-of-custody documentation procedures. Copies of the chain-of-custody record are included in Appendix B.

4.2 Decontamination

Decontamination of sampling equipment was completed in accordance with the Coffey Environmental Field Manual and comprised:

- removal of encrusted materials;
- brush scrubbing with Decon 90 detergent cleaning solution;
- rinse with deionised water; and
- final rinse with deionised water.

4.3 Laboratory Testing

Samples were analysed by the NATA registered laboratory of AMDEL of Clayton, Victoria. Analytical methods were based on standard methods and are presented below in Table 4-1. Laboratory detection limits were set at or below one-tenth of NEPC Environmental Investigation Levels (NEPC 1999) wherever possible in accordance with normal protocols.

The analysis program included analysis of:

- 50 soil samples for Polycylic Aromatic Hydrocarbons (PAH);
- 25 soil samples for metals (arsenic, cadmium, chromium, copper, mercury, nickel, lead and zinc);
- 15 soil samples for Total Petroleum Hydrocarbons (TPH);
- 1 soil sample for Phenols;
- 1 soil samples for Organochlorine Pesticides (OCPs); and
- 1 soil samples for Organophosphorous Pesticides (OPPs).

TABLE 4-1. SUMMARY OF SOIL ANALYTICAL METHODS

Analytical Test	Analytical Method ¹
Heavy Metals	
Polycyclic Aromatic Hydrocarbons (PAHs)	512-MS
Total Petroleum Hydrocarbons (TPHs)	503P&T
Total Phenolics	244

¹ Details of the analytical methods can be obtained from the laboratory

4.4 Quality Assurance/Quality Control (QA/QC)

4.4.1 Procedures

Work on this project was completed in accordance with standard Coffey QA/QC procedures which specify sampling protocols, number and type of sample containers per sampling location, sample preservation methods, approved holding times, sample identification codes, QC sample requirements and chain of custody documentation procedures. Coffey QA/QC protocols are consistent with the requirement of current guidelines for site assessments.

In addition to the primary samples, quality control duplicates were collected to assess aspects of field protocols and laboratory performance and to classify the validity of the laboratory data. Two coded intralaboratory soil sample duplicates were sent to the primary laboratory (AMDEL).

Disposable gloves were used during the collection of all samples, and discarded after each sample had been sealed in the appropriate container.

Sample Type	No. of sampling days	Primary Samples Analysed	QC Duplicates Analysed
SOIL	2	50	4
TOTAL	2	50	4

TABLE 4-2. QA/QC SUMMARY

4.4.2 Field QC Results

Data validation of duplicate samples was carried out by calculation of the relative percentage differences (RPDs) from the mean, i.e. the difference between the primary and duplicate sample results divided by the average of the two results and expressed as a percentage. Results of QC samples are presented in Table 5 in and the AMDEL NATA accredited reports are included in Appendix F.

4.4.2.1 Soil QC Results

The intra-laboratory analysis for blind duplicates RPDs within the acceptable range of \pm 50% (AS4482.1-1997).

4.4.3 Laboratory QA Results for Soil Samples

AMDEL also conducted an internal QA/QC program comprising laboratory blanks, matrix duplicates and spikes on sample matrices and laboratory blanks (refer Appendix F). RPDs between laboratory matrix duplicates were within the acceptable range of \pm 50% (Standards Australia, 1997).

The results of laboratory blanks were below detection limits indicating that no sample contamination had occurred as a result of handling in the laboratory.

Spiked sample analyses recorded recoveries that were all within acceptable control limits and are considered acceptable to validate the analytical dataset.

4.4.4 QA/QC Conclusions

On the basis of the field and laboratory QC results, it is considered that the field and laboratory programs have provided acceptable QA/QC results and that the results of the sampling and analysis program are sufficiently reliable to achieve the objectives of this assessment.

5. RESULTS OF FIELD AND LABORATORY PROGRAM

5.1 Site Observations

On 19 September 2005 a Coffey Environmental Scientist and Technician visited the site to determine if any indications of potential contamination were apparent at the site. During the site visit no odourous substances or visual evidence (surficial soil staining, stressed vegetation etc.) of contamination were observed. No evidence of former structures such as building footings or road base materials were observed. Particular attention was also paid to denoting evidence of soil disturbance that may have been related to waste burial;

no evidence of soil disturbance was noted.

The majority of the area was planted with introduced grass species and appeared to have been used for livestock grazing.

No irrigation or significant drainage channels were observed to intersect the site at the time of Coffey's visit. Selected site photographs are presented within Appendix C.

5.2 Subsurface Conditions

Based on the field observations made during the investigation and shown on the borehole logs included as Appendix A, the subsurface conditions at the site generally comprised of a sandy clay top-soil underlain by a fine to medium grained sandy to clay sandy of suspected alluvial origins.

Groundwater was not encountered within any of the boreholes completed during the assessment program.

5.3 Soil Assessment Criteria

For assessing contamination levels in soil, NEPC (1999) presents health based (Health Investigation Levels [HILs]) for different land uses (e.g. industrial/commercial, residential, recreational etc.) and Ecological Investigation Levels (EILs) which are generally phytotoxicity-based (i.e. indicate that soil contamination poses a possible risk to the successful establishment and growth of sensitive plants).

As the site will be potentially redeveloped for residential land use, analytical results have been compared to Column A HILs which consider the health scenario for low density residential sites with gardens and accessible soil (home-grown produce contributing less than 10% fruit and vegetable intake; no poultry).

Analytical results have also been compared to the EILs where relevant parameters are quoted in the NEPC Guidelines (NEPC 1999). However, currently no EILs have been developed for organochlorine pesticides (OCPs). As such, the Dutch B and Dutch C criteria have been used for comparison with analytical results (ANZECC 1990). Prior to completion of the NEPC Guidelines, Victorian EPA considered the ANZECC Guidelines (ANZECC 1992) as threshold values for environmental concern which could be applied to any land use, including residential land use. In the absence of criteria within the ANZECC (1992) guidelines, these guidelines direct the user to Dutch criteria. Consequently Dutch B criteria are considered to be appropriate for the pesticides where no NEPC or ANZECC "B" criteria have been specified.

Therefore, it is considered appropriate to adopt Dutch B criteria for organochlorine pesticides as EILs for the purposes of this ESA report and to adopt Dutch C as nominal clean-up criteria for organochlorine pesticides. Where concentrations of OCPs exceed the Dutch B criteria, concentrations are considered to be elevated and further investigation is required. Where concentrations exceed Dutch C criteria, concentrations are regarded as "of concern" and some form of clean-up or management may be required.

5.4 Soil Analytical Results

The results of laboratory analysis indicate that all analysed soil samples collected from the site contained contaminant concentrations at less than the Column A Health Investigation Levels (HILs).

All metal concentrations were also less than the Environmental Investigation Levels (EILs). All OCP concentrations were less than the Dutch C criteria (10mg/kg).

The AMDEL NATA accredited laboratory report for the soil analysis is included as Appendix F.

6. DISCUSSION & RECOMMENDATIONS

As with any assessment it is possible that not all potential contamination issues at the site have been identified and, as such, it is considered important that the potential developers adopts best practice with regard to site demolition and waste disposal activities during site redevelopment.

Any potentially contaminated areas (odorous/discoloured soils, potential waste burial pits, previously unidentified chemical/fuel storage areas i.e. 'materials of concern') should be reported to the relevant development Project Manager if they are encountered during proposed development works. An appropriately qualified Environmental Consultant could then be engaged to examine the material, to undertake any appropriate analysis or studies, and to determine an appropriate course of action.

6.1 Management or potentially contaminated material

All excavated materials of concern should be documented and disposed of in accordance with the recommendations of the environmental consultant and the requirements of the NSW DEC.

6.2 Records management

The party responsible for any engineering works on the site should keep detailed records of excavation restoration, including the retention of any landfill dockets.

6.3 Occupational health and safety

Appropriate Occupational Health and Safety (OH&S) strategies should be put in place for activities having the potential to involve contact with materials of concern. Typical OH&S precautions would include the following:

 All workers who may come into contact with materials of concern should wear appropriate personal protection equipment (PPE), i.e. gloves, overalls and dust masks.

Workers should ensure that they wash their hands before eating or drinking. Food and drink should not be consumed within work areas where materials of concern are present and a separate 'clean' area should be set aside for meal and refreshment breaks. Workers entering this 'clean area' should wash their face and hands and should ensure that no loose material adheres to clothing or footwear. PPE would not be brought into clean areas.

7. CONCLUSIONS

Based on the results of the historical review, site observations, sampling and laboratory analysis conducted to date, the conclusions of the Limited Environmental Site Assessment conducted by Coffey at Lot 32; DP 778129, Tocumwal are presented below:

- The site history review indicates the site was first developed circa 1942 as part of the former Tocumwal Military Aerodrome.
- The site history does not indicate any prior potentially contaminating land use on the subject property, however buried waste comprising of steel 200L containing a viscous, asphalt like emulsion were identified on a property located approximately 600m to the west of the site during early 2000.
- During a site walkover no visual or olfactory evidence of contamination was noted and no evidence
 of disturbed soil (such as that related to the disturbance associated with waste burial activities) was

noted.

- The subsurface conditions at the site generally comprised of a sandy clay top-soil underlain by a fine to medium grained sandy to clay sandy of suspected alluvial origins.
- Groundwater was not encountered within any of the boreholes completed during the assessment program.
- Based on the results of laboratory analysis program, all analysed soil samples obtained during the completion of a total of forty-six (46) boreholes across the site exhibited contaminant concentrations at less than applicable guidelines for protection of human health and the environment.
- We note that the current assessment did not include an investigation of groundwater quality and did not assess impacts on or from adjacent properties.

8. LIMITATIONS

The findings contained within this report are the result of discrete/specific sampling methodologies used in accordance with normal practices and standards, with some variations as indicated in the report. To the best of our knowledge, they represent a reasonable interpretation of the general condition of the site within the sampled areas. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points.

Note that this report does not constitute a Statutory Environmental Audit Report in the meaning of its use in the Environment Protection Act (1970) and has NOT been prepared to comply with New South Wales EPA Auditor guidelines and requirements.

For and on behalf of COFFEY GEOSCIENCES PTY LTD

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9. REFERENCES

- ANZECC (1990). "*Draft Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites*" Published by the Australian & New Zealand Environment Council, National Health & Medical Research Council, June.
- ANZECC (1992). "Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites" Published by the Australian & New Zealand Environment and Conservation Council, National Health & Medical Research Council.
- NEPC (1999). "*National Environmental Protection (Assessment of Site Contamination) Measure*"; National Environmental Protection Council, December.
- Standards Australia (1997). "Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 1: Non-Volatile and Semi-Volatile Compounds", AS4482.1-1997.



TABLE 1: SUMMARY OF LABORATORY RESULTS FOR SOIL SAMPLES HEAVY METALS

(All results in mg/kg)

				Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
		Threshold	1	100	20	12%	1000	300	15	600	7000
		Concentration	2	20	3	400	100	600	1	60	200
		Date of									
Sample ID	Material	Sampling	Depth (m)								
BH2/0.1	Soil	19-Sep-2005	0.1-0.2	7.8	<2.0	16	7.3	17	0.02	6.8	17
BH3/0.1	Soil	19-Sep-2005	0.1-0.2	4.9	<2.0	21	8.3	11	<0.01	10	22
BH5/0.1	Soil	19-Sep-2005	0.1-0.2	6.8	<2.0	17	12	25	0.02	9.8	25
BH7/0.1	Soil	19-Sep-2005	0.1-0.2	7.1	<2.0	20	11	16	0.02	10	27
BH9/0.1	Soil	19-Sep-2005	0.1-0.2	5.9	<2.0	30	18	20	0.02	23.0	51
BH9/0.5	Soil	19-Sep-2005	0.5-0.6	8.4	<2.0	32	20	19	0.02	20	49
BH10/0.1	Soil	19-Sep-2005	0.1-0.2	7.9	<2.0	26	14	18	0.02	15	32
BH11/0.1	Soil	19-Sep-2005	0.1-0.2	5.2	<2.0	22	11	13	0.01	13	26
BH14/0.1	Soil	19-Sep-2005	0.1-0.2	<2.0	<2.0	8.7	3.3	4.6	<0.01	4.2	10
BH17/0.1	Soil	19-Sep-2005	0.1-0.2	7	<2.0	30	16	13	0.02	15	33
BH18/0.1	Soil	19-Sep-2005	0.1-0.2	5	<2.0	18	9	12	<0.01	9.4	23
BH20/0.1	Soil	19-Sep-2005	0.1-0.2	6	<2.0	22	11	13	<0.01	12	26
BH23/0.1	Soil	20-Sep-2005	0.1-0.2	7.5	<2.0	23	11	17	<0.01	13	29
BH25/0.1	Soil	20-Sep-2005	0.1-0.2	3.4	<2.0	12	5.8	6.4	<0.01	7.2	12
BH29/0.1	Soil	20-Sep-2005	0.1-0.2	13	<2.0	27	15	24	0.01	16	32
BH31/0.1	Soil	20-Sep-2005	0.1-0.2	6.9	<2.0	27	12	15	0.01	15	31
BH33/0.1	Soil	20-Sep-2005	0.1-0.2	8.5	<2.0	28	15	20	0.01	15	33
BH37/0.1	Soil	20-Sep-2005	0.1-0.2	5.4	<2.0	19	9.1	12	<0.01	9	20
BH38/0.1	Soil	20-Sep-2005	0.1-0.2	4.6	<2.0	13	5.4	8.1	<0.01	6.3	12
BH40/0.1	Soil	20-Sep-2005	0.1-0.2	10	<2.0	32	18	22	0.03	16	30
BH41/0.1	Soil	20-Sep-2005	0.1-0.2	12	<2.0	29	13	21	0.02	12	31
BH41/0.5	Soil	20-Sep-2005	0.5-0.6	6.7	<2.0	30	18	16	<0.01	15	36
BH43/0.1	Soil	20-Sep-2005	0.1-0.2	6.8	<2.0	28	16	17	0.03	17	34
BH45/0.1	Soil	20-Sep-2005	0.1-0.2	7.7	<2.0	41	23	21	0.03	28	52
BH46/0.1	Soil	20-Sep-2005	0.1-0.2	6.8	<2.0	37	22	19	0.02	24	44

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NOTES:

Bold Concentration exceeds the respective threshold concentration

¹ Based on NEPM (1999) Guidelines on the Investigation Levels for Soil and Groundwater ('Standard' residential with garden/accessible soil - HIL A)

² Based on NEPM (1999) Guidelines on the Investigation Levels for Soil and Groundwater ('Standard' residential with garden/accessible soil - HIL A)

³ No relevant Guideline levels

TABLE 2:

SUMMARY OF LABORATORY RESULTS FOR SOIL SAMPLES

ORGANOCHLORINE PESTICIDES

(All results in mg/kg)

