



# ENVIRONMENTAL SITE ASSESSMENT COOKS COVE DEVELOPMENT ZONE PREPARED FOR COOK COVE INLET PTY LTD

CES Document Reference: CES130608-BP-AR

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# ENVIRONMENTAL SITE ASSESSMENT COOKS COVE DEVELOPMENT ZONE PREPARED FOR COOK COVE INLET PTY LTD

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CES Document Reference: CES130608-BP-AR

Page 2 of 100



# ENVIRONMENTAL SITE ASSESSMENT COOKS COVE DEVELOPMENT ZONE PREPARED FOR COOK COVE INLET PTY LTD

CES Document Reference: CES130608-BP-AR

#### **EXECUTIVE SUMMARY**

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

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

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

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

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

CES Document Reference: CES130608-BP-AR

Page 3 of 100



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

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

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

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

The 2008 environmental site assessments of the site (identified as Area A and Area B at the time) determined the area of the site referred to as, and currently occupied by, the WestConnex M8 and M6 Stage 1 Motorway Temporary Compound, as suitable for use as public open space. No knowledge of further contaminating sources had been introduced between 2008 and 2023 and as such the suitability



of the site for the proposed use remained the same. It is understood by CES that Westconnex took possession of the site in 2016 and as such committed to returning the site to a suitable condition for use as public open space at the completion of their works. Therefore, CES has not included the current Westconnex temporary compound in this environmental assessment.

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

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

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

CES Document Reference: CES130608-BP-AR

Page 5 of 100



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

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

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

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

## Soil Assessment

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

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

CES Document Reference: CES130608-BP-AR

Page 6 of 100



for nickel in the fill material of 8.36 mg/kg was less than the adopted EILs, it is not considered likely to cause a risk to human health of the future receptors and remediation is not considered necessary.

The assessment criteria for BTEX were exceeded in four fill samples in the immediate vicinity of the underground storage tanks located close to the maintenance sheds at the northern end of the site and lie within proposed Fig Tree Grove pavilion.

As a result of the elevated concentrations of BTEX, remediation and/or management measures are required to ensure protection of the environment and human health. The removal of the bowsers, USTs, associated pipework and impacted soil will be required under a Remediation Action Plan (RAP) as part of the redevelopment of the site.

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

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

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

# **Groundwater Assessment**

Sixteen groundwater wells were installed along the boundary of the site and within the site to assess whether contamination resulting from the presence of landfills to the south was migrating onto the site. Of the suite of substances analysed in the groundwater samples, copper, lead, nickel, zinc and ammonia were detected at concentrations that exceeded the SAC established for groundwater, while TPH C<sub>6</sub>-C<sub>14</sub> and ethylbenzene concentrations above the laboratory detection limit were detected around the USTs adjacent to the maintenance shed.

CES Document Reference: CES130608-BP-AR

Page 7 of 100



With respect to the concentrations of TPH and BTEX exceeding the laboratory reporting limit, as the concentrations of these substances was only detected within ABH202 and ABH2105, which are located close to the western end of the maintenance shed (northern tanks) and were not detected in the down gradient groundwater well, the potential for migration of contaminants appears to be limited. In addition, the contaminant concentrations have decreased between 2008 and 2017 – and are no longer exceeding the reporting limit in ABH202 and are below the screening criteria in ABH2105.

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

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

## **Ground Gas Assessment**

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

## **Summary and Recommendations**

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

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

CES Document Reference: CES130608-BP-AR

Page 8 of 100



# ENVIRONMENTAL SITE ASSESSMENT COOKS COVE DEVELOPMENT ZONE PREPARED FOR COOK COVE INLET PTY LTD

CES Document Reference: CES130608-BP-AR

# **TABLE OF CONTENTS**

1	INTRODUCTION	16
2	OJECTIVES AND SCOPE	20
3	DATA QUALITY OBJECTIVES	23
4	SUMMARY OF PREVIOUS INVESTIGATIONS	27
<i>4</i> . 4. 4. 2	1.1 Data Quality Review of Previous Investigations SITE INFORMATION REVIEW SUMMARY	28 30
5	SITE INFORMATION	32
5.1	COOKS COVE PLANNING PROPOSAL	32
5.1	1.1 Site Description	32
5.2	SITE IDENTIFICATION	33
5.3	SITE ZONING AND LAND USE	34
5.4	TOPOGRAPHY	34
5.5	GEOLOGY	34
5.6	Hydrogeology	34
5.0	6.1 Regional Hydrogeology	34
5.0	6.2 Local Hydrogeology	35
5.7	ACID SULFATE SOIL RISK	35
6	SITE HISTORY	36
6.1	HISTORICAL AERIAL PHOTOGRAPHS	36
19	30 (DLWC)	36
19	43 (DMR)	36
19	251 (DLWC)	37
19	61 (DLWC)	37
19	70 (DLWC)	37
	78 (DLWC)	37
	86 (DLWC)	38
	99 (DLWC)	38
	199- 2022 (Nearmap)	38
6.2	SUMMARY	38
7	SITE CONDITION AND SURROUNDING ENVIRONMENT	40