Sample ID		BH45/0.1
Material		Soil
Date of Sampling		20-Sep-2005
Depth (m)		0.1-0.2
	THRESHOLD	
	CONCENTRATION	
ORGANOCHLORINE PEST	CIDES	
Aldrin	10 ¹	<0.5
alpha - BHC	- 3	<0.5
alpha - Endosulphan	- 3	<0.5
beta - BHC	0.5 ²	<0.5
beta - Endosulphan	- 3	<0.5
Chlordane	- 3	<0.5
DDD	200 ¹	<0.5
DDE	200 ¹	<0.5
DDT	200 ¹	<0.5
delta - BHC	- 3	<0.5
Dieldrin	10 ¹	<0.5
Endosulphan sulphate	- 3	<0.5
Endrin	0.5 ²	<0.5
Endrin Aldehyde	- 3	<0.5
Heptachlor	10 ¹	<0.5
Heptachlorepoxide	- 3	<0.5
Hexachlorobenzene	- 3	<0.5
Lindane (gamma BHC)	_ 3	<0.5
Methoxychlor	0.5 ²	<0.5



NOTES:

Bold

Concentration exceeds the respective threshold concentration

Based on NEPM (1999) Guidelines on the Investigation Levels for Soil and Groundwater ('Standard' residential with garden/accessible soil - HIL A)

² Based on Dutch B criteria

³ No relevant Guideline levels

TABLE 3: SUMMARY OF LABORATORY RESULTS FOR SOIL SAMPLES TPH & BTEX (All results in mg/kg)

	<u>e in ng</u>			TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH C10-C36	Total Phenols
		Threshold Co	ncentration ¹	65	-	-	-	1000	8500
Sample ID	Material	Date of Sampling	Depth (m)						
BH2/0.1	Soil	19-Sep-2005	0.1-0.2	<5.0	<20	<20	<20	<60	<0.1
BH3/0.1	Soil	19-Sep-2005	0.1-0.2	<5.0	<20	<20	<20	<60	<0.1
BH5/0.1	Soil	19-Sep-2005	0.1-0.2	<5.0	<20	<20	<20	<60	<0.1
BH9/0.5	Soil	19-Sep-2005	0.5-0.6	<5.0	<20	<20	<20	<60	<0.1
BH10/0.1	Soil	19-Sep-2005	0.1-0.2	-	-	-	-	-	-
BH11/0.1	Soil	19-Sep-2005	0.1-0.2	<5.0	<20	<20	<20	<60	<0.1
BH14/0.1	Soil	19-Sep-2005	0.1-0.2	<5.0	<20	<20	<20	<60	<0.1
BH17/0.1	Soil	19-Sep-2005	0.1-0.2	<5.0	<20	<20	<20	<60	<0.1
BH18/0.1	Soil	19-Sep-2005	0.1-0.2	<5.0	<20	<20	<20	<60	<0.1
BH20/0.1	Soil	19-Sep-2005	0.1-0.2	<5.0	<20	<21	<20	<60	<0.1
BH23/0.1	Soil	20-Sep-2005	0.1-0.2	<5.0	<20	<20	<20	<60	<0.1
BH25/0.1	Soil	20-Sep-2005	0.1-0.2	-	-	-	-	-	-
BH29/0.1	Soil	20-Sep-2005	0.1-0.2	<5.0	<20	<21	<20	<60	<0.1
BH31/0.1	Soil	20-Sep-2005	0.1-0.2	-	-	-	-	-	-
BH33/0.1	Soil	20-Sep-2005	0.1-0.2	-	-	-	-	-	-
BH37/0.1	Soil	20-Sep-2005	0.1-0.2	<5.0	<20	<20	<20	<60	<0.1
BH38/0.1	Soil	20-Sep-2005	0.1-0.2	-	-	-	-	-	-
BH40/0.1	Soil	20-Sep-2005	0.1-0.2	-	-	-	-	-	-
BH41/0.1	Soil	20-Sep-2005	0.1-0.2	-	-	-	-	-	-
BH41/0.5	Soil	20-Sep-2005	0.5-0.6	-	-	-	-	-	-
BH43/0.1	Soil	20-Sep-2005	0.1-0.2	-	-	-	-	-	-
BH45/0.1	Soil	20-Sep-2005	0.1-0.2	-	-	-	-	-	-
BH46/0.1	Soil	20-Sep-2005	0.1-0.2	-	-	-	-	-	

Coffey **m**

NOTES:

Bold Concentration exceeds the respective threshold concentration

¹ Based on NEPM (1999) Guidelines on the Investigation Levels for Soil and Groundwater ('Standard' residential with garden/accessible soil - HIL A)

- No relevant Guideline levels

TABLE 4:

SUMMARY OF LABORATORY RESULTS FOR SOIL SAMPLES

POLYAROMATIC HYDROCARBONS

(All results in mg/kg)

(All results	ш шу/к	lg)																		
				Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene D	ibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Total PAH's
		Threshold Co	ncentration ¹	· -	-	-	-	-	-	-	-	-	-	-	-	-	· -	-	-	20
Sample ID N	Naterial	Date of Sampling	Depth (m)																	
BH1/0.1	Soil	19-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH2/0.1	Soil	19-Sep-2005	0.1-0.2	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH3/0.1	Soil	19-Sep-2005	0.1-0.2	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5
BH4/0.1	Soil	19-Sep-2005	0.1-0.2	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH5/0.1	Soil	19-Sep-2005	0.1-0.2	<0.5	< 0.5	< 0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH6/0.1	Soil	19-Sep-2005	0.1-0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH7/0.1	Soil	19-Sep-2005	0.1-0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH8/0.1	Soil	19-Sep-2005	0.1-0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH9/0.1	Soil	19-Sep-2005	0.1-0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH9/0.5	Soil	19-Sep-2005	0.5-0.6	< 0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5
BH10/0.1	Soil	19-Sep-2005	0.1-0.2	< 0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5
BH11/0.1	Soil	19-Sep-2005	0.1-0.2	< 0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH11/0.5	Soil	19-Sep-2005	0.5-0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5
BH12/0.1	Soil	19-Sep-2005	0.1-0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5
BH13/0.1	Soil	19-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5
BH14/0.1	Soil	19-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5
BH15/0.1	Soil	19-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5
BH15/0.5	Soil	19-Sep-2005	0.5-0.6	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH17/0.1	Soil	19-Sep-2005	0.1-0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.5
BH18/0.1	Soil	19-Sep-2005	0.1-0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH19/0.1	Soil	19-Sep-2005	0.1-0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH20/0.1	Soil	19-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5
BH20/0.1 BH21/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5
BH22/0.1	Soil	20-Sep-2005	0.1-0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH22/0.1 BH23/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5
BH23/0.1 BH24/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5
BH25/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5
BH25/0.1 BH27/0.1	Soil	20-Sep-2005	0.1-0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH28/0.1	Soil	20-Sep-2005 20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5
BH29/0.1	Soil	20-Sep-2005 20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5
BH29/0.1 BH30/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5		<0.5	<0.5	< 0.5	< 0.5
BH30/0.1 BH31/0.1	Soil	20-Sep-2005 20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5 <0.5	< 0.5	<0.5	< 0.5	< 0.5
	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	< 0.5	<0.5		< 0.5	<0.5		<0.5		< 0.5
BH32/0.1					<0.5			< 0.5						<0.5			<0.5		< 0.5	
BH33/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5
BH34/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5
BH35/0.1	Soil Soil	20-Sep-2005	0.1-0.2	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5
BH36/0.1		20-Sep-2005																		
BH37/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5 <0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5
BH38/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5
BH39/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5
BH40/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5
BH41/0.1	Soil	20-Sep-2005	0.1-0.2	< 0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH41/0.5	Soil	20-Sep-2005	0.5-0.6	< 0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH42/0.1	Soil	20-Sep-2005	0.1-0.2	< 0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5
BH43/0.1	Soil	20-Sep-2005	0.1-0.2	< 0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	<0.5	< 0.5
BH44/0.1	Soil	20-Sep-2005	0.1-0.2	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH44/0.5	Soil	20-Sep-2005	0.5-0.6	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH45/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5
BH45/0.5	Soil	20-Sep-2005	0.5-0.6	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
BH46/0.1	Soil	20-Sep-2005	0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

NOTES: Bold Concentration exceeds the respective threshold concentration

¹ Based on NEPM (1999) Guidelines on the Investigation Levels for Soil and Groundwater ('Standard' residential with garden/accessible soil - HIL A) - No relevant Guideline levels



TABLE 5: SUMMARY OF LABORATORY RESULTS FOR SOIL SAMPLES Duplicates (All results in mg/kg)

Duplicate Evaluation for Metals

Analyte	Sample	As	Cd	Cr	Cu	Hg	Pb	Ni	Zn
Primary Sample	BH10/0.1	7.9	<2.0	26	14	0.02	18	15	32
Duplicate	DUP - A	7	<2.0	25	18	0.03	20	16	39
RPD%		12	0	4	25	40	11	6	20

Analyte	Sample	As	Cd	Cr	Cu	Hg	Pb	Ni	Zn
Primary Sample	BH17/0.1	7	<2.0	30	16	0.02	13	15	33
Duplicate	DUP - B	5.1	<2.0	18	12	0.01	15	12	31
RPD%		31	0	50	29	67	14	22	6

Analyte	Sample	As	Cd	Cr	Cu	Hg	Pb	Ni	Zn
Primary Sample	BH31/0.1	7	<2.0	27	12	0.01	15	15	31
Duplicate	DUP - C	12	<2.0	21	12	0.02	22	12	27
RPD%		53	0	25	0	67	38	22	14

Analyte	Sample	As	Cd	Cr	Cu	Hg	Pb	Ni	Zn
Primary Sample	BH40/0.1	10	<2.0	32	18	0.03	22	16	30
Duplicate	DUP - D	9.7	<2.0	26	16	0.01	23	15	33
RPD%		3	0	21	12	100	4	6	10

Duplicate Evaluation for PAH's

Analyte	Sample	Acenaphth	Acenaphth	Anthracen	Benz(a)ani	l Benzo(a)p	Benzo(b)fl	Benzo(g,h	, Benzo(k)flı	Chrysene	Dibenz(a,h	Fluoranthe	Fluorene	Indeno(1,2	Naphthale	Phenanthro	Pyrene
Primary Sample	BH10/0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Duplicate	DUP - A	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
RPD%		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Analyte	Sample	Acenaphth	Acenaphth	Anthracen	Benz(a)an	t Benzo(a)p	Benzo(b)fl	Benzo(g,h	, Benzo(k)fli	Chrysene	Dibenz(a,h	Fluoranthe	Fluorene	Indeno(1,2	Naphthale	Phenanthro	Pyrene
		-0.5	.05	0.5						-0.5		-0 F	-0 5	.0.5		- 0 F	
Primary Sample	BH17/0.1 DUP - B	<0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5	<0.5 <0.5
Duplicate	DOP - B	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
RPD%		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Analyte	Somalo	Acononbtk	Acononhth	Anthracen	Donz(a)an	Ponzo(a)n	Dopzo/b)fl	Ponzo(a h	Donzo(k)flu	Chrycono	Dibonz(a b	Eluoroptho	Eluorono	Indono(1.2	Nanhthala	Phenanthre	Durono
Analyte	Sample	Асспарти	racenapria	MINIACCIN	מיויבעם)מוו	ισεπευ(α)ρ		uciizu(y,ii	, Denzo(κ) α	CHIYSCHC	υιοσιιζία,			1110010(1,2	пларнинаю		r yrene
Primary Sample	BH31/0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Duplicate	DUP - C	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
RPD%		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		.								.					•		
Analyte	Sample	Acenaphth	Acenaphth	Anthracen	Benz(a)an	l Benzo(a)p	Benzo(b)fl	Benzo(g,h	, Benzo(k)fli	Chrysene	Dibenz(a,h	Fluoranthe	Fluorene	Indeno(1,2	Naphthale	Phenanthre	Pyrene
Primary Sample	BH40/0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
,	DUP - D	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5
Duplicate																	



Coffey **ma**

APPENDIX A

COFFEY ENGINEERING LOGS - BOREHOLES

Co	ffe	y (Geo	DSC	iences	s Pl	ty Lt	C AC	N 056 3	335 516		E	Boreho	le N	۱o.		BH1	
Fr	าต	iin	ee	ri	ng L	oa	I - B	Sore	ho	e			Sheet Office J	loh	No		of 1 E10183/1	
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Prin	ncipa	al:				•						[Date co	omp	lete	ed:	19.9.2005	L
Pro					Envi	irnn	nenta	al Sit	e As	sessment			_ogged				СВ	C
			002	tion	Refe								Checke					C
			nd m				Auger	1	-	Easting: slope:	-90°				-	L. Sı	urface: ESL	
hole	diar	mete	er:		1	100 m	ım	_		Northing bearing:	1				da	tum:		
dri		-	for	mat	ion			mate		ubstance				-		-		
method	T penetration		support		notes samples, tests, etc	RL	depth	graphic log	classification symbol	material soil type: plasticity or particle characteris colour, secondary and minor componer		moisture condition	consistency/ density index	k	300 benetro- 400 meter		structure and additional observati	ons
A I		_	N					////	CL	SANDY CLAY: Low plasticity, red, light brow	vn.	D			10.4		LUVIUM	
						-	-											
					D	-												
			ā				-											
				2			-		CL	SANDY CLAY: Low plasticity, red, traces of	fine to							
							_			medium grained gravel.								
				-	D	-	0.5											
					D		0.5			Borehole BH1 terminated at 0.5m						+		
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neti AS AD RR V	hod		auge rolle	ər dril r/trico	one	М С ре	mud casing casing 2 3 4		nil	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard nonstration test (SPT)	classific soil deso based on system	cription					consistency/density inde VS very soft S soft F firm St stiff	x
т			cabl	hbore e tool 1 aug	I			no resista ranging to refusal		N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone	moisture D dry					1	St stiff VSt very stiff H hard	
IA DT B			hano diatu blan		CI	wa	ater		level	V vane shear (kPa) P pressuremeter		oist					H hard Fb friable VL very loose	
			V bit			┸	on dat	8 water te showr		Bs bulk sample E environmental sample	Wp pla	astic limi uid limit	t				L loose MD medium der	nse
	show	n by	suffix				water water			R refusal						I	D dense VD very dense	

												E	Boreho	le N	۱o.		BH2		Ħ
E	n	air	าe	er	ing L	oa	I - B	Sore	eho	le			Sheet Office J	loh	No		of 1 E10183/1	1	>
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Во	reh	ole	Loc	catio	n: Refe	er to	o site	plar	ו			(Checke	ed b	y:				U
drill	l mo	odel a	and	mou	nting: H	Hand	Auger			Easting: slope:	-90°				R.	.L. S	Surface: ESL		
		ame na i		rma	tion	100 m	Im	mate	erial s	Northing bearing: ubstance					da	atum	1:		
		penetration			notes samples,					material		n	tency/ / index	ocket	penetro- meter		structu additional o	ure and observatio	ons
method		년 2 3	: support	water	tests, etc	RL	depth metres	graphic log	classification symbol	soil type: plasticity or particle characteristic colour, secondary and minor components	s.	moisture condition	consistency/ density index	k	0 Pa	8			
ΗA			N						CL CL	TOPSOIL: Sandy clay, low plasticity, brown, fi coarse grained sand. SILTY SANDY CLAY: Low plasticity, light brow		D					TOPSOIL ALLUVIUM		
				erved	D														
				Not Observed															
				2			-		CL	SANDY CLAY: Low plasticity, light brown, trac of fine grained gravel.	ces								
							-												
					D		0.5			Borehole BH2 terminated at 0.5m				$\left \right $		-			
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AS AD RR W CT HA DT B V T		d d	au rol wa ca ha dia bla V	iger d ller/tri ashbo ble to and au atube ank bi bit C bit	ore ool uger	M C pe 1 wa	pport mud casing netratio 2 3 4 1 1 1 ater 10/1/9	no resista ranging to refusal 8 water e showr	level	N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample	W we Wp pla	cription n unified	classifica				S so F fill St st VSt vo H ha Fb fm VL vo L lo MD m	nsity index ery soft oft rm tiff ery stiff ard iable ery loose pose edium dens ense	

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dril	ll m	nodel	and	mou	nting:	Hand	Auger			Easting:	slope:	-90°				R.L	Surf	ace: E	SL	
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σ		penetration	t		notes samples,			c log	icatio		material		on	tency / inde	oocke	penetro- meter		strue additiona	cture and I observa	
method			support	water	tests, etc	PI	depth	graphic log	classification symbol		ty or particle characte ary and minor compon		moisture condition	consistency/ density index	6 02 kF	Pa				
HA		123	N	>		RL	metres	 }	CL	TOPSOIL: Sandy cla	,		D		28	84		PSOIL		
									CL		plasticity, light brown,	red,					ALL	.UVIUM`		
				ved	D	-				sand fine to coarse g	ained.									
				Not Observed			-													
				Not C			_													
									CL	SANDY CLAY: Low coarse grained.	plasticity, red, sand fir	ne to								
							-													
	000				D		0.5			Borehole BH3 termin	ated at 0.5m									
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AS AD	3				crewing* Irilling*	М	mud casing	N	nil	U ₅₀ undisturbed	sample 50mm diameter sample 63mm diameter	soil desc based on	ription					'S	very soft soft	
RR W	R		ro	ller/tri ashbo	cone	pe	netratic 2 3 4		2005	D disturbed sat N standard per		system					F S	: St	firm stiff	
CT HA	A		ha	ible to and a	uger			no resista ranging to refusal	an ice D	N* SPT - sample Nc SPT with sol	e recovered id cone	moisture D dry	/				н		very stiff hard	
DT B	Ē		bla	atube ank b		wa		8 water		V vane shear (P pressuremet		M mo W we	et				F	'L	friable very loose	9
V T			т	bit C bit		_	 on dat water 	ie showr	۱	Bs bulk sample E environment	al sample		astic limi uid limit					1D	loose medium d	ense
*bit e.g		iown t		ffix DT			water			R refusal							D V) ′D	dense very dens	e

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method	penetration	support	er .	notes samples, tests, etc			graphic log	classification symbol	material		moisture condition	consistency/ density index	- pocket	Benetro-		structure and additional observat	
met	123	3 dns	water		RL	depth metres	grap	clas sym	soil type: plasticity or particle charac colour, secondary and minor comp		moi	con		\га 888	400		
Ĩ		N					ß	CL	TOPSOIL: Sandy clay, low plasticity, bro	own, sand	D		T			OPSOIL	
				D	-	-		CL	SANDY CLAY: Low plasticity, light brow sand fine to coarse grained.	n, red,						LLUVIUM	
			erved		-												
			Not Observed			-											
			Not					CL	SANDY CLAY: Low plasticity, red, sand	fine to	-						
									coarse grained, traces of fine to medium gravel.								
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				D		0.5			Borehole BH4 terminated at 0.5m								
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AS AD RR	hod	a ro	uger o oller/tr		М С ре	pport mud casing netratic		l nil	notes, samples, tests Us0 undisturbed sample 50mm diameter Us0 undisturbed sample 63mm diameter D disturbed sample	er soil des	cation sy scription on unified			1		consistency/density ind VS very soft S soft F firm C urr	ex
V CT		с	ashbo	loo		500 L I	no resista ranging t	ance 0	N standard penetration test (SPT) N* SPT - sample recovered	moistu						St stiff VSt very stiff	
IA DT		d	and a iatube	9	wa	iter	refusal		NcSPT with solid coneVvane shear (kPa)	M m	ry noist					H hard Fb friable	
3			lank b ′bit	bit	_		8 water te show		P pressuremeter Bs bulk sample		/et lastic limi	t				VL very loose L loose	
r bit s	shown		C bit uffix			water			E environmental sample R refusal	W _L lie	quid limit					MD medium de D dense	ense
.g.	-		DT			water	outflow									VD very dense	э

Coffey Geosciences Pty Ltd ACN 056 335 516

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method	penetration	support	er	notes samples, tests, etc			graphic log	classification symbol	m soil type: plasticity o	aterial	ristics	condition consistency/	isity inde	A pocket			structure a additional obse	
a ue	123	dns	water		RL	depth metres	gra		colour, secondary a	and minor compon			der	100 200				
НA		N						CL CL	TOPSOIL: Sandy clay, I fine to coarse grained.			D					PSOIL UVIUM	
			σ	D	-	-			CLAY: Medium plasticity fine grained sand.	/, dark brown, trac	es of						5 10 10	
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meth AS	od			crewing*	М	mud		l nil		ple 50mm diameter	classificati soil descri	otion				V		
AD RR		ro	oller/tri		pe	casing			D disturbed sample		based on ur system	nitied classi	ificat	tion		S F	firm	
W CT		С	able to	loc			no resista ranging to	ance o	N standard penetra N* SPT - sample re	covered	moisture					Si V	St very s	stiff
HA DT		d	iand au liatube	-	wa	ater	refusal		Nc SPT with solid co V vane shear (kPa		D dry M moist					H Ft	b friable	
B V T		٧	lank b / bit	ıt	_		8 water te showi		P pressuremeter Bs bulk sample			c limit				L	loose	
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hole					0	100 m	•			Northing	bearing	g:				dat	um:			
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po	:	penetration	ort		notes samples, tests, etc			graphic log	classification symbol		material		tion	consistency/ density index	pocket	penetro- meter	a		cture and l observation	s
method		<u>쩐</u> 23	support	water	10010, 010	RL	depth metres	graph		colour, second	ity or particle character ary and minor compone	ents.	moisture condition	consi densi	k	Pa 800 800				
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				Not Observed			-													
				lot Ob																
				2			-		CL	SANDY CLAY: Med sand fine to coarse	lium plasticity, light brow	wn,								
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AS AD					crewing* Irilling*	М	mud casing	N	nil	U ₅₀ undisturbed	sample 50mm diameter sample 63mm diameter	soil desc based on	cription				VS S		very soft soft	
RR V			ro Wa	ller/tri ashbo	cone	pe	netratic 2 3 4		ance	D disturbed sa N standard pe	ample netration test (SPT)	system					F St		firm stiff	
T			ha	ble to Ind au	uger			no resista ranging to refusal	a 108 D	Nc SPT with so		moisture D dry	y				VS H		very stiff hard	
DT B			bla	atube ank bi		wa		8 water		V vane shear P pressureme	ter	W we					Fb VL		friable very loose	
/ F	ch-	un ŀ	т	bit Dbit			 on dat water 	e showr	1	Bs bulk sample E environmen R refusal			astic limi uid limit	τ			L MD		loose medium dense	,
bit : e.g.	9110	wn b	y su A[water			R refusal							D VD		dense very dense	

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method	L nenetration		support	water	notes samples, tests, etc	RL	depth	graphic log	classification symbol	soil type: plastic colour, second	material ity or particle characte ary and minor compor	eristics, nents.	moisture condition	consistency/ density index	100 pocket 200 di pocket	'a		ture and observations
			N	Not Observed	D	-	-		CL/CH	fine to coarse graine	igh plasticity, dark brow		D				TOPSOIL ALLUVIUM	
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meth AS AD RR W CT HA DT S V T tbit s e.g.			au rol wa ca ha dia bla V	ger d ller/tri ashbo ble to and au atube ank b bit bit bit bit	uger	M C pe 1 W wa Wa	ater 10/1/9	on no resista ranging tr refusal 18 water te shown inflow	level	U ₆₃ undisturbed D disturbed sa N standard pe	sample 50mm diameter sample 63mm diameter ample inetration test (SPT) de recovered did cone (kPa) ter s	soil des based or system D dr M m W w Wp pl	n unified	classifica			S F VSt H Fb VL L MD D	lensity index very soft soft firm stiff very stiff hard friable very loose loose medium dense dense very dense

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Bor	ehol	e Lo	catio	on: Refe	er to	o site	pla	n				(Checke	ed by	/:		
drill ı	mode	el and	l mou	inting:	Hand	Auger	-		Easting:	slope:	-90°			-	R.L	Surface: ES	SL
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dri		inter inter	orma	ation			mat	1	ubstance				. ×	5	5		
method	penetration	support	water	notes samples, tests, etc		depth	graphic log	classification symbol	soil type: plastic	material	eristics.	moisture condition	consistency/ density index	y pocket	a meter		cture and I observatior
	12:	,	Ň		RL	metres	5		colour, second	ary and minor compor ay, low plasticity, brow		Ĕ S D	8 8	200 200	6 6 8 6	TOPSOIL	
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	nod		<u> </u>	l		2.0	· .	1	notes, samples, tests		classificat		/mbols a	ind		consistency/c	
		a	uger o	screwing* drilling* icono	С	mud casing		l nil	U ₆₃ undisturbed	sample 50mm diameter sample 63mm diameter	based on u		classifica	ation		S	very soft soft firm
RR N CT		w	ashbo		pe 1 ■		no resist			Imple netration test (SPT) le recovered	system moisture					St	firm stiff verv stiff
IA A DT		h	able to and a iatube	uger			ranging t refusal		N° SPT - samp Nc SPT with so V vane shear	lid cone	D dry M mois	et				н	very stiff hard friable
3		b	latube lank b bit				8 water e show		P pressureme Bs bulk sample	ter	W wet	tic limi	t			VL L	very loose loose
Г	shown		C bit			- water			E environmen R refusal			d limit	•			MD D	medium dense
e.g.			DT.			water			isiusai								very dense

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ч НА	12	23	s N	5		RL	metres	5	CL	TOPSOIL: Sandy clay	y and minor compon		E O D	00	8 <u>9</u>	8 9	TOPSOIL
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				Not Observed			-										Black coal-like product.
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/ F bits e.g.	shov	wn b		bit fix		· .	• on dat • water water		า	Bs bulk sample E environmenta R refusal	sample		astic limi uid limit	t			L loose MD medium dens D dense VD very dense

Co	пе	уG	ieos	science	5 PI		CI AC	N 056∶	335 516		-	Boreho	ole N	No.	BH10
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pou	penetration	t		notes samples, tests, etc			graphic log	classification symbol	material		moisture condition	consistency/ density index		penetro- meter	structure and additional observations
method	ם 12		water		RL	depth metres	grap	class	soil type: plasticity or particle character colour, secondary and minor compone		mois	cons dens		(Pa 0,000 €	
ЧA							33	CL	TOPSOIL: Sandy clay, low plasticity, brown fine to coarse grained.	n, sand	D		Ħ		TOPSOIL
					4	_	V///	CL	SANDY CLAY: Medium plasticity, light brow sand fine to coarse grained.	wn,				$\left \right \right $	ALLUVIUM
			rved	D	-		V///		Sand line to oblise grained.					$\left \right \right $	
			Not Observed			-	V///								Black coal-like product.
			Not (_	<i>[]]]</i>]								
								CL	SANDY CLAY: Medium plasticity, brown, s to coarse grained.	and fine					
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				D		0.5									
									Borehole BH10 terminated at 0.5m						
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met AS	hod		auger	screwing*		pport mud	N	nil	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter	classific soil des			and		consistency/density index VS very soft
AD RR				drilling*	С	casing			U ₆₃ undisturbed sample 63mm diameter D disturbed sample	based or system			ation		S soft F firm
W			washb cable t	ore		234	no resista	ance	N standard penetration test (SPT) N* SPT - sample recovered	moistur	e				St stiff VSt very stiff
HA DT			hand a	uger		ater	ranging to refusal	U	Nc SPT with solid cone V vane shear (kPa)	D dr					H hard Fb friable
B V			blank t V bit			10/1/9)8 water te showr		P pressuremeter Bs bulk sample	W we		t			VL very loose L loose
т	show		TC bit			- on dat - water			E environmental sample R refusal		uid limit				MD medium dense D dense
e.g.	5110W		ADT		· ·	water									VD very dense

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							Auger	1	-	Easting:	slope:	-90°				-	Surface: ESL	<u> </u>
hole						100 m	im			Northing	bearin	ıg:				dat	um:	
dr		_	info	orma	ation			mat		ubstance						4		
method		c penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	soil type: plasticity colour, secondar	material or particle characte y and minor compor	ents.	moisture condition	consistency/ density index	k	300 benetro- 400 meter	structure and additional observati	ons
ΗA			N						CL CL	TOPSOIL: Sandy clay fine to coarse grained.		,	D				TOPSOIL	
				p	D	-	-			CLAY: Medium plastic grained sand.	city, light brown, trac	es of fine						
				Not Observed			-										Trace coal-like product.	
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					D		0.5			Borehole BH11 termin	ated at 0.5m							
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met AS AD RR W CT HA DT B V T *bit			au ro ca ha di bl	uger o Iler/tr ashbo able to and a atube ank b bit C bit	ool uger	M C pe 1 W wa wa	10/1/9	on no resista ranging tr refusal 8 water 8 water e shown inflow	level	U ₆₃ undisturbed sa D disturbed sam	tration test (SPT) recovered cone Pa) r	soil des based o system D dr M m W w Wp pl	y oist	classifica			consistency/density inde VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium der D dense VD very dense	

Coffey Geosciences Pty Ltd ACN 056 335 516

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ł	dri			orma	ation			mat		ubstance				~ ×	6			
	g	penetration	Ľ		notes samples, tests, etc			graphic log	classification symbol		material		ure tion	consistency/ density index	pocket penetro-	meter	structure additional obs	
	method	8_ 123	support	water	iesis, eic	RL	depth metres	graph	classi symbi	soil type: plasticit colour, seconda	y or particle character ry and minor compon	ristics, ents.	moisture condition	consis densi	kP: و 8 8	a		
ł	ΑH		N						CL	TOPSOIL: Sandy clay			D			04	TOPSOIL	
				_	D		-		CL	SANDY CLAY: Media sand fine to coarse gr	im plasticity, light bro	wn,					ALLUVIUM	
				Not Observed	U	-												
				ot Obs														
				ž			-		CL	CLAY: Medium plasti	city, brown, red, with	some						
							_			fine grained sand.								
					D	-	0.5											
Ī										Borehole BH12 termin	ated at 0.5m							
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┟	meti	nod				su	2.0 pport			notes, samples, tests		classificat	tion sv	mbols a	nd		consistency/densit	ty index
	AS AD				crewing* Irilling*	М	mud casing	N	nil	U ₅₀ undisturbed s U ₆₃ undisturbed s	ample 50mm diameter ample 63mm diameter	soil descr based on u	iption				VS very S soft	
Rev.2	RR W		w	oller/tri ashbo	ore		netratio	on no resista	ance	D disturbed sam N standard pen	etration test (SPT)	system					F firm St stiff	
sue 3.	CT HA		h	able to and au	uger			ranging to refusal		N* SPT - sample Nc SPT with solid	d cone	moisture D dry	ot				VSt very H hard	
) 5.3 Is	DT B V		b	atube ank b bit		wa V		8 water		V vane shear (k P pressuremete Bs bulk sample		M mois W wet Wp plas					Fb friabl VL very L loose	loose
Form GEO 5.3 Issue 3 Rev.2	Т	hown	т	C bit			- on dat - water			E environmenta R refusal	l sample		id limit					ium dense
Forn	e.g.			DT				outflow										dense