7.1	CURRENT OWNER, OCCUPIER AND OPERATIONS	40
7.2	SITE DESCRIPTION	40
7.3	TANKS AND ASSOCIATED SERVICES	40
7.4	SURROUNDING LAND-USE	41
7.5	NSW EPA CONTAMINATED LAND RECORD	41
7.6	INTEGRITY ASSESSMENT	41
8	CONCEPTUAL MODEL OF POTENTIAL CONTAMINATION	42
8.1	POTENTIAL SOURCES OF CONTAMINATION AND ASSOCIATED COPC	42
8.	1.1 Underground Storage Tanks	42
8.	1.2 Use of Dredged Material as Fill	42
8.	1.3 Market Gardens	42
8.	1.4 Reclaimed Land	43
8.	1.5 Landfill Activities	43
8.	1.6 Golf Course Activities	43
8.	1.7 Presence of Unlined Landfills on Adjacent Blocks	43
8.	1.8 Summary of Chemicals of Potential Concern	43
8.2	CHARACTERISTICS OF CHEMICALS OF POTENTIAL CONCERN	44
8.	2.1 Metals and Metalloids	44
8.	2.2 Nutrients	44
8.	2.3 Total Petroleum Hydrocarbons (TPHs) and BTEX Compounds	45
8.	2.4 Polycyclic Aromatic Hydrocarbons (PAHs)	45
8.	2.5 Organochlorine Pesticides (OCPs) and Organophosphate Pesticides (OPPs)	45
8.	2.6 Polychlorinated Biphenyls (PCBs)	45
8.	2.7 Volatile Organic Compounds (VOCs)	46
8.	2.8 Phenoxyacetic Acid Herbicides	46
8.	2.9 Phenols	46
8.	2.10 Asbestos Containing Materials (ACMs)	46
8.3	SITE CONDITIONS	47
8.4	APPROACH OF INVESTIGATION	47
9	SAMPLING, ANALYSIS AND QUALITY PLAN	48
9.1	SOIL SAMPLING PROGRAMME	49
9.	1.1 Sampling numbers, pattern and location	50
9.	1.2 Sampling Depths	50
9.	1.3 Sampling Methodology	51
9.	1.4 Decontamination Procedures	52
9.	1.5 Sample Containers, Method of Sample Storage and Handling	53
9.	1.6 Documentation	53
9.	1.7 Sample Logging	54
9.2	GROUNDWATER SAMPLING PROGRAMME	54
9.	2.1 Well Construction	54



9.2.	.2 Locations and Number of Sampling Points	55
9.2.	.3 Sampling Methodology	55
9.2.	.4 Decontamination Procedures	55
9.2.	.5 Method of Sample Storage and Handling	56
9.2.	.6 Documentation	56
9.3	SUB-SURFACE GAS MONITORING	57
9.3.	.1 Well Construction	57
9.3.	2 Locations and Number of Sampling Points	57
9.3.	.3 Sampling Methodology	57
9.4	ANALYTICAL PROGRAMME	59
9.4.	.1 Soil	59
9.4.	.2 Groundwater	60
9.4.	.3 Landfill Gas	61
9.5	ANALYTICAL METHODS	61
9.5.	.1 Soil	61
9.5.	.2 Groundwater	61
10	SITE ASSESSMENT CRITERIA	62
10.1	SOIL CONTAMINATION	62
10.	1.1 Aesthetics	62
10.	1.2 Ecologically based Soil Site Assessment Criteria	62
10.	1.3 Health-based Soil Site Assessment Criteria	62
10.	1.4 Asbestos in Soil Site Assessment Criteria	63
10.	1.5 Acid Sulfate Soils	63
10.	1.6 Soil Salinity	63
10.2	GROUNDWATER	64
10.3	GROUND GAS	65
10.4	VOLATILE ORGANIC COMPOUNDS IN LANDFILL GAS	66
11	QA/QC DATA EVALUATION	67
11.1	SOIL QA/QC ASSESSMENT	67
11.	1.1 Sample Preservation and Sample Holding Times	67
11.	1.2 Field QA/QC Assessment	67
11.	1.3 Laboratory QA/QC Assessment	70
11.2	GROUNDWATER QA/QC ASSESSMENT	72
11.2	2.1 Sample Preservation and Sample Holding Times	72
11.2	2.2 Field QA/QC Assessment	72
11.3	LABORATORY QA/QC ASSESSMENT	73
11	3.1 Laboratory Duplicates	74
11	3.2 Laboratory Control Samples	74
11	3.3 Surrogates	74
11	3.4 Matrix Spikes	75