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dri			for	ma	tion	1		mat		ubstance						4				
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	12 ा	~	ง N	š		RL	metres	1	පි බ CL	colour, secondar	y and minor compon		ĒΫ́	88	100	800		TOPSOIL		
YL .				Not Observed	D	-	-		SC	CLAYEY SAND: Fine CLAYEY SAND: Fine brown, red, low plastic	to coarse grained, li		U					ALLUVIUM		
					D		0.5			Parabala PH12 tarmin	ated at 0.5m									
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method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit		M C pe 1	iter 10/1/9		o level	U_{50}undisturbed sU_{63}undisturbed sDdisturbed sam	tration test (SPT) recovered I cone Pa) r	soil desc based on system D dry M moi W wet Wp plas	ription unified	classifica				consistency/ VS S F St VSt H Fb VL L MD	very soft soft firm stiff very stiff hard friable very loose loose medium den					
	how	n by		ix			water water			R refusal	. campio	WL IIQU						D VD	dense very dense	50

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				Not Observed			-													
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					D		0.5	· ./· .		Borehole BH14 termin	ated at 0.5m					+	-			
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		el ai nete		ounting		Hand <i>I</i> 100 m	Auger			Easting: Northing	slope: bearing	-90°					Surf tum:	lace:	ESL	
				natior		100 111		mate	erial s	ubstance	Dearing	J.				uat	um.			
Inerriod	5 penetration		support water	san	otes nples, is, etc	RL	depth	graphic log	classification symbol	soil type: plasticity	naterial or particle character		moisture condition	consistency/ density index	k	300 benetro- 400 meter			ructure an nal observ	
۲ L		0	1					313	CL	TOPSOIL: Sandy clay, fine to coarse grained.			D		ñ Ŧ		TOF	PSOIL		
			Not Ohserved		D	-			CL	SANDY CLAY: Fine to brown, low plasticity.	medium grained, lig	ht					ALL	UVIUM		
_8					D		0.5	([[]]]		Borehole BH15 termina	ted at 0.5m									
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method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit		M C pe	pport mud casing 2 3 4	no resista ranging to refusal)	U ₆₃ undisturbed sa D disturbed samp	ration test (SPT) ecovered cone	system moisture D dr	cription n unified e y oist				V S F S V H F	/S S St /St	cy/density in very soft soft firm stiff very stiff hard friable very loos					
		-					-							Boreho	le N	۱o.		BH16	6	
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method		penetration	support	water	notes samples, tests, etc		depth	graphic log	classification symbol	material soil type: plasticity or partic	le characteri:	stics,	moisture condition	consistency/ density index	k	A penetro- meter			ructure an nal observ	
MA M	12	23	ທີ N	3		RL	metres	; ⋽	ට ගි CL	colour, secondary and mir TOPSOIL: Sandy clay, low plas	•		ЕŬ D	89	100 S	888 		OPSOIL		
Τ				ed	D	-	-		CL	tine to coarse grained. CLAY: Medium plasticity, dark								LUVIUM		
				Not Observed			-													
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					D	_	0.5		CL	CLAY: Medium plasticity, light b grained sand. Borehole BH16 terminated at 0.		s of fine								
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														Boreha Sheet		0.	BH17
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method		penetration	support	water	notes samples, tests, etc		depth	graphic log	classification symbol		material		moisture condition	consistency/ density index	A pocket	'a	structure and additional observations
		123	5 N	>		RL	metres	5 } }	CL	colour, secondar TOPSOIL: Sandy clay	y and minor compon		E Ö D	55	200	₩ 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	TOPSOIL
HA				ved	D	-	-		CL	fine to coarse grained. CLAY: Medium plasti of fine to coarse grained	city, dark brown, blac		U				ALLUVIUM
				Not Observed			-										Trace coal-like product.
					D		-										
					U		0.5	/////		Borehole BH17 termin	ated at 0.5m					+	
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/ - h:t.	ak :			; bit			• on dat • water		ı	Bs bulk sample E environmental sample	Э		astic limit uid limit	t				L MD	loose medium dense
bit s e.g.	snov	vn b <u>y</u>	/ suf AD				water			R refusal		1						D VD	dense very dense

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method		c penetration	support	water	samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristi colour, secondary and minor component		moisture condition	consistency/ density index	k	300 B penetro-	2	structure and additional observati	ons
НА			N	Not Observed	D	-	-		CL	TOPSOIL: Sandy clay, low plasticity, brown, s fine to coarse grained. CLAY: Medium plasticity, dark brown, traces of fine grained gravel, traces of fine grained sand	of	D					OPSOIL ILLUVIUM	
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				ved	D					sand fine to coarse g	rained.							oal-like product.		
				Not Observed			-		CL	SANDY CLAY: Med	ium plastcity, brown, sa	nd fine						sar inte product.		
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= [12		٥ N	>		RL	metres	<u>]</u>	CL	TOPSOIL: Sandy cla	ry and minor compon y, low plasticity, brow		E O	00	3 <u>3</u>	84		PSOIL	
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				ved	D	-		/		brown, low plasticity.										
				Not Observed			-	• /• •												
				Not			_			SANDY CLAY: Low to	modium alastati	ight				$\left \right \right $				
									CL	brown, sand fine to coa	irse grained.	iyin				$\left \right \right $				
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DT B			bla	tube nk bi	t		10/1/9	8 water	level	V vane shear (kF P pressuremeter	· ·	W we						Fb VL	friable very loos	е
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APPENDIX B

CHAIN OF CUSTODY RECORDS

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APPENDIX C

SITE PHOTOGRAPHS



Plate 1 : Hutsons's Road, Tocumwal. View north west over subject site. New development visible in the background.



Plate 2 : Hutsons's Road, Tocumwal. View north over subject site. The current aerodrome site is visible in the background.

APPENDIX D

SITE AERIAL PHOTOGRAPHS











APPENDIX E

GROUNDWATER BORE SEARCH RESULTS



APPENDIX F

NATA ENDORSED RESULTS - AMDEL REPORT







585 Blackburn Road Notting Hill, Masperiel Victoria, Australia 3168 Telephone (03) 5562 5899 Fax (03) 9562 0336

Replacement Analytical Report

Replacement for Report no: 152612, issued on: 30 Sep 2005

COFFEYGEOSCIENCES PTY LTD PO BOX 803 ALBURY

Contact	:	TOBY HOBBS
Batch Number	:	0510882
Job Ref	:	E10183/1
Sample(s) Received	:	23/09/2005
Replacement Report No	:	153781

VIC 2640

Methods:

100 Moisture Content
244 Total Phenolics by UV-Vis (SFA), Dry Weight
404FIMS Mercury by Vapour AAS, Dry Weight
406-MS Elements by ICP-MS, Dry Weight
501-FID Total Petroleum Hydrocarbons, Dry Weight
512-MS Organochlorine Pesticides, Dry Weight
512-MS Polyaromatic Hydrocarbons, Dry Weight
512-MS Polyaromatic Hydrocarbons, mg/kg
512-MS Polyaromatic Hydrocarbons, Surrogates
512/506 Organochlorine Analysis, Surrogates
512MS Organophosphorus Analysis, Surrogates
512MS Organophosphorus compounds, Dry Weight

513P&T C6-C9 (Purge & Trap), Dry Weight 513P&T MAH/TPH, Surrogate

Attached Results Approved by:

fure

John Levvey Dip.App.Sci (Chemistry) Teamleader - Metals

Anthony Crane B.App.Sci. (Environmental) Laboratory Manager



Angron

Susan Groth B.Sc. (Chemistry) Teamleader - Waters

Kumara Dadallage B.Sc. Teamleader - Volatiles

Daniel Dam B.App.Sci (Chemistry) Teamleader - Semi-Volatiles

This Laboratory is accredited by the National Association of Testing Authorities, Australia. The tests reported herin have been performed in accordance with its terms of accreditation.

NATA ENDORSED DOCUMENT

Document may not be reproduced except in full. NATA Accreditation No. 1645 (Chemical Testing) NATA Accreditation No. 14278 (Biological Testing)

* This is the Final Report which supersedes any reports previously issued relating to the sample(s) included.

All samples tested as submitted by client.

Denotes methods not covered by NATA terms of accreditation





(R)

Results			Replacemen	t Report No.	: 153781
	0510882/001 BH1/0.1	0510882/003 BH2/0.1	0510882/005 BH3/0.1	0510882/007 BH4/0.1	0510882/009 BH5/0.1
	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05
HYDROCARBONS (C6-C9), DRY WEIGHT					
Method: 513P&T Units: mg/kg					
ТРН С6 - С9	-	<5.0	<5.0	-	<5.0
HYDROCARBONS (TPH), DRY WEIGHT					
Method: 501-FID Units: mg/kg					
TPH C10 - C14	-	<20	<20	-	<20
TPH C15 - C28	-	<20	<20	-	<20
TPH C29 - C36	-	<20	<20	-	<20
MERCURY by VAPOUR-AAS, DRY WEIGHT					
Method: 404FIMS Units: mg/kg					
Mercury	-	0.02	< 0.01	-	0.02
METALS by ICP-MS, DRY WEIGHT					
Method: 406-MS Units: mg/kg					
Arsenic	_	7.8	4.9	_	6.8
Cadmium	-	<2.0	<2.0	_	<2.0
Chromium	_	16	21	_	17
Copper	_	7.3	8.3	_	12
Lead	-	17	11	-	25
Nickel	-	6.8	10	-	9.8
Zinc	-	17	22	-	25
OVEN MOISTURE CONTENT					
Method: 100 Units: % w/w					
Moisture	7.5	9.5	9.7	13.4	15.5
		7.5	2.1	1.5.7	15.5
POLYAROMATIC HYDROCARBONS, AS RE	CEIVED				
Method: 512-MS Units: mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total PAH's	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, DRY V	VEIGHT				
Method: 512-MS Units: mg/kg	-0.5	.0.5	.0.5	.0.5	.0.5
Accenaphthene	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a) hi)perulana	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5
Indeno(1,2,3-c,d)pyrene					
Naphthalene	<0.5	<0.5	<0.5	<0.5	<0.5





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Results			Replacemen	t Report No.	: 153781
	0510882/001 BH1/0.1	0510882/003 BH2/0.1	0510882/005 BH3/0.1	0510882/007 BH4/0.1	0510882/009 BH5/0.1
	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05
Phenanthrene	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	<0.5	<0.5	< 0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, SURRO	OGATE RECOVI	ERIES			
Method: 512-MS Units: % Recovered					
Pyrene-d10, Surrogate Rec.	-	126	125	130	-
TOTAL PHENOLS DETERMINATION DRY W	VEIGHT				
Method: 244 Units: mg/kg					
Total Phenolics	-	<0.1	< 0.1	-	<0.1
VOLATILES (PURGE & TRAP), SURROGATE	E RECOVERIES				
Method: 513P&T Units: % Recovered					
4-Bromoflurobenzene	-	91.9	104	-	109
Surrogate Rec.					







Results			Replacemen	t Report No	: 153781
	0510882/011 BH6/0.1	0510882/013 BH7/0.1	0510882/015 BH8/0.1	0510882/017 BH9/0.1	0510882/018 BH9/0.5
	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05
HYDROCARBONS (C6-C9), DRY WEIGHT					
Method: 513P&T Units: mg/kg					
ТРН С6 - С9	-	-	-	-	<5.0
HYDROCARBONS (TPH), DRY WEIGHT					
Method: 501-FID Units: mg/kg					
TPH C10 - C14	-	-	_	-	<20
TPH C15 - C28	-	-	-	-	<20
ТРН С29 - С36	-	-	-	-	<20
MERCURY by VAPOUR-AAS, DRY WEIGHT					
Method: 404FIMS Units: mg/kg					
Mercury	-	0.02	-	0.02	0.02
·		0.02		5.0-	0.02
METALS by ICP-MS, DRY WEIGHT Method: 406-MS Units: mg/kg					
0 0		7.1		5.9	8.4
Arsenic	-		-		
Cadmium	-	<2.0	-	<2.0	<2.0
Chromium	-	20	-	30	32
Copper	-	11	-	18	20
Lead	-	16	-	20	19
Nickel	-	10	-	23	20
Zinc	-	27	-	51	49
OVEN MOISTURE CONTENT					
Method: 100 Units: % w/w					
Moisture	20.1	16.0	17.5	21.3	13.9
POLYAROMATIC HYDROCARBONS, AS RE	CEIVED				
Method: 512-MS Units: mg/kg					
Total PAH's	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, DRY V	VEIGHT				
Method: 512-MS Units: mg/kg					
Acenaphthene	< 0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	< 0.5	<0.5	<0.5	< 0.5	<0.5
Benzo(b)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	<0.5	<0.5	<0.5	<0.5	< 0.5
Fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	<0.5	<0.5	<0.5	<0.5	<0.5





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Results			Replacemen	et Report No	: 153781
	0510882/011 BH6/0.1	0510882/013 BH7/0.1	0510882/015 BH8/0.1	0510882/017 BH9/0.1	0510882/018 BH9/0.5
	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05
Phenanthrene	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, SURR	OGATE RECOV	ERIES			
Method: 512-MS Units: % Recovered					
Pyrene-d10, Surrogate Rec.	121	126	130	128	-
TOTAL PHENOLS DETERMINATION DRY V	VEIGHT				
Method: 244 Units: mg/kg Total Phenolics	-	-	-	-	<0.1
VOLATILES (PURGE & TRAP), SURROGAT	E RECOVERIES				
Method: 513P&T Units: % Recovered 4-Bromoflurobenzene Surrogate Rec.	-	-	-	-	91.7