11	1.3.5 Method Blanks	75
	1.3.6 Sample Holding Times	75
	1.3.7 Sample Condition	75
11.4	LANDFILL GAS QA/QC ASSESSMENT	75
11	1.4.1 Field Instrument Calibration	75
11.5	LABORATORY QA/QC ASSESSMENT	75
11	1.5.1 Laboratory Control Samples	76
11	1.5.2 Surrogates	76
11	1.5.3 Matrix Spikes	76
11	1.5.4 Method Blanks	76
11.6	DATA USEABILITY ASSESSMENT	76
11	1.6.1 Assessment of Field QA/QC Data	76
11	1.6.2 Assessment of Laboratory QA/QC Data	76
11	1.6.3 Overall Data Assessment	76
12	RESULTS	78
12.1	SITE STRATIGRAPHY AND AESTHETICS	78
12.2	SOIL PID ANALYSIS	78
12.3	SOIL ANALYTICAL RESULTS	79
12	2.3.1 Metals and Metalloids	79
12	2.3.2 TPH and BTEX	80
12	2.3.3 Polycyclic Aromatic Hydrocarbons (PAHs)	81
12	2.3.4 Organochlorine Pesticides (OCPs)	82
12	2.3.5 Organophosphate Pesticides (OPPs)	82
12	2.3.6 Polychlorinated Biphenyls (PCBs)	82
12	2.3.7 Phenols	83
12	2.3.8 Nutrients and Salinity	83
12	2.3.9 Volatile Organic Compounds (VOCs)	84
12	2.3.10 Phenoxyacetic Acid Herbicides (PAAH)	85
12	2.3.11 Asbestos	85
12	2.3.12 Acid Sulfate Soils (SPOCAS)	85
12	2.3.13 Hotspots	86
12	2.3.14 95 % Upper Confidence Limit (UCL) Calculations	87
12.4	GROUNDWATER	88
12	2.4.1 Field Parameters	89
12	2.4.2 Analytical Data	89
12	2.4.3 Sub-Surface Gas Monitoring	92
12.5	VOLATILE ORGANIC COMPOUNDS	93
13	DISCUSSION AND SITE CHARACTERISATION	93
13.1	SOIL	93
13.2	GROUNDWATER	05



13.3	LANDFILL GAS	96
14	CONCLUSIONS AND RECOMMENDATIONS	97
14.1	Conclusions	97
14.2	RECOMMENDATIONS	97
15	LIMITATIONS OF THIS REPORT	98
16	REFERENCES	99
	LIST OF FIGURES	
Figure 1	: Site Location	
Figure 2	2: Site layout and sampling locations	
Figure 2	2a: Site layout and sampling locations – UST area	
Figure 3	3: Soil contamination hotspots	
Figure 3	Ba: Soil contamination hotspots – UST area	
Figure 4	4: Groundwater contours and SAC exceedances	
	LIST OF TABLES	
Table 1	: Summary of borehole information	
Table 2	: Summary of sampling information	
Table 3	: Containers, preservation requirements and holding times - Soil	
	: Containers, preservation requirements and holding times – Groundwater	
Table 5	: Containers and preservation requirements— Gas	
	: Analytical parameters, PQLs and methods – Soil	
	: Analytical parameters, PQLs and methods – Groundwater	
	: Site Assessment criteria – Soil	
	: Action criteria based on ASS soil analysis	
	0: Summary of site assessment criteria – Groundwater	
	1: Soil analytical results – metals	
	2: Soil analytical results – TPH/BTEX	
	3: Soil analytical results – PAH	
	4: Soil analytical results – OCP	
	5: Soil analytical results – OPP	
	6: Soil analytical results – PCB	
	7: Soil analytical results – Phenols	
	8: Soil analytical results – Nutrients and Salinity	
	9: Soil analytical results – VOC	
Table 2	0: Soil analytical results – PAAH	

CES Document Reference: CES130608-BP-AR Page 13 of 100

Table 21: Asbestos results



Table 22: Soil analytical results – POCAS

Table 23: Groundwater field parameters and analytical results – Anion and cation

Table 24: Groundwater analytical results – Dissolved metals

Table 25: Groundwater analytical results – TPH/BTEX

Table 26: Groundwater analytical results – PAH

Table 27: Groundwater analytical results – Nutrients

Table 28: Groundwater analytical results – VOC

Table 29: Groundwater analytical results – OCP

Table 30: Groundwater analytical results – OPP

Table 31: Groundwater analytical results – PCB

Table 32: Subsurface gas results

## LIST OF APPENDICES

Appendix 1: Sampling Analysis and Quality Plan (CES, 2006)

Appendix 2: Tabulated QA/QC data

Appendix 3: Laboratory Certificates of Analysis (Please find on attached CD)

Appendix 4: Field Data Sheets

Appendix 5: Borehole Logs

Appendix 6: Summary of 95% UCL calculations

CES Document Reference: CES130608-BP-AR Page 14 of 100



## LIST OF ABBREVIATIONS

ACM Asbestos Containing Material

ASS Acid Sulfate Soil

CCI Cook Cove Inlet Pty Ltd

BTEX Benzene, Toluene, Ethylbenzene and Total Xylenes

CES Consulting Earth Scientists Pty Ltd
CLM Contaminated Land Management

COC Chain of Custody

CT Contaminant Threshold
CV Coefficient of Variation
DQO Data Quality Objectives

EIL Ecologically-based Investigation Level
EPA Environment Protection Authority
HIL Health-based Investigation Level

mBGL metres Below Ground Level mAHD metres Australian Height Datum

nd not detectable
NSW New South Wales

OCP Organochlorine Pesticide

PAH Polycyclic Aromatic Hydrocarbon PAAH Phenoxyacetic Acid Herbicides

PCB Polychlorinated Biphenyl
PQL Practical Quantitation Limit

QA/QC Quality Assurance and Quality Control

RPD Relative Percentage Difference

SAC Site Assessment Criteria

SD Standard Deviation

TPH Total Petroleum Hydrocarbons

UCL Upper Confidence Limit

USEPA United States Environmental Protection Agency

VOC Volatile Organic Compound



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## 1 INTRODUCTION

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

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

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

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

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

CES Document Reference: CES130608-BP-AR

Page 16 of 100



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

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

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

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

The 2008 environmental site assessments of the site (identified as Area A and Area B at the time) determined the area of the site referred to as, and currently occupied by, the WestConnex M8 and M6 Stage 1 Motorway Temporary Compound, as suitable for use as public open space. No knowledge of further contaminating sources had been introduced between 2008 and 2023 and as such the suitability



of the site for the proposed use remained the same. It is understood by CES that Westconnex took possession of the site in 2016 and as such committed to returning the site to a suitable condition for use as public open space at the completion of their works. Therefore, CES has not included the current Westconnex temporary compound in this environmental assessment.

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

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

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

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

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

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

This report has been prepared in general accordance with the CES Area A and Area B Sample Analysis and Quality Plans (SAQP) (Ref: CES050706-BCC-01-F and CES050706-BCC-02-F), and

CES Document Reference: CES130608-BP-AR

Page 18 of 100



with the requirements specified for a Site Investigation as published by the NSW Environment Protection Authority (EPA) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (State of NSW and Office of Environment and Heritage (OEH)), 2011 and the National Environmental Protection Measure (NEPM) *Guideline on Site Characterisation (Schedule B2) 1999, as amended 2013.* 

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

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

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

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

CES Document Reference: CES130608-BP-AR

Page 19 of 100



## 2 OJECTIVES AND SCOPE

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

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

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

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

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

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

CES Document Reference: CES130608-BP-AR Page 20 of 100



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

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

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

CES Document Reference: CES130608-BP-AR

Page 21 of 100



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

CES Document Reference: CES130608-BP-AR

Page 22 of 100



# 3 DATA QUALITY OBJECTIVES

The DQOs have been formulated by experienced CES Environmental Scientists.

## **Step 1 – State the Problem**

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

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

#### **Step 2 – Identify the Decision Statement**

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

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

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

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

# Step 3 – Identify inputs to the decision

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

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

CES Document Reference: CES130608-BP-AR Page 23 of 100



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

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

# **Step 4 - Define the boundaries of the study**

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

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

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

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

## Step 5 - Develop a decision rule

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

The parameters of interest (or contaminants of concern) in the soil for this investigation are metals and metalloids, TPH, BTEX, PAHs, OCPs, OPPs, VOCs, PAAHs, phenols, nutrients and asbestos. For the groundwater investigation, the contaminants of concern are metals and metalloids, nutrients,

CES Document Reference: CES130608-BP-AR

Page 24 of 100



TPH, BTEX, PAHs, OCPs, OPPs, VOCs and phenols. In addition to soil and groundwater, landfill gas is also a contaminant of concern.

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

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

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

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

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

CES Document Reference: CES130608-BP-AR Page 25 of 100



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

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

## Step 6 - Specify acceptable limits on decision errors

There are two types of errors:

- a) Deciding that the site is acceptable for the mixed development land use when it actually is not (Type I error). The consequence of this error may be unacceptable ecological or health risk for future users of the site.
- b) Deciding that the site is unacceptable for the mixed development land use when it is acceptable (Type II error). The consequence of this error is that the client will pay for further investigation / remediation that is not necessary.

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

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

#### Step 7 - Optimising the Design for Obtaining Data

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

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

CES Document Reference: CES130608-BP-AR

Page 26 of 100



## 4 SUMMARY OF PREVIOUS INVESTIGATIONS

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

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

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

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

CES Document Reference: CES130608-BP-AR

Page 27 of 100



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

## 4.1.1 Data Quality Review of Previous Investigations

## 4.1.1.1 *CES* (August, 2001)

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

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

CES Document Reference: CES130608-BP-AR Page 28 of 100



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

## 4.1.1.2 Golders (2002)

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

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

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

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

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

CES Document Reference: CES130608-BP-AR Page 29 of 100



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

#### 4.2 SITE INFORMATION REVIEW SUMMARY

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

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

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

- Seventeen boreholes/testpits have been excavated across Area B. However, information has only been made available on four. The remaining thirteen boreholes/testpits are located adjacent to the southern border of the southern half of the site and do not offer adequate site coverage. In consideration of the size of the area (approximately 9.5 hectares), the sampling density is significantly lower than the recommended minimum sampling density outlined in the NSW EPA (1995) *Sampling Design Guidelines*;
- The boreholes excavated have not targeted all the areas of concern which could have been impacted by historical contaminating activities;
- Only a limited number of groundwater monitoring wells has been installed in the southern half of the site. The information available from these wells indicates that groundwater is impacted with ammonia. The extent of the groundwater contamination beneath the southern half of the site has not been adequately assessed; and