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Results			Replacemen	t Report No	: 153781
	0510882/019 BH10/0.1	0510882/021 BH11/0.1	0510882/022 BH11/0.5	0510882/023 BH12/0.1	0510882/025 BH13/0.1
	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05
HYDROCARBONS (C6-C9), DRY WEIGHT					
Method: 513P&T Units: mg/kg					
ТРН С6 - С9	-	<5.0	-	-	-
HYDROCARBONS (TPH), DRY WEIGHT					
Method: 501-FID Units: mg/kg					
TPH C10 - C14	-	<20	-	-	-
TPH C15 - C28	-	<20	-	-	-
TPH C29 - C36	-	<20	-	-	-
MERCURY by VAPOUR-AAS, DRY WEIGHT					
Method: 404FIMS Units: mg/kg					
Mercury	0.02	0.01	-	-	-
METALS by ICP-MS, DRY WEIGHT					
Method: 406-MS Units: mg/kg					
Arsenic	7.9	5.2	_	_	-
Cadmium	<2.0	<2.0	_	_	-
Chromium	26	22	_	_	-
Copper	14	11	_	_	-
Lead	18	13	-	_	-
Nickel	15	13	-	_	-
Zinc	32	26	-	-	-
OVEN MOISTURE CONTENT					
Method: 100 Units: % w/w					
Moisture	13.3	9.1	13.1	10.7	11.4
		9.1	13.1	10.7	11.4
POLYAROMATIC HYDROCARBONS, AS RE	CEIVED				
Method: 512-MS Units: mg/kg	0.5	0.5	0.5	0.5	0.5
Total PAH's	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, DRY V	VEIGHT				
Method: 512-MS Units: mg/kg					
Acenaphthene	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	<0.5	<0.5	<0.5	<0.5	<0.5







Results			Replacemen	t Report No	: 153781
	0510882/019 BH10/0.1	0510882/021 BH11/0.1	0510882/022 BH11/0.5	0510882/023 BH12/0.1	0510882/025 BH13/0.1
	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05
Phenanthrene	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, SURR	OGATE RECOVI	ERIES			
Method: 512-MS Units: % Recovered					
Pyrene-d10, Surrogate Rec.	130	-	-	-	-
TOTAL PHENOLS DETERMINATION DRY V	VEIGHT				
Method: 244 Units: mg/kg					
Total Phenolics	-	<0.1	-	-	-
VOLATILES (PURGE & TRAP), SURROGATI	E RECOVERIES				
Method: 513P&T Units: % Recovered 4-Bromoflurobenzene Surrogate Rec.	-	103	-	-	-



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Explosives Water & Waste Water Environmental Food & Pharmaceuticals Micro Biological



Results			Replacemen	t Report No.	: 153781
	0510882/027 BH14/0.1	0510882/029 BH15/0.1	0510882/030 BH15/0.5	0510882/033 BH17/0.1	0510882/035 BH18/0.1
	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05
HYDROCARBONS (C6-C9), DRY WEIGHT					
Method: 513P&T Units: mg/kg					
ТРН С6 - С9	<5.0	-	-	<5.0	<5.0
HYDROCARBONS (TPH), DRY WEIGHT					
Method: 501-FID Units: mg/kg					
TPH C10 - C14	<20	-	-	<20	<20
TPH C15 - C28	<20	-	-	<20	<20
ТРН С29 - С36	<20	-	-	<20	<20
MERCURY by VAPOUR-AAS, DRY WEIGHT					
Method: 404FIMS Units: mg/kg					
Mercury	< 0.01	-	-	0.02	< 0.01
METALS by ICP-MS, DRY WEIGHT					
Method: 406-MS Units: mg/kg					
Arsenic	2.1	-	_	7.0	5.0
Cadmium	<2.0	-	_	<2.0	<2.0
Chromium	8.7	-	_	30	18
Copper	3.3	-	_	16	9.0
Lead	4.6	-	_	13	12
Nickel	4.2	-	_	15	9.4
Zinc	10	-	-	33	23
OVEN MOISTURE CONTENT					
Method: 100 Units: % w/w					
Moisture	8.1	9.1	14.3	17.2	14.9
		9.1	14.5	17.2	14.9
POLYAROMATIC HYDROCARBONS, AS RE	CEIVED				
Method: 512-MS Units: mg/kg	-0.5	-0.5	.0.5	.0.5	.0.5
Total PAH's	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, DRY V	VEIGHT				
Method: 512-MS Units: mg/kg					
Acenaphthene	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene Dihens (ch)anthanana	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	<0.5	<0.5	<0.5	<0.5	<0.5





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Results			Replacemen	et Report No	: 153781
	0510882/027 BH14/0.1	0510882/029 BH15/0.1	0510882/030 BH15/0.5	0510882/033 BH17/0.1	0510882/035 BH18/0.1
	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05	SOIL 19/09/05
Phenanthrene	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, SU	URROGATE RECOV	ERIES			
Method: 512-MS Units: % Recovered					
Pyrene-d10, Surrogate Rec.	-	-	-	-	119
FOTAL PHENOLS DETERMINATION D	RY WEIGHT				
Method: 244 Units: mg/kg					
Total Phenolics	< 0.1	-	-	< 0.1	< 0.1
VOLATILES (PURGE & TRAP), SURROO	GATE RECOVERIES				
Method: 513P&T Units: % Recovered					
4-Bromoflurobenzene	100	-	-	111	106
Surrogate Rec.					







Results			Replacemen	t Report No	: 153781
	0510882/037 BH19/0.1	0510882/039 BH20/0.1	0510882/041 BH21/0.1	0510882/043 BH22/0.1	0510882/045 BH23/0.1
	SOIL 19/09/05	SOIL 19/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05
HYDROCARBONS (C6-C9), DRY WEIGHT					
Method: 513P&T Units: mg/kg					
ТРН С6 - С9	-	<5.0	-	-	<5.0
HYDROCARBONS (TPH), DRY WEIGHT					
Method: 501-FID Units: mg/kg					
TPH C10 - C14	-	<20	-	-	<20
TPH C15 - C28	-	22	-	-	<20
ТРН С29 - С36	-	<20	-	-	<20
MERCURY by VAPOUR-AAS, DRY WEIGHT					
Method: 404FIMS Units: mg/kg					
Mercury	-	< 0.01	-	-	< 0.01
METALS by ICP-MS, DRY WEIGHT					
Method: 406-MS Units: mg/kg					
Arsenic	_	6.0	_		7.5
Cadmium	-	<2.0		_	<2.0
Chromium	_	22	_		23
Copper	-	11		_	11
Lead	-	11		_	17
Nickel	-	13	-	-	17
Zinc	-	26	-	-	29
		20			27
OVEN MOISTURE CONTENT					
Method: 100 Units: % w/w	17.0	15 5	14.0	15 1	12.0
Moisture	17.9	15.5	14.8	15.1	13.8
POLYAROMATIC HYDROCARBONS, AS RE	CEIVED				
Method: 512-MS Units: mg/kg	.0.5	.0.5	.0.5	.0.5	.0.5
Total PAH's	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, DRY	WEIGHT				
Method: 512-MS Units: mg/kg					
Acenaphthene	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	<0.5	< 0.5	< 0.5	< 0.5	< 0.5





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Results			Replacemen	t Report No.	: 153781
	0510882/037 BH19/0.1	0510882/039 BH20/0.1	0510882/041 BH21/0.1	0510882/043 BH22/0.1	0510882/045 BH23/0.1
	SOIL 19/09/05	SOIL 19/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05
Phenanthrene	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, SURR	OGATE RECOVI	ERIES			
Method: 512-MS Units: % Recovered					
Pyrene-d10, Surrogate Rec.	118	117	123	113	126
TOTAL PHENOLS DETERMINATION DRY V	VEIGHT				
Method: 244 Units: mg/kg					
Total Phenolics	-	<0.1	-	-	<0.1
VOLATILES (PURGE & TRAP), SURROGATI	E RECOVERIES				
Method: 513P&T Units: % Recovered 4-Bromoflurobenzene Surrogate Rec.	-	-	-	-	95.4





(R)

Results			Replacemen	t Report No	: 153781
	0510882/047 BH24/0.1	0510882/049 BH25/0.1	0510882/053 BH27/0.1	0510882/055 BH28/0.1	0510882/057 BH29/0.1
	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05
HYDROCARBONS (C6-C9), DRY WEIGHT					
Method: 513P&T Units: mg/kg					
ТРН С6 - С9	-	-	-	-	<5.0
HYDROCARBONS (TPH), DRY WEIGHT					
Method: 501-FID Units: mg/kg					
TPH C10 - C14	-	-	-	-	<20
TPH C15 - C28	-	-	-	-	21
ТРН С29 - С36	-	-	-	-	<20
MERCURY by VAPOUR-AAS, DRY WEIGHT					
Method: 404FIMS Units: mg/kg					
Mercury	_	< 0.01	_	_	0.01
					0.01
METALS by ICP-MS, DRY WEIGHT					
Method: 406-MS Units: mg/kg Arsenic		3.4			13
	-		-	-	
Cadmium	-	<2.0	-	-	<2.0
Chromium	-	12	-	-	27
Copper	-	5.8	-	-	15
Lead	-	6.4	-	-	24
Nickel	-	7.2	-	-	16
Zinc	-	12	-	-	32
OVEN MOISTURE CONTENT					
Method: 100 Units: % w/w					
Moisture	10.0	7.9	8.4	8.4	17.3
POLYAROMATIC HYDROCARBONS, AS RE	CEIVED				
Method: 512-MS Units: mg/kg					
Total PAH's	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, DRY V	VEIGHT				
Method: 512-MS Units: mg/kg					
Acenaphthene	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	<0.5	<0.5	<0.5	<0.5	< 0.5
Chrysene	<0.5	<0.5	<0.5	<0.5	< 0.5
Dibenz(a,h)anthracene	<0.5	<0.5	<0.5	<0.5	< 0.5
Fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	<0.5	<0.5	<0.5	<0.5	< 0.5





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Results			Replacemen	t Report No.	: 153781
	0510882/047 BH24/0.1	0510882/049 BH25/0.1	0510882/053 BH27/0.1	0510882/055 BH28/0.1	0510882/057 BH29/0.1
	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05
Phenanthrene	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	< 0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, SURRO)GATE RECOVI	ERIES			
Method: 512-MS Units: % Recovered					
Pyrene-d10, Surrogate Rec.	118	122	116	-	116
TOTAL PHENOLS DETERMINATION DRY W	/EIGHT				
Method: 244 Units: mg/kg					
Total Phenolics	-	-	-	-	<0.1
VOLATILES (PURGE & TRAP), SURROGATE	RECOVERIES				
Method: 513P&T Units: % Recovered 4-Bromoflurobenzene	_	_	_	_	121
Surrogate Rec.					







Results			Replacemen	t Report No	: 153781
	0510882/059 BH30/0.1	0510882/061 BH31/0.1	0510882/063 BH32/0.1	0510882/065 BH33/0.1	0510882/067 BH34/0.1
	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05
MERCURY by VAPOUR-AAS, DRY WEIGHT	1				
Method: 404FIMS Units: mg/kg					
Mercury	-	0.01	-	0.01	-
METALS by ICP-MS, DRY WEIGHT					
Method: 406-MS Units: mg/kg					
Arsenic	-	6.9	-	8.5	-
Cadmium	-	<2.0	-	<2.0	-
Chromium	-	27	-	28	-
Copper	-	12	-	15	-
Lead	-	15	-	20	-
Nickel	-	15	-	15	-
Zinc	-	31	-	33	-
OVEN MOISTURE CONTENT					
Method: 100 Units: % w/w					
Moisture	15.4	12.5	8.1	14.7	14.4
POLYAROMATIC HYDROCARBONS, AS RE	ECEIVED				
Method: 512-MS Units: mg/kg					
Total PAH's	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, DRY	WEIGHT				
Method: 512-MS Units: mg/kg					
Acenaphthene	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	< 0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, SURR	OGATE RECOV	ERIES			
Method: 512-MS Units: % Recovered					
Pyrene-d10, Surrogate Rec.	122	116	119	118	117







Results			Replacemen	t Report No	: 153781
	0510882/069 BH35/0.1	0510882/071 BH36/0.1	0510882/073 BH37/0.1	0510882/075 BH38/0.1	0510882/077 BH39/0.1
	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05
HYDROCARBONS (C6-C9), DRY WEIGHT					
Method: 513P&T Units: mg/kg					
ТРН С6 - С9	-	-	<5.0	-	-
HYDROCARBONS (TPH), DRY WEIGHT					
Method: 501-FID Units: mg/kg					
TPH C10 - C14	-	-	<20	-	-
TPH C15 - C28	-	-	<20	-	-
ТРН С29 - С36	-	-	<20	-	-
MERCURY by VAPOUR-AAS, DRY WEIGHT					
Method: 404FIMS Units: mg/kg					
Mercury	-	-	< 0.01	< 0.01	-
METALS by ICP-MS, DRY WEIGHT			-		
Method: 406-MS Units: mg/kg					
Arsenic			5.4	4.6	
Cadmium	-	-	<2.0	<2.0	-
Chromium	-	-	<2.0 19	13	-
	-	-	9.1	5.4	-
Copper Lead	-	-	9.1 12	3.4 8.1	-
Nickel	-	-		6.3	-
Zinc	-	-	9.0 20	0.5 12	-
	-	-	20	12	-
OVEN MOISTURE CONTENT					
Method: 100 Units: % w/w			10.0		
Moisture	16.6	22.2	10.2	7.7	14.1
POLYAROMATIC HYDROCARBONS, AS RE	CEIVED				
Method: 512-MS Units: mg/kg					
Total PAH's	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, DRY V	VEIGHT				
Method: 512-MS Units: mg/kg					
Acenaphthene	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	<0.5	< 0.5
Benzo(k)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	<0.5	<0.5	<0.5	< 0.5	<0.5
Fluorene	<0.5	<0.5	<0.5	< 0.5	<0.5
Indeno(1,2,3-c,d)pyrene	<0.5	<0.5	<0.5	< 0.5	<0.5
Naphthalene	< 0.5	< 0.5	< 0.5	<0.5	<0.5





10 402 Control State

Results			Replacemen	t Report No	: 153781
	0510882/069 BH35/0.1	0510882/071 BH36/0.1	0510882/073 BH37/0.1	0510882/075 BH38/0.1	0510882/077 BH39/0.1
	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05
Phenanthrene	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, SURR	OGATE RECOV	ERIES			
Method: 512-MS Units: % Recovered					
Pyrene-d10, Surrogate Rec.	116	116	116	121	120
TOTAL PHENOLS DETERMINATION DRY V	VEIGHT				
Method: 244 Units: mg/kg					
Total Phenolics	-	-	< 0.1	-	-
VOLATILES (PURGE & TRAP), SURROGATI	E RECOVERIES				
Method: 513P&T Units: % Recovered 4-Bromoflurobenzene Surrogate Rec.	-	-	100	-	-