CES Document Reference: CES130608-BP-AR Page 30 of 100



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

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



## 5 SITE INFORMATION

#### 5.1 COOKS COVE PLANNING PROPOSAL

## **5.1.1** Site Description

#### **Cooks Cove**

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

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

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

## **Kogarah Golf Club**

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

## **Arncliffe Motorway Operation Complex**

The temporary construction compound for the WestConnex M8 and M6 Stage 1 Motorway tunnelling works was originally established in June 2016. The temporary construction facility occupies approximately 7.5ha and is expected to remain until 2025. At this time the facility will reduce to 1.5ha

CES Document Reference: CES130608-BP-AR

Page 32 of 100



to accommodate the permanent Arncliffe Motorway Operations Complex, located in the western corner of the site, adjacent Marsh Street. The complex will house ventilation and water treatment plant and maintenance equipment for both the M6 and M8 sub-grade motorways.

## **RTA Frog Ponds**

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

## **Easements and Affectations**

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

#### 5.2 SITE IDENTIFICATION

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

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

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

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

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



#### 5.3 SITE ZONING AND LAND USE

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

#### 5.4 TOPOGRAPHY

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

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

#### 5.5 GEOLOGY

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

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

## 5.6 HYDROGEOLOGY

## 5.6.1 Regional Hydrogeology

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

CES Document Reference: CES130608-BP-AR

Page 34 of 100



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

## 5.6.2 Local Hydrogeology

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

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

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

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

## 5.7 ACID SULFATE SOIL RISK

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

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

CES Document Reference: CES130608-BP-AR

Page 35 of 100



## **6** SITE HISTORY

#### 6.1 HISTORICAL AERIAL PHOTOGRAPHS

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

The findings of air photo investigations are as presented below:

## 1930 (DLWC)

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

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

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

#### 1943 (DMR)

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

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

CES Document Reference: CES130608-BP-AR

Page 36 of 100



## 1951 (DLWC)

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

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

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

# 1961 (DLWC)

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

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

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

### 1970 (DLWC)

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

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

## 1978 (DLWC)

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

CES Document Reference: CES130608-BP-AR

Page 37 of 100



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

## 1986 (DLWC)

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

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

## 1999 (DLWC)

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

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

### 1999- 2022 (Nearmap)

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

#### 6.2 SUMMARY

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

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



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

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



### 7 SITE CONDITION AND SURROUNDING ENVIRONMENT

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

### 7.1 CURRENT OWNER, OCCUPIER AND OPERATIONS

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

#### 7.2 SITE DESCRIPTION

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

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

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

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

### 7.3 TANKS AND ASSOCIATED SERVICES

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

CES Document Reference: CES130608-BP-AR Page 40 of 100



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

### 7.4 SURROUNDING LAND-USE

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

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

### 7.5 NSW EPA CONTAMINATED LAND RECORD

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

### 7.6 INTEGRITY ASSESSMENT

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

CES Document Reference: CES130608-BP-AR

Page 41 of 100



## 8 CONCEPTUAL MODEL OF POTENTIAL CONTAMINATION

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

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

### 8.1 POTENTIAL SOURCES OF CONTAMINATION AND ASSOCIATED COPC

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

### 8.1.1 Underground Storage Tanks

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

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

### 8.1.2 Use of Dredged Material as Fill

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

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

### 8.1.3 Market Gardens

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

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

CES Document Reference: CES130608-BP-AR Page 42 of 100



### 8.1.4 Reclaimed Land

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

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

#### 8.1.5 Landfill Activities

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

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

#### 8.1.6 Golf Course Activities

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

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

## 8.1.7 Presence of Unlined Landfills on Adjacent Blocks

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

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

### 8.1.8 Summary of Chemicals of Potential Concern

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

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



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

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

### 8.2 CHARACTERISTICS OF CHEMICALS OF POTENTIAL CONCERN

### 8.2.1 Metals and Metalloids

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

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

#### 8.2.2 Nutrients

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

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

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

CES Document Reference: CES130608-BP-AR Page 44 of 100



## 8.2.3 Total Petroleum Hydrocarbons (TPHs) and BTEX Compounds

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

The BTEX compounds are volatile and less dense than water and as such will behave in a similar fashion to the TPH C<sub>6</sub>-C<sub>9</sub> fraction.