Results			Replacemen	t Report No	: 153781
	0510882/079 BH40/0.1	0510882/081 BH41/0.1	0510882/082 BH41/0.5	0510882/083 BH42/0.1	0510882/085 BH43/0.1
	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05
MERCURY by VAPOUR-AAS, DRY WEIGHT					
Method: 404FIMS Units: mg/kg					
Mercury	0.03	0.02	< 0.01	-	0.03
METALS by ICP-MS, DRY WEIGHT					
Method: 406-MS Units: mg/kg					
Arsenic	10	12	6.7	-	6.8
Cadmium	<2.0	<2.0	<2.0	-	<2.0
Chromium	32	29	30	-	28
Copper	18	13	18	-	16
Lead	22	21	16	-	17
Nickel	16	12	15	-	17
Zinc	30	31	36	-	34
OVEN MOISTURE CONTENT					
Method: 100 Units: % w/w					
Moisture	17.5	15.3	14.7	10.4	18.1
		15.5	11.7	10.1	10.1
POLYAROMATIC HYDROCARBONS, AS RE	CEIVED				
Method: 512-MS Units: mg/kg	-0.5	.0.5	.0.5	.0.5	.0.5
Total PAH's	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, DRY V	VEIGHT				
Method: 512-MS Units: mg/kg					
Acenaphthene	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	<0.5	<0.5	<0.5	<0.5	<0.5
POLYAROMATIC HYDROCARBONS, SURR	OGATE RECOV	ERIES			
Method: 512-MS Units: % Recovered					
Pyrene-d10, Surrogate Rec.	114	123	127	125	120
Pyrene-d10, Surrogate Rec.	114	123	127	125	120







585 Blackburn Road Notling Hill, Victoria, Australia 3168 Telephone (03) 9562 5899 Fax (03) 9562 0336

Results			Replacemen	et Report No	: 153781
	0510882/087 BH44/0.1	0510882/088 BH44/0.5	0510882/089 BH45/0.1	0510882/090 BH45/0.5	0510882/091 BH46/0.1
	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05	SOIL 20/09/05
MERCURY by VAPOUR-AAS, DRY WEIGHT					
Method: 404FIMS Units: mg/kg					
Mercury	-	-	0.03	-	0.02
METALS by ICP-MS, DRY WEIGHT					
Method: 406-MS Units: mg/kg					
Arsenic	-	_	7.7	_	6.8
Cadmium	_	_	<2.0	-	<2.0
Chromium	_	_	41	_	37
Copper	_	_	23	-	22
Lead	_	_	23	_	19
Nickel	_	_	21 28	_	24
Zinc	-	-	28 52	-	44
	-	-	32	-	++
ORGANOCHLORINE PESTICIDES, DRY WE	IGHT				
Method: 512-MS Units: mg/kg					
Aldrin	-	-	<0.5	-	-
alpha - BHC	-	-	<0.5	-	-
alpha - Endosulphan	-	-	<0.5	-	-
beta - BHC	-	-	<0.5	-	-
beta - Endosulphan	-	-	<0.5	-	-
Chlordane	-	-	<0.5	-	-
(a,g,oxy-Chlordane)					
DDD	-	-	<0.5	-	-
DDE	-	-	<0.5	-	-
DDT	-	-	<0.5	-	-
delta - BHC	-	-	<0.5	-	-
Dieldrin	-	-	<0.5	-	-
Endosulphan sulphate	-	-	<0.5	-	-
Endrin	-	-	<0.5	-	-
Endrin Aldehyde	-	-	<0.5	-	-
Heptachlor	-	-	<0.5	-	-
Heptachlorepoxide	-	-	<0.5	-	-
Hexachlorobenzene	-	-	<0.5	-	-
Lindane (gamma BHC)	-	-	<0.5	-	-
Methoxychlor	-	-	<0.5	-	-
ORGANOCHLORINE PESTICIDES, SURROO	GATE RECOVER	RIES			
Method: 512/506 Units: % Recovered					
OC Surrogate Recovery	-	-	95.8	-	-
	WEIGHT				
ORGANOPHOSPHORUS COMPOUNDS, DRY	WEIGHI				
Method: 512MS Units: mg/kg			-0.5		
Chlorpyrifos	-	-	<0.5	-	-
Chlorpyrifos Methyl	-	-	<0.5	-	-
Diazinon	-	-	<0.5	-	-
Ethion	-	-	<0.5	-	-

Reported: Thursday, 20 October 2005





(R) Contraction

585 Blackburn Road Notting Hill, Victoria, Australia 3168 Telephone (03) 9562 5899 Fax (03) 9562 0336

Results Replacement Report No: 153781 0510882/087 0510882/088 0510882/089 0510882/090 0510882/091 BH44/0.1 BH44/0.5 BH45/0.1 BH45/0.5 BH46/0.1 SOIL SOIL SOIL SOIL SOIL 20/09/05 20/09/05 20/09/05 20/09/05 20/09/05 Fenitrothion < 0.5Fenthion < 0.5 Malathion < 0.5 Parathion < 0.5 Parathion Methyl $<\!\!0.5$ Ronnel < 0.5 ORGANOPHOSPHORUS COMPOUNDS, SURROGATE RECOVERIES Method: 512MS Units: % Recovered **OP** Surrogate Recovery 112 **OVEN MOISTURE CONTENT** Method: 100 Units: % w/w Moisture 15.4 15.7 12.4 12.4 13.0 POLYAROMATIC HYDROCARBONS, AS RECEIVED Method: 512-MS Units: mg/kg Total PAH's < 0.5 < 0.5 $<\!\!0.5$ < 0.5< 0.5POLYAROMATIC HYDROCARBONS, DRY WEIGHT Method: 512-MS Units: mg/kg < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 Acenaphthene Acenaphthylene < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 Anthracene < 0.5 < 0.5 < 0.5 < 0.5 < 0.5Benz(a)anthracene < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 Benzo(a)pyrene < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 Benzo(b)fluoranthene < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 Benzo(g,h,i)perylene < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 Benzo(k)fluoranthene < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 Chrysene < 0.5 $<\!0.5$ $<\!\!0.5$ $<\!0.5$ $<\!0.5$ Dibenz(a,h)anthracene < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 Fluoranthene < 0.5< 0.5 $<\!0.5$ < 0.5 < 0.5 Fluorene < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 Indeno(1,2,3-c,d)pyrene < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 Naphthalene < 0.5< 0.5< 0.5 < 0.5 < 0.5Phenanthrene < 0.5 < 0.5 $<\!0.5$ < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 < 0.5 Pyrene POLYAROMATIC HYDROCARBONS, SURROGATE RECOVERIES Method: 512-MS Units: % Recovered Pyrene-d10, Surrogate Rec. 129 120





Results			Replacemen	t Report No:	153781
	0510882/133 DUP A	0510882/134 DUP B	0510882/135 DUP C	0510882/136 DUP D	
	SOIL 21/09/05	SOIL 21/09/05	SOIL 21/09/05	SOIL 21/09/05	
MERCURY by VAPOUR-AAS, DRY WEIGH	Г				
Method: 404FIMS Units: mg/kg					
Mercury	0.03	0.01	0.02	0.01	
METALS by ICP-MS, DRY WEIGHT					
Method: 406-MS Units: mg/kg					
Arsenic	7.0	5.1	12	9.7	
Cadmium	<2.0	<2.0	<2.0	<2.0	
Chromium	25	18	21	26	
Copper	18	12	12	16	
Lead	20	15	22	23	
Nickel	16	12	12	15	
Zinc	39	31	27	33	
OVEN MOISTURE CONTENT					
Method: 100 Units: % w/w					
Moisture	13.4	14.9	12.4	18.1	
POLYAROMATIC HYDROCARBONS, AS R	ECEIVED				
Method: 512-MS Units: mg/kg					
Total PAH's	<0.5	< 0.5	<0.5	<0.5	
POLYAROMATIC HYDROCARBONS, DRY	WEIGHT				
Method: 512-MS Units: mg/kg					
Acenaphthene	<0.5	<0.5	<0.5	<0.5	
Acenaphthylene	<0.5	<0.5	< 0.5	<0.5	
Anthracene	<0.5	<0.5	<0.5	<0.5	
Benz(a)anthracene	<0.5	< 0.5	<0.5	<0.5	
Benzo(a)pyrene	<0.5	< 0.5	<0.5	<0.5	
Benzo(b)fluoranthene	<0.5	< 0.5	<0.5	<0.5	
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	<0.5	
Benzo(k)fluoranthene	<0.5	< 0.5	<0.5	<0.5	
Chrysene	<0.5	< 0.5	<0.5	<0.5	
Dibenz(a,h)anthracene	<0.5	<0.5	<0.5	<0.5	
Fluoranthene	<0.5	<0.5	<0.5	<0.5	
Fluorene	<0.5	<0.5	<0.5	<0.5	
Indeno(1,2,3-c,d)pyrene	<0.5	<0.5	<0.5	<0.5	
Naphthalene	<0.5	<0.5	<0.5	<0.5	
Phenanthrene	<0.5	<0.5	<0.5	<0.5	
Pyrene	< 0.5	<0.5	<0.5	<0.5	
POLYAROMATIC HYDROCARBONS, SUR	ROGATE RECOV	ERIES			
Method: 512-MS Units: % Recovered					
Pyrene-d10, Surrogate Rec.	-	124	128	-	





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Quality Results

	0510882Q140 DIGEST BLANK	0510882Q141 DIGEST BLANK	0510882Q142 DIGEST BLANK	0510882Q143 QCBlank METHOD BLANK	0510882Q144 QCBlank METHOD BLANK
	Soil 23/09/05	Soil 23/09/05	Soil 23/09/05	27/09/05	27/09/05
BTEX/ <mah &="" (purge="" as="" receiv<="" td="" trap),=""><td>ED</td><td></td><td></td><td></td><td></td></mah>	ED				
Method: 513P&T Units: mg/kg					
Benzene	-	-	-	-	< 0.2
Ethylbenzene	-	-	-	-	<0.4
meta & para-Xylenes	-	-	-	-	<1.0
ortho-Xylene	-	-	-	-	<0.4
Toluene	-	-	-	-	<0.4
Xylenes	-	-	-	-	<1.4
HYDROCARBONS (C6-C9), AS RECEIVED					
Method: 513P&T Units: mg/kg					
ТРН С6 - С9	-	-	-	<5.0	-
MERCURY by VAPOUR-AAS, AS RECEIVED	I				
Method: 404FIMS Units: mg/kg					
Mercury	< 0.01	< 0.01	< 0.01	-	-
METALS by ICP-MS, AS RECEIVED					
Method: 406-MS Units: mg/kg					
Arsenic	<1.0	<1.0	<1.0	-	-
Cadmium	<1.0	<1.0	<1.0	-	-
Chromium	<1.0	<1.0	<1.0	-	-
Copper	<1.0	<1.0	<1.0	-	-
Lead	<1.0	<1.0	<1.0	-	-
Nickel	<1.0	<1.0	<1.0	-	-
Zinc	<1.0	<1.0	<1.0	-	-







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Quality Results

	0510882Q145 Spike Recovery Iab control	0510882Q146 Spike Recovery SPK	0510882Q147 Duplicate 0510882/021 27/09/05	0510882Q148 Duplicate 0510882/027 27/09/05	0510882Q149 Spike Recovery 0510882/027
	27/09/05	27/09/05	21/03/03	21/09/03	27/09/05
QC RESULTS - DUPLICATES					
Relative Percent Difference, %					
TPH C6 - C9	-	-	<1.0	<1.0	-
Benzene	-	-	<1.0	<1.0	-
Ethylbenzene	-	-	<1.0	<1.0	-
meta & para-Xylenes	-	-	<1.0	<1.0	-
ortho-Xylene	-	-	<1.0	<1.0	-
Toluene	-	-	<1.0	<1.0	-
Xylenes	-	-	<1.0	<1.0	-
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
meta & para-Xylenes	79.0	98.0	-	-	-
ortho-Xylene	73.8	98.6	-	-	-
ТРН С6 - С9	85.6	81.9	-	-	92.6
Benzene	82.4	106	-	-	72.7
Ethylbenzene	70.0	101	-	-	71.6
Toluene	87.2	119	-	-	71.3
Xylenes	77.3	98.2	-	-	-





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Quality Results

	0510882Q150 Duplicate 0510882/027 27/09/05	0510882Q151 Spike Recovery 0510882/027 27/09/05	0510882Q152 Spike Recovery Lab Control 27/09/05	0510882Q153 Duplicate 0510882/075 27/09/05	0510882Q154 Spike Recovery 0510882/075 27/09/05
QC RESULTS - DUPLICATES					
Relative Percent Difference, %					
Mercury	<1.0	-	-	<1.0	-
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
Mercury	-	89.0	99.0	-	89.0







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Quality Results

	0510882Q155 Spike Recovery Lab Control	0510882Q160 Spike Recovery Lab Control	0510882Q165 Spike Recovery Lab Control	0510882Q166 Spike Recovery Lab Control	0510882Q167 Duplicate 0510882/027
	27/09/05	27/09/05	27/09/05	27/09/05	27/09/05
QC RESULTS - DUPLICATES					
Relative Percent Difference, %					
Arsenic	-	-	-	-	10.9
Cadmium	-	-	-	-	5.1
Chromium	-	-	-	-	5.0
Copper	-	-	-	-	<1.0
Lead	-	-	-	-	14.3
Nickel	-	-	-	-	<1.0
Zinc	-	-	-	-	4.3
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
Arsenic	-	-	-	99.1	-
Cadmium	-	-	-	102	-
Chromium	-	-	-	105	-
Copper	-	-	-	94.5	-
Lead	-	-	-	94.7	-
Nickel	-	-	-	97.1	-
Zinc	-	-	-	97.7	-
Mercury	99.0	99.0	90.0	-	-







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Quality Results

	0510882Q168 Spike Recovery 0510882/027	Duplicate Spike 0510882/075 Recovery	0510882Q175 Spike Recovery Lab Control	0510882Q180 Spike Recovery Lab Control	
	27/09/05	21/09/03	27/09/05	27/09/05	27/09/05
QC RESULTS - DUPLICATES					
Relative Percent Difference, %					
Cadmium	-	<1.0	-	-	-
Copper	-	20.0	-	-	-
Nickel	-	15.5	-	-	-
Zinc	-	10.9	-	-	-
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
Arsenic	86.9	-	92.5	101	106
Cadmium	88.6	-	91.2	102	105
Chromium	98.8	-	103	112	100
Copper	94.5	-	105	97.4	103
Lead	86.6	-	92.5	88.1	107
Nickel	99.1	-	108	103	101
Zinc	76.8	-	84.4	97.1	111







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Quality Results

	0510882Q181 QCBlank method blk	0510882Q182 QCBlank method blk	0510882Q183 Spike Recovery Iab control	0510882Q184 QCBlank method blk	0510882Q185 Duplicate 0510882/089
	27/09/05	27/09/05	27/09/05	27/09/05	27/09/05
ORGANOCHLORINE PESTICIDES, AS RECH	EIVED				
Method: 512-MS Units: mg/kg					
Aldrin	-	<0.5	-	-	-
alpha - BHC	-	<0.5	-	-	-
alpha - Endosulphan	-	<0.5	-	-	-
beta - BHC	-	<0.5	-	-	-
beta - Endosulphan	-	<0.5	-	-	-
Chlordane	-	<0.5	-	-	-
DDD	-	<0.5	-	-	-
DDE	-	<0.5	-	-	-
DDT	-	<0.5	-	-	-
delta - BHC	-	<0.5	-	-	-
Dieldrin	-	<0.5	-	-	-
Endosulphan sulphate	-	<0.5	-	-	-
Endrin	-	<0.5	-	-	-
Endrin Aldehyde	-	<0.5	-	-	-
Heptachlor	-	< 0.5	-	-	-
Heptachlorepoxide	-	< 0.5	-	-	-
Hexachlorobenzene	-	< 0.5	-	-	-
Lindane	-	< 0.5	-	-	-
Methoxychlor	-	< 0.5	-	-	-
ORGANOPHOSPHORUS COMPOUNDS, AS F	RECEIVED				
Method: 512MS Units: mg/kg					
Chlorpyrifos	-	-	-	<0.5	-
Chlorpyrifos Methyl	-	-	-	<0.5	-
Diazinon	-	-	-	<0.5	-
Ethion	-	-	-	<0.5	-
Fenitrothion	-	-	-	<0.5	-
Fenthion	-	-	-	<0.5	-
Malathion	-	-	-	<0.5	-
Parathion	-	-	-	<0.5	-
Parathion Methyl	-	-	-	<0.5	-
Ronnel	-	-	-	<0.5	-
POLYAROMATIC HYDROCARBONS, AS RE	CEIVED				
Method: 512-MS Units: mg/kg					
Acenaphthene	<0.5	-	-	-	-
Acenaphthylene	<0.5	-	-	-	-
Anthracene	<0.5	-	-	-	-
Benz(a)anthracene	<0.5	-	-	-	-
Benzo(a)pyrene	<0.5	-	-	-	-
Benzo(b)fluoranthene	<0.5	-	-	-	-
Benzo(g,h,i)perylene	<0.5	-	-	-	-
Benzo(k)fluoranthene	<0.5	-	-	-	-







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Quality Results

	0510882Q181 QCBlank method blk	0510882Q182 QCBlank method blk	0510882Q183 Spike Recovery lab control	0510882Q184 QCBlank method blk	0510882Q185 Duplicate 0510882/089
	27/09/05	27/09/05	27/09/05	27/09/05	27/09/05
Chrysene	<0.5	_	-		
Dibenz(a,h)anthracene	<0.5	-	-	-	-
Fluoranthene	<0.5	-	-	-	-
Fluorene	<0.5	-	-	-	-
		-	-	-	-
Indeno(1,2,3-c,d)pyrene	<0.5	-	-	-	-
Naphthalene	<0.5	-	-	-	-
Phenanthrene	<0.5	-	-	-	-
Pyrene	<0.5	-	-	-	-
QC RESULTS - DUPLICATES					
Relative Percent Difference, %					
(a,g,oxy-Chlordane)	-	-	-	-	<1.0
Aldrin	-	-	-	-	<1.0
alpha - BHC	-	-	-	-	<1.0
alpha - Endosulphan	-	-	-	-	<1.0
beta - BHC	-	-	-	-	<1.0
beta - Endosulphan	-	-	-	-	<1.0
DDD	-	-	-	-	<1.0
DDE	-	-	-	-	<1.0
DDT	-	-	-	-	<1.0
delta - BHC	-	-	-	-	<1.0
Dieldrin	-	-	-	-	<1.0
Endosulphan sulphate	-	-	-	-	<1.0
Endrin	-	-	-	-	<1.0
Endrin Aldehyde	-	-	-	-	<1.0
Heptachlor	-	-	-	-	<1.0
Heptachlorepoxide	-	-	-	-	<1.0
Hexachlorobenzene	-	-	-	-	<1.0
Lindane (gamma BHC)	-	-	-	-	<1.0
Methoxychlor	-	-	-	-	<1.0
Chlorpyrifos	-	-	-	-	<1.0
Chlorpyrifos Methyl	-	-	-	-	<1.0
Diazinon	-	-	-	-	<1.0
Ethion	-	-	-	-	<1.0
Fenitrothion	-	-	-	-	<1.0
Fenthion	-	-	-	-	<1.0
Malathion	-	-	-	_	<1.0
Parathion	-	-	-	-	<1.0
Parathion Methyl #	-	-	_	-	<1.0
Ronnel	_	-	-	-	<1.0
Acenaphthene	_	_	-	-	<1.0
Acenaphthylene	-	-	-	-	<1.0
Anthracene	_	_	_	_	<1.0
/ munucene					<1.0







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Quality Results

	0510882Q181 QCBlank method blk	0510882Q182 QCBlank method blk	0510882Q183 Spike Recovery lab control	0510882Q184 QCBlank method blk	0510882Q185 Duplicate 0510882/089
	27/09/05	27/09/05		27/09/05	27/09/05
			27/09/05		
Benzo(a)pyrene	-	-	-	-	<1.0
Benzo(b)fluoranthene	-	-	-	-	<1.0
Benzo(g,h,i)perylene	-	-	-	-	<1.0
Benzo(k)fluoranthene	-	-	-	-	<1.0
Chrysene	-	-	-	-	<1.0
Dibenz(a,h)anthracene	-	-	-	-	<1.0
Fluoranthene	-	-	-	-	<1.0
Fluorene	-	-	-	-	<1.0
Indeno(1,2,3-c,d)pyrene	-	-	-	-	<1.0
Naphthalene	-	-	-	-	<1.0
Phenanthrene	-	-	-	-	<1.0
Pyrene	-	-	-	-	<1.0
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
Aldrin	-	-	93.8	-	-
alpha - BHC	-	-	72.5	-	-
alpha - Endosulphan	-	-	93.8	-	-
beta - BHC	-	-	92.5	-	-
beta - Endosulphan	-	-	95.0	-	-
Chlordane	-	-	95.6	-	-
(a,g,oxy-Chlordane)					
DDD	-	-	102	-	-
DDE	-	-	93.8	-	-
DDT	-	-	87.5	-	-
delta - BHC	-	-	100	-	-
Dieldrin	-	-	86.2	-	-
Endosulphan sulphate	-	-	101	-	-
Endrin	-	-	88.8	-	-
Endrin Aldehyde	-	-	96.2	-	-
Heptachlor	-	-	86.2	-	-
Heptachlorepoxide	-	-	85.0	-	-
Hexachlorobenzene	-	-	88.8	-	-
Lindane (gamma BHC)	-	-	83.8	-	-
Methoxychlor	-	-	97.5	-	-
Chlorpyrifos	-	-	98.8	-	-
Chlorpyrifos Methyl	-	-	86.2	_	-
Diazinon	-	-	92.5	-	-
Ethion	-	-	98.8	-	-
Fenitrothion	-	-	88.8	-	-
Fenthion	-	-	98.8	-	-
Malathion	-	-	105	-	_
Parathion	_	_	91.2	_	_
i uruulloli			/1.4		







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Quality Results

	0510882Q181 QCBlank method blk	0510882Q182 QCBlank method blk	0510882Q183 Spike Recovery lab control	0510882Q184 QCBlank method blk	0510882Q185 Duplicate 0510882/089
	27/09/05	27/09/05	27/09/05	27/09/05	27/09/05
Ronnel	-	-	93.8	-	-
Acenaphthene	-	-	104	-	-
Anthracene	-	-	106	-	-
Benz(a)anthracene	-	-	95.0	-	-
Benzo(a)pyrene	-	-	102	-	-
Benzo(b)fluoranthene	-	-	100	-	-
Benzo(g,h,i)perylene	-	-	104	-	-
Benzo(k)fluoranthene	-	-	95.0	-	-
Chrysene	-	-	98.8	-	-
Dibenz(a,h)anthracene	-	-	105	-	-
Fluoranthene	-	-	93.8	-	-
Fluorene	-	-	101	-	-
Indeno(1,2,3-c,d)pyrene	-	-	104	-	-
Naphthalene	-	-	108	-	-
Phenanthrene	-	-	101	-	-
Pyrene	-	-	98.8	-	-