### 8.2.4 Polycyclic Aromatic Hydrocarbons (PAHs)

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

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

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

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

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

### 8.2.6 Polychlorinated Biphenyls (PCBs)

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

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

CES Document Reference: CES130608-BP-AR

Page 45 of 100



### 8.2.7 Volatile Organic Compounds (VOCs)

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

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

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

## 8.2.8 Phenoxyacetic Acid Herbicides

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

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

### 8.2.9 Phenols

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

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

## 8.2.10 Asbestos Containing Materials (ACMs)

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

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

CES Document Reference: CES130608-BP-AR

Page 46 of 100



### 8.3 SITE CONDITIONS

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

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

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

### 8.4 APPROACH OF INVESTIGATION

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

CES Document Reference: CES130608-BP-AR Page 47 of 100



# 9 SAMPLING, ANALYSIS AND QUALITY PLAN

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

#### Area A

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

#### Area B

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

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

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

- PID screening of soil samples could only be undertaken at a limited number of locations due to the small volume of sample recovered;
- In addition to the programmed sample locations, fourteen additional boreholes were drilled in the vicinity Underground Storage Tanks (UST) in the Club House car park which were brought to field scientist attention once field operations had commenced, four of which were converted into groundwater monitoring wells;
- Due to piping associated with the USTs, underground electrical and water services surrounding the maintenance shed, boreholes in the vicinity of the USTs were extended to 1.2mBGL using vacuum excavation techniques with samples collected from a hand auger. ABH2107, located within the refuelling section of the maintenance shed, was bored using a hand auger and was unable to be extended to below the USTs using a drill rig due to access restrictions;
- Due to insufficient groundwater recovery from monitoring well ABH2100, laboratory analysis was only undertaken for determination of TPH C<sub>6</sub>-C<sub>9</sub> and BTEX;
- Groundwater monitoring wells encompassing the USTs (ABH2105, ABH202 and ABH210) were analysed for lead, TPH and BTEX rather than the entire analytical suite;

CES Document Reference: CES130608-BP-AR

Page 48 of 100



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

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

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

### 9.1 SOIL SAMPLING PROGRAMME

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

Soil sampling and logging were carried out by Mr Luke Jenkins and Ms Kelly Weir, experienced Environmental Scientists, who also supervised installation of the groundwater and landfill gas

CES Document Reference: CES130608-BP-AR

Page 49 of 100



monitoring wells. Mr Jenkins or Ms Weir logged the encountered sub-surface lithology and nominated the samples for laboratory chemical analysis. Mr Jenkins carried out the groundwater sampling and gas sampling was carried out by Mr Alex Greenwell under the supervision of Mr Jenkins.

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

## 9.1.1 Sampling numbers, pattern and location

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

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

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

## 9.1.2 Sampling Depths

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

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

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

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

CES Document Reference: CES130608-BP-AR Page 50 of 100



### 9.1.3 Sampling Methodology

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

Sampling procedures for soil are summarised below:

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

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

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

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

The concentration and type of VOCs present in soil samples;

CES Document Reference: CES130608-BP-AR

Page 51 of 100



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

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

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

### 9.1.4 Decontamination Procedures

With the exception of samples collected from the hand auger at BBH405, each soil sample was collected directly into the sample jar by hand from the disposable push-tube liner. The method used

CES Document Reference: CES130608-BP-AR

Page 52 of 100



minimises sample disturbance and no decontamination of sampling equipment is required. The hand auger was decontaminated only used at one location and thus decontamination between sampling locations was not required.

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

## 9.1.5 Sample Containers, Method of Sample Storage and Handling

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

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

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

### 9.1.6 Documentation

While on site, the supervising scientist noted:

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

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

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

Site identification;



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

## 9.1.7 Sample Logging

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

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

### 9.2 GROUNDWATER SAMPLING PROGRAMME

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

### 9.2.1 Well Construction

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

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

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

CES Document Reference: CES130608-BP-AR Page 54 of 100



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

### 9.2.2 Locations and Number of Sampling Points

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

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

## 9.2.3 Sampling Methodology

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

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

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

Field data sheets are included in Appendix 4.

### 9.2.4 Decontamination Procedures

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

CES Document Reference: CES130608-BP-AR

Page 55 of 100



### 9.2.5 Method of Sample Storage and Handling

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

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

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

#### 9.2.6 Documentation

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

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

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

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



### 9.3 SUB-SURFACE GAS MONITORING

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

#### 9.3.1 Well Construction

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

### 9.3.2 Locations and Number of Sampling Points

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

### 9.3.3 Sampling Methodology

## 9.3.3.1 Gas pressure, flow and landfill gas concentrations

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

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

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

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



- 3. The air volume in the gas monitoring well was estimated;
- 4. The formation pressure (gas pressure in well before venting) was measured using a series of pressure gauges connected to the gas-tight well cap using the snap-lock fitting;
- 5. The initial concentrations in the well were measured with a calibrated GA45 Landfill Gas Analyser. The instrument was calibrated using methane (0%, 2.5% and 50%), oxygen (0% and 17%) and carbon dioxide (10%) in accordance with manufacturers instructions by CES personnel;
- 6. The gas was vented from the well. The response of the well to venting was noted (*eg*, no response; brief initial pulse (typically 1-2 s), long pulse (>5 s) or continuous gas emission);
- 7. The flow rate of gas exiting the well was measured with a flow rate meter (where required); and
- 8. When the flow rate was observed to be continuous, flow rates and methane concentrations were measured at regular intervals.

The procedure for purging gas wells is summarised as follows:

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

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

### 9.3.3.2 Sampling for VOC analysis

One gas well (BLG402) was sampled for the analysis of Volatile Organic Compounds (VOC). Subsurface gas samples analysed for VOCs were collected directly via the monitoring port into a Tedlar bag contained in an airtight compartment, which had been evacuated to generate negative

CES Document Reference: CES130608-BP-AR Page 58 of 100



pressure. The sample tubing connecting the gas wells to the bag inlet valve was purged with gas from the wellbeing sampled prior to carrying out the sampling.