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Quality Results

Learning BarbaneLearning BarbaneLearning BarbaneAutor0.50.50.5Accapathor0.50.50.5Accapathor0.50.50.5Accapathor0.50.50.5Accapathor0.50.50.5Barbane0.50.5 </th <th></th> <th>0510882Q190 QCBlank method blk</th> <th>0510882Q191 Spike Recovery Iab control</th> <th>0510882Q192 QCBlank method blk</th> <th>0510882Q193 Spike Recovery 0510882/088</th> <th>0510882Q194 QCBlank method blk</th>		0510882Q190 QCBlank method blk	0510882Q191 Spike Recovery Iab control	0510882Q192 QCBlank method blk	0510882Q193 Spike Recovery 0510882/088	0510882Q194 QCBlank method blk
Method:S12-MS Units:method:method:method:method:Acenaphthylene0.5-0.5-0.5Anthracene0.5-0.5-0.5Benz(a)puthracene0.5-0.5-0.5Benzo(a)prene0.5-0.5-0.5Benzo(g)hijoranthene0.5-0.5-0.5Benzo(g)hijoranthene0.5-0.5-0.5Benzo(g)hijoranthene0.5-0.5-0.5Dibenz(a,h)anthracene0.5-0.5-0.5Dibenz(a,h)anthracene0.5-0.5-0.5Dibenz(a,h)anthracene0.5-0.5-0.5Pluoranthene0.5-0.5-0.5Indeno(1,2,3-c,d)prene0.5-0.5-0.5Naphthalene0.5-0.5-0.5Premet-0.5-0.5-0.5Premet0.5-0.5-0.5-Premet0.5-0.5-0.5-0.5Premet0.5-0.5-0.5Premet0.5-0.5-0.5Premet0.5-0.5-0.5Benzo(a)prene-9.50.5-Benzo(a)prene-9.62-8.8		28/09/05	28/09/05	28/09/05	28/09/05	28/09/05
Acenaphthene.0.5.0.5.0.5.0.5Anthracene.0.5.0.5.0.5.0.5Benz(authracene.0.5.0.5.0.5.0.5Benz(authracene.0.5.0.5.0.5.0.5Benz(alprene.0.5.0.5.0.5.0.5Benz(alprene.0.5.0.5.0.5.0.5Benz(alprene.0.5.0.5.0.5.0.5Benz(alprene.0.5.0.5.0.5.0.5Benz(alprene.0.5.0.5.0.5.0.5Benz(alprene.0.5.0.5.0.5.0.5Benz(alprene.0.5.0.5.0.5.0.5Benz(alprene.0.5.0.5.0.5.0.5Benz(alprene.0.5.0.5.0.5.0.5Benz(alprene.0.5.0.5.0.5.0.5Fluorene.0.5.0.5.0.5.0.5Prone.0.5.0.5.0.5.0.5Prene.0.5.0.5.0.5.0.5Prene.0.5.0.5.0.5.0.5Prene.0.5.0.5.0.5.0.5Prene.0.5.0.5.0.5.0.5Prene.0.5.0.5.0.5.0.5Prene.0.5.0.5.0.5.0.5Prene.0.5.0.5.0.5.0.5Prene.0.5.0.5.0.5.0.5Prene.0.5.0.5.0.5.0.5Benz(alprene.0.6.0.5.0.	POLYAROMATIC HYDROCARBONS, AS RE	CEIVED				
Accurphthylene.0.5.0.5.0.5.0.5Benz(a)mthracene.0.5.0.5.0.5.0.5Benz(a)mthracene.0.5.0.5.0.5.0.5Benz(a)pyrene.0.5.0.5.0.5.0.5Benz(a)pyrene.0.5.0.5.0.5.0.5Benz(a)pyrene.0.5.0.5.0.5.0.5Benz(a)pyrene.0.5.0.5.0.5.0.5Benz(a)hperylene.0.5.0.5.0.5.0.5Benz(a)hperylene.0.5.0.5.0.5.0.5Dibenz(a,h)anthracene.0.5.0.5.0.5.0.5Fluorene.0.5.0.5.0.5.0.5Inden(1,2,3,-c,d)pyrene.0.5.0.5.0.5.0.5Pyrene.0.5.0.5.0.5.0.5Pyrene.0.5.0.5.0.5.0.5Pyrene.0.5.0.5.0.5.0.5Accaphthene.0.5.0.5.0.5Accaphthylene.0.5.0.5.0.5Accaphthylene.0.5.0.5.0.5Accaphthylene.0.5.0.5.0.5Benz(a)mthracene.0.5.0.5.0.5Benz(a)mthracene.0.5.0.5.0.5Benz(a)mthracene.0.5.0.5.0.5Benz(a)mthracene.0.5.0.5.0.5Benz(a)mthracene.0.5.0.5.0.5Benz(a)mthracene.0.5.0.5.0.5Benz(a)mthracene.0.5.0.5.0.5 <td>Method: 512-MS Units: mg/kg</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Method: 512-MS Units: mg/kg					
Andracene<0.5<0<0.5<0.5Berax(a)anthracene<0.5	Acenaphthene	<0.5	-	<0.5	-	<0.5
Benz(a)anthracene0.050.00.050.05Benzo(a)pyrene0.050.00.050.05Benzo(b)floranthene0.050.050.050.05Benzo(g)hiperylene0.050.050.050.05Benzo(k)floranthene0.050.050.050.05Benzo(k)floranthene0.050.050.050.05Benzo(k)floranthene0.050.050.050.05Benzo(k)floranthene0.050.050.050.05Ibionz(a,k)anthracene0.050.050.050.05Fluorene0.050.050.050.05Indenc(1,2,3-c,d)pyrene0.050.050.050.05Phenathrene0.050.050.050.05Phenathrene0.050.050.050.05Prevertertextextextextextextextextextextextextext	Acenaphthylene	<0.5	-	<0.5	-	<0.5
Benzo (b)0.50.50.050.05Benzo(b)fluoranthene0.5.00.50.50.5Benzo(b)fluoranthene0.5.00.50.50.5Benzo(b)fluoranthene0.5.00.50.50.5Chrysene0.5.00.50.50.5Dibenz(a,b)anthracene0.5.00.50.50.5Fluoranthene0.5.00.50.50.5Indeno(1,2,3-c,d)pyrene0.5.00.50.50.5Jenanthrene0.5.00.50.50.5Jenanthrene0.5.00.50.50.5Jenanthrene0.5.00.50.50.5Jenanthrene0.5.00.50.50.5Jenanthrene0.5.00.50.50.5Jenanthrene0.5.00.50.50.5Jenanthrene0.5.00.50.50.5Jenanthrene0.5.00.50.50.5Jenanthrene0.5.00.50.50.5Jenanthrene0.5.00.50.50.5Jenanthrene0.50.50.50.5Jenanthrene0.50.50.50.5Jenanthrene0.50.50.50.5Jenanthrene0.50.50.50.5Jenanthrene0.50.50.50.5Jenanthrene0.50.50.50.5Jenanthrene0.50.50.50.5Benzo(s)fluoranthene	Anthracene	<0.5	-	<0.5	-	<0.5
Berzol/filoranthene -0.5 - -0.5 - -0.5 Benzo(g,h.i)perylene -0.5 - - -0.5 - -0.5 Benzo(k)fluoranthene -0.5 -	Benz(a)anthracene	<0.5	-	<0.5	-	<0.5
Benzo(gh.i)perylene<0.5<0<0.5<0.5<0.5Benzo(k)fluoranthene<0.5	Benzo(a)pyrene	<0.5	-	<0.5	-	<0.5
Benzok/fluoranthene<0.5<0.5<0.5<0.5<0.5<0.5Dhenz(a,h)anthracene<0.5	Benzo(b)fluoranthene	<0.5	-	<0.5	-	<0.5
Chrysene40.5-40.5-40.5Dibenz(a,h)anthracene40.5-40.5-40.5Fluoranthene40.5-40.5-40.5Fluorene40.5-40.5-40.5Indeno(1,2,3-c,d)pyrene40.5-40.5-40.5Naphthalene40.5-40.5-40.5Phenanthrene40.5-40.5-40.5Pyrene40.5-40.5-40.5Pyrene40.5-40.5-40.5Pyrene40.5-40.5-40.5Pyrene40.5-40.5-40.5Acenaphthene-102-90.0-Acenaphthene-106-95.0-Benz(a)anthracene-96.2-88.8-Benzo(b)fluoranthene-91.2Benzo(h)fuoranthene-110Benzo(h)fluoranthene-116Dibenz(a,h)anthracene-116Fluorene-116Fluorene-116Indeno(1,2,3-c,d)pyrene-118Fluorene-118-9.8.0Fluorene-118-9.12Fluorene-118-9	Benzo(g,h,i)perylene	<0.5	-	<0.5	-	< 0.5
De Interact0.5-0.5-0.5Fluoranthene0.5-0.5-0.5Fluorene0.5-0.5-0.5Indeno(1,2,3-c,d)pyrene0.5-0.5-0.5Mapthalene0.5-0.5-0.5Pyrene0.5-0.5-0.5Pyrene0.5-0.5-0.5Construction of the second of the	Benzo(k)fluoranthene	<0.5	-	<0.5	-	< 0.5
Fluoranthene<0.5<0.5<0.5<0.5Fluorene<0.5	Chrysene	<0.5	-	<0.5	-	<0.5
Fluorene<0.5<0.5<0.5<0.5Indeno(1,2,3-c,d)pyrene<0.5	Dibenz(a,h)anthracene	<0.5	-	<0.5	-	<0.5
Inden(1,2,3-c,d)pyrene<0.5<0.5<0.5<0.5Naphthalene<0.5	Fluoranthene	<0.5	-	<0.5	-	<0.5
Naphthalen <0.5 - <0.5 - <0.5 Phenanthrene <0.5	Fluorene	<0.5	-	<0.5	-	< 0.5
Percent Pyrene<0.5<0.5<0.5<0.5Pyrene<0.5<0.5<0.5QC RESULTS - SPIKED SAMPLES<0.5Percent Recovery, % </td <td>Indeno(1,2,3-c,d)pyrene</td> <td><0.5</td> <td>-</td> <td><0.5</td> <td>-</td> <td><0.5</td>	Indeno(1,2,3-c,d)pyrene	<0.5	-	<0.5	-	<0.5
Pyrne	Naphthalene	<0.5	-	<0.5	-	<0.5
Percent Recovery, % Acenaphthene - 102 - 90.0 - Acenaphthene - 95.0 - 85.0 - Acenaphthylene - 106 - 95.0 - Benz(a)anthracene - 106 - 95.0 - Benzo(a)pyrene - 96.2 - 83.8 - Benzo(a)pyrene - 97.5 - 86.2 - Benzo(b)fluoranthene - 91.2 - 72.5 - Benzo(k)fluoranthene - 105 - - - Benzo(k)fluoranthene - 105 - - - Benzo(k)fluoranthene - 105 - - - Dibenz(a,h)anthracene - 105 - - - Fluoranthene - 114 - 93.8 - - Fluoranthene - 100 - 85.0 - - - Fluoranthene - 100 -	Phenanthrene	<0.5	-	<0.5	-	<0.5
Percent Recovery, % Acenaphthene - 102 - 90.0 - Acenaphthylene - 95.0 - 85.0 - Anthracene - 106 - 95.0 - Benz(a)anthracene - 96.2 - 83.8 - Benzo(a)pyrene - 97.5 - 86.2 - Benzo(b)fluoranthene - 91.2 - 72.5 - Benzo(g),hi)perylene - 88.8 - 77.5 - Benzo(k)fluoranthene - 105 - 66.2 - Dibenz(a,h)anthracene - 105 - 66.2 - Fluoranthene - 105 - 66.2 - Dibenz(a,h)anthracene - 78.8 - - - Fluoranthene - 100 - 85.0 - Fluoranthene - 100 - 85.0 - Indeno(1,2,3-c,d)pyrene - 118 - 98.8 -	Pyrene	< 0.5	-	<0.5	-	<0.5
Acenaphthene-102-90.0-Acenaphthylene-95.0-85.0-Anthracene-106-95.0-Benz(a)anthracene-96.2-83.8-Benzo(a)pyrene-97.5-86.2-Benzo(b)fluoranthene-91.2-72.5-Benzo(g,h,i)perylene-88.8-77.5-Benzo(k)fluoranthene-110-105-Dibenz(a,h)anthracene-105Fluoranthene-100-85.0Fluoranthene-114-93.8Fluorene-118-98.8Naphthalene-101-91.2Phenanthrene-102-86.2AnthraceneFluorene-100-85.0Indeno(1,2,3-c,d)pyrene-101-91.2Phenanthrene-102-86.2Phenanthrene-102-91.2Phenanthrene-102-86.2Phenanthrene-102-91.2Phenanthrene-102-91.2 <t< td=""><td>QC RESULTS - SPIKED SAMPLES</td><td></td><td></td><td></td><td></td><td></td></t<>	QC RESULTS - SPIKED SAMPLES					
Acenaphthylene - 95.0 - 85.0 - Anthracene - 106 - 95.0 - Benz(a)anthracene - 96.2 - 83.8 - Benzo(a)pyrene - 97.5 - 86.2 - Benzo(g),hi)perylene - 91.2 - 72.5 - Benzo(k)fluoranthene - 110 - 105 - Benzo(k)fluoranthene - 105 - - Dibenz(a,h)anthracene - 105 - - Fluorene - 78.8 - - - Fluorene - 104 - 93.8 - Fluorene - 100 - 85.0 - Indeno(1,2,3-c,d)pyrene - 118 - 98.8 - Naphthalene - 101 - 91.2 -	Percent Recovery, %					
Anthracene-106-95.0-Benz(a)anthracene-96.2-83.8-Benzo(a)pyrene-97.5-86.2-Benzo(b)fluoranthene-91.2-72.5-Benzo(g,h,i)perylene-88.8-77.5-Benzo(k)fluoranthene-110-105-Benzo(k)fluoranthene-105Dibenz(a,h)anthracene-105Fluoranthene-114-93.8Fluorene-100-85.0Indeno(1,2,3-c,d)pyrene-118-98.8-Naphthalene-101-91.2-Henanthrene-102-86.2-	Acenaphthene	-	102	-	90.0	-
Benz(a)anthracene - 96.2 - 83.8 - Benzo(a)pyrene - 97.5 - 86.2 - Benzo(b)fluoranthene - 91.2 - 72.5 - Benzo(g,h,i)perylene - 88.8 - 77.5 - Benzo(k)fluoranthene - 110 - 105 - Dibenz(a,h)anthracene - 105 - - - Fluoranthene - 78.8 - - - Dibenz(a,h)anthracene - 105 - - - Fluorene - 114 - 93.8 - Fluorene - 100 - 85.0 - Indeno(1,2,3-c,d)pyrene - 118 - 98.8 - Naphthalene - 101 - 91.2 -	Acenaphthylene	-	95.0	-	85.0	-
Benzo(a)pyrene-97.5-86.2-Benzo(b)fluoranthene-91.2-72.5-Benzo(g,h,i)perylene-88.8-77.5-Benzo(k)fluoranthene-110-105-Chrysene-105-86.2-Dibenz(a,h)anthracene-78.8Fluoranthene-114-93.8-Fluorene-100-85.0-Indeno(1,2,3-c,d)pyrene-118-98.8-Phenanthrene-101-86.2-	Anthracene	-	106	-	95.0	-
Benzo(b)fluoranthene - 91.2 - 72.5 - Benzo(g,h,i)perylene - 88.8 - 77.5 - Benzo(k)fluoranthene - 110 - 105 - Chrysene - 105 - 86.2 - Dibenz(a,h)anthracene - 78.8 - - - Fluoranthene - 114 - 93.8 - Fluorene - 100 - 85.0 - Indeno(1,2,3-c,d)pyrene - 118 - 98.8 - Naphthalene - 101 - 91.2 -	Benz(a)anthracene	-	96.2	-	83.8	-
Benzo(b)fluoranthene - 91.2 - 72.5 - Benzo(g,h,i)perylene - 88.8 - 77.5 - Benzo(k)fluoranthene - 110 - 105 - Chrysene - 105 - 86.2 - Dibenz(a,h)anthracene - 78.8 - - - Fluoranthene - 114 - 93.8 - Fluorene - 100 - 85.0 - Indeno(1,2,3-c,d)pyrene - 118 - 98.8 - Naphthalene - 101 - 91.2 -	Benzo(a)pyrene	-	97.5	-	86.2	-
Benzo(k)fluoranthene - 110 - 105 - Chrysene - 105 - 86.2 - Dibenz(a,h)anthracene - 78.8 - - - Fluoranthene - 114 - 93.8 - Fluorene - 100 - 85.0 - Indeno(1,2,3-c,d)pyrene - 118 - 98.8 - Naphthalene - 101 - 91.2 -		-	91.2	-	72.5	-
Chrysene - 105 - 86.2 - Dibenz(a,h)anthracene - 78.8 - - - Fluoranthene - 114 - 93.8 - Fluorene - 100 - 85.0 - Indeno(1,2,3-c,d)pyrene - 118 - 98.8 - Naphthalene - 101 - 91.2 - Phenanthrene - 102 - 86.2 -	Benzo(g,h,i)perylene	-	88.8	-	77.5	-
Dibenz(a,h)anthracene -	Benzo(k)fluoranthene	-	110	-	105	-
Fluoranthene - 114 - 93.8 - Fluorene - 100 - 85.0 - Indeno(1,2,3-c,d)pyrene - 118 - 98.8 - Naphthalene - 101 - 91.2 - Phenanthrene - 102 - 86.2 -	Chrysene	-	105	-	86.2	-
Fluorene-100-85.0-Indeno(1,2,3-c,d)pyrene-118-98.8-Naphthalene-101-91.2-Phenanthrene-102-86.2-	Dibenz(a,h)anthracene	-	78.8	-	-	-
Indeno(1,2,3-c,d)pyrene - 118 - 98.8 - Naphthalene - 101 - 91.2 - Phenanthrene - 102 - 86.2 -		-		-	93.8	-
Naphthalene - 101 - 91.2 - Phenanthrene - 102 - 86.2 -	Fluorene	-	100	-	85.0	-
Naphthalene - 101 - 91.2 - Phenanthrene - 102 - 86.2 -	Indeno(1,2,3-c,d)pyrene	-	118	-	98.8	-
Phenanthrene - 102 - 86.2 -		-		-		-
	-	-		-	86.2	-
	Pyrene	-	116	-	100	-







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Quality Results

	0510882Q195 Spike Recovery lab control	0510882Q196 Spike Recovery Iab control	0510882Q197 Spike Recovery 0510882/037	0510882Q198 Duplicate 0510882/039	0510882Q199 Duplicate 0510882/057
	28/09/05	28/09/05	28/09/05	28/09/05	28/09/05
QC RESULTS - DUPLICATES					
Relative Percent Difference, %					
Acenaphthene	-	-	-	<1.0	<1.0
Acenaphthylene	-	-	-	<1.0	<1.0
Anthracene	-	-	-	<1.0	<1.0
Benz(a)anthracene	-	-	-	<1.0	<1.0
Benzo(a)pyrene	-	-	-	<1.0	<1.0
Benzo(b)fluoranthene	-	-	-	<1.0	<1.0
Benzo(g,h,i)perylene	-	-	-	<1.0	<1.0
Benzo(k)fluoranthene	-	-	-	<1.0	<1.0
Chrysene	-	-	-	<1.0	<1.0
Dibenz(a,h)anthracene	-	-	-	<1.0	<1.0
Fluoranthene	-	-	-	<1.0	<1.0
Fluorene	-	-	-	<1.0	<1.0
Indeno(1,2,3-c,d)pyrene	-	-	-	<1.0	<1.0
Naphthalene	-	-	-	<1.0	<1.0
Phenanthrene	-	-	-	<1.0	<1.0
Pyrene	-	-	-	<1.0	<1.0
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
Acenaphthene	102	98.8	101	-	-
Acenaphthylene	104	90.0	97.5	-	-
Anthracene	109	93.8	109	-	-
Benz(a)anthracene	108	87.5	98.8	-	-
Benzo(a)pyrene	102	82.5	96.2	-	-
Benzo(b)fluoranthene	110	85.0	96.2	-	-
Benzo(g,h,i)perylene	102	110	100	-	-
Benzo(k)fluoranthene	100	83.8	101	-	-
Chrysene	104	86.2	101	-	-
Dibenz(a,h)anthracene	104	104	97.5	-	-
Fluoranthene	106	86.2	101	-	-
Fluorene	108	91.2	104	-	-
Indeno(1,2,3-c,d)pyrene	101	105	92.5	-	-
Naphthalene	104	90.0	98.8	-	-
Phenanthrene	109	92.5	110	-	-
Pyrene	104	85.0	101	-	-







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Quality Results

Replacement Report No: 153781

	0510882Q200 QCBlank METHOD BLANK	0510882Q201 Spike Recovery LAB	0510882Q206 Spike Recovery 0510882/033	0510882Q207 Duplicate 0510882/039	0510882Q208 Duplicate 0510882/057
	27/09/05	CONTROL	27/09/05	27/09/05	27/09/05
		27/00/05			
HYDROCARBONS, AS RECEIVED					
Method: 501-FID Units: mg/kg					
TPH C10 - C14	<20	-	-	-	-
TPH C15 - C28	<20	-	-	-	-
TPH C29 - C36	<20	-	-	-	-
QC RESULTS - DUPLICATES					
Relative Percent Difference, %					
TPH C10 - C14	-	-	-	<1.0	<1.0
TPH C15 - C28	-	-	-	27.5	20.0
ТРН С29 - С36	-	-	-	<1.0	<1.0
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
TPH C10 - C14	-	91.2	92.8	-	-
TPH C15 - C28	-	101	106	-	-
ТРН С29 - С36	-	99.2	99.2	-	-

Quality Results provided in this report are for laboratory Quality Control purposes.

Sample Comments:0510882/001Surrogate recovery for some semivolatile analysis (TPH, PAH, OC, OP, PCB etc) fell outside
the laboratory guideline limits. Acceptance limits were acheived for all other QC in relation to
this batch (Lab Control, Sample Spike and Duplicates). This comment applied to all samples
where applicable.0510882/039Surrogate recovery for some volatile analysis (volatiles, C6-C9, BTEX, MAH etc) fell outside
the laboratory guideline limits. Repeat analysis confirmed the surrogate recovery failed due to
poor sample matrix. Acceptance limits were acheived for all other QC in relation to this batch
(Lab Control, Sample Spike and Duplicates).