#### 9.4 ANALYTICAL PROGRAMME

### 9.4.1 Soil

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

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

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

CES Document Reference: CES130608-BP-AR

Page 59 of 100



Page 60 of 100

#### 9.4.2 Groundwater

### 9.4.2.1 Field Parameters

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

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

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

### 9.4.2.2 *Laboratory Testing*

The analytes selected for testing were determined based on the results of the CES (2005) investigation and in general accordance with the SAQPs. Due to insufficient groundwater recovery from monitoring well ABH2100, laboratory analysis was only undertaken for determination of TPH C<sub>6</sub>-C<sub>9</sub> and BTEX. Groundwater monitoring wells encompassing the USTs (ABH2105, ABH202 and ABH210) were analysed for lead, TPH and BTEX rather than the entire analytical suite. Due to insufficient groundwater recovery from monitoring well ABH2110, field measurements were unable to be taken. With exceptions mentioned, CES analysed all groundwater samples for:

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



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

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

#### 9.4.3 Landfill Gas

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

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

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

## 9.5 ANALYTICAL METHODS

### 9.5.1 Soil

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

#### 9.5.2 Groundwater

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

CES Document Reference: CES130608-BP-AR Page 61 of 100



### 10 SITE ASSESSMENT CRITERIA

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

### 10.1 SOIL CONTAMINATION

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

#### 10.1.1 Aesthetics

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

### 10.1.2 Ecologically based Soil Site Assessment Criteria

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

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

### 10.1.3 Health-based Soil Site Assessment Criteria

To address potential health impacts at the site, CES compared the analytical testing results against a set of Health-based Soil Investigation Levels (HILs) and Health-based Soil Screening Level (HSL), as published in NEPM (2013), appropriate for the proposed land-use. That is, the HIL and HSL were

CES Document Reference: CES130608-BP-AR

Page 62 of 100



set at a level that provides confidence that contaminant concentrations below the HIL and HSL will not adversely affect human or ecological health.

CES adopted the following HIL criteria:

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

Additionally, CES adopted the following HSL criteria:

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

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

### 10.1.4 Asbestos in Soil Site Assessment Criteria

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

### 10.1.5 Acid Sulfate Soils

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

### 10.1.6 Soil Salinity

In order to establish the soil salinity class as per *Site Investigations for Urban Salinity* published by the Land and Water Conservation (2002), the electrical conductivity results were converted into extract electrical conductivity (EC<sub>E</sub>) reported in dS m<sup>-1</sup>. The EC<sub>E</sub> was calculated using a multiplication factor based on the soil texture. The relevant multiplication factors are 14 for sandy loam, 17 for sand,

CES Document Reference: CES130608-BP-AR Page 63 of 100



10 for loam and 8.5 for light clay. Soil is classified as non-saline if the EC<sub>E</sub> is less than 2 dS m<sup>-1</sup> and highly-saline if the EC<sub>E</sub> is greater than 16 dS m<sup>-1</sup>. The relevant guidelines are presented in Appendix 7.

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

- (A) high permeability soils below groundwater; and
- (B) low permeability soils and all soils above groundwater.

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

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

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

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

### 10.2 GROUNDWATER

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



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

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

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

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

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

## 10.3 GROUND GAS

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

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

CES Document Reference: CES130608-BP-AR Page 65 of 100



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

### 10.4 VOLATILE ORGANIC COMPOUNDS IN LANDFILL GAS

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



## 11 QA/QC DATA EVALUATION

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

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

# 11.1 SOIL QA/QC ASSESSMENT

### 11.1.1 Sample Preservation and Sample Holding Times

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

# 11.1.2 Field QA/QC Assessment

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

### 11.1.2.1 Blind Replicates

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

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

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

CES Document Reference: CES130608-BP-AR Page 67 of 100



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

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

## 11.1.2.2 Split Samples

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

- PAAH 4.8%; and
- Nutrients 3.8%.

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

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

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

CES Document Reference: CES130608-BP-AR Page 68 of 100



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

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

### 11.1.2.3 Rinsate Blank

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

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

## 11.1.2.4 Trip Blank

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

All trip blanks conformed to the Data Acceptance Criteria.

## 11.1.2.5 Laboratory-Prepared Trip Spike

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

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

Envirolab report 19177

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

Envirolab report 19257



Page 70 of 100

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

## Envirolab report 19325

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

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

### 11.1.2.6 Field Instrument Calibration

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

### 11.1.3 Laboratory QA/QC Assessment

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

## **ALS Laboratory Reports**

ES0805939

ES0806132

ES0806167

ES0807086

ES0807714

ES0806641

ES0806463

ES0806723

ES0806313

ES0806519

ES0806928

ES808708

ES1703949



## **Envirolab Laboratory Reports**

E19177

E18941

E18941-A

E19035

E19035-A

E19069

E19072

E19222

E19257

E19282

E19325

E19429

E19432

E19432-A

E19834

E20315

E162123

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

### 11.1.3.1 Laboratory Duplicates

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

# 11.1.3.2 Laboratory Control Samples

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

### 11.1.3.3 *Surrogates*

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

CES Document Reference: CES130608-BP-AR Page 71 of 100



### 11.1.3.4 Matrix Spikes

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

#### 11.1.3.5 Method Blanks

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

# 11.2 GROUNDWATER QA/QC ASSESSMENT

## 11.2.1 Sample Preservation and Sample Holding Times

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

### 11.2.2 Field QA/QC Assessment

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

## 11.2.2.1 Blind Replicate

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

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

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

# 11.2.2.2 Split Sample

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

CES Document Reference: CES130608-BP-AR Page 72 of 100



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

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

### 11.2.2.3 *Trip Blanks*

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

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

## 11.2.2.4 Laboratory-Prepared Trip Spike

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

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

#### 11.2.2.5 Field Instrument Calibration

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

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

# 11.3 LABORATORY QA/QC ASSESSMENT

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

### **ALS Laboratory Reports**

- ES0807714; and
- ES1703949



## **Envirolab Laboratory Reports**

- **1**9257;
- **1**9834;
- 20315; and
- **•** 162123.

### 11.3.1 Laboratory Duplicates

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

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

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

### 11.3.2 Laboratory Control Samples

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

- **19834**;
- ES0807714; and
- **1**62123.

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

#### 11.3.3 Surrogates

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

- **1**9257;
- **2**0315;
- ES1703949; and
- **•** 162123.



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

### 11.3.4 Matrix Spikes

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

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

### 11.3.5 Method Blanks

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

#### 11.3.6 Sample Holding Times

All samples were extracted and analysed within the specified holding.

#### 11.3.7 Sample Condition

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

### 11.4 LANDFILL GAS QA/QC ASSESSMENT

#### 11.4.1 Field Instrument Calibration

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

### 11.5 LABORATORY QA/QC ASSESSMENT

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

CES Document Reference: CES130608-BP-AR Page 75 of 100



## 11.5.1 Laboratory Control Samples

All laboratory control samples conformed to the Data Acceptance Criteria.

### 11.5.2 Surrogates

All laboratory surrogates conformed to the Data Acceptance Criteria.

## 11.5.3 Matrix Spikes

All matrix spike data conformed to the Data Acceptance Criteria.

#### 11.5.4 Method Blanks

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

#### 11.6 DATA USEABILITY ASSESSMENT

## 11.6.1 Assessment of Field QA/QC Data

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

## 11.6.2 Assessment of Laboratory QA/QC Data

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

#### 11.6.3 Overall Data Assessment

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

#### 11.6.3.1 Precision

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

#### 11.6.3.2 *Accuracy*

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

CES Document Reference: CES130608-BP-AR Page 76 of 100



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

## 11.6.3.3 Representativeness

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

### 11.6.3.4 Completeness

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

### 11.6.3.5 Comparability

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

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

CES Document Reference: CES130608-BP-AR

Page 77 of 100



### 12 RESULTS

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

#### 12.1 SITE STRATIGRAPHY AND AESTHETICS

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

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

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

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

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

# 12.2 SOIL PID ANALYSIS

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

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

CES Document Reference: CES130608-BP-AR Page 78 of 100



# 12.3 SOIL ANALYTICAL RESULTS

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

#### 12.3.1 Metals and Metalloids

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

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

#### Fill Material

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

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

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

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

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

CES Document Reference: CES130608-BP-AR

Page 79 of 100



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

#### Natural Soil

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

### 12.3.2 TPH and BTEX

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

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

#### Fill Material

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

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

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

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

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

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

■ 150508-341-KW, toluene, 390 mg/kg<sup>-1</sup> at a depth of 1.0-1.1mBGL in ABH2107;

CES Document Reference: CES130608-BP-AR

Page 80 of 100



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

#### Natural Soil

Concentrations of TPH C<sub>6</sub>-C<sub>9</sub> and C<sub>10</sub>-C<sub>36</sub> and BTEX compounds were not detected at levels greater than the laboratory reporting limit in the samples of natural soil.

# 12.3.3 Polycyclic Aromatic Hydrocarbons (PAHs)

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

#### Fill Material

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

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

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

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

The ecological-based SAC for Benzo(a)Pyrene of 0.7 mg kg<sup>-1</sup> for ESL commercial / industrial landuse was exceeded in the following samples:

■ 150508-345-KW, 0.8 mg/kg<sup>-1</sup> at a depth of 1.1-1.2 mBGL in ABH2108.

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

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

CES Document Reference: CES130608-BP-AR

Page 81 of 100



■ 300408-92-KW, 8.8 mg/kg<sup>-1</sup> at a depth of 0.2-0.3 mBGL in BBH453.

#### Natural Soil

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

## 12.3.4 Organochlorine Pesticides (OCPs)

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

#### Fill Material

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

#### Natural Soil

No samples of natural soil were submitted for OCP analysis.

# 12.3.5 Organophosphate Pesticides (OPPs)

The concentrations of OPPs in samples of fill and soil are presented in Table 15.

A total of 82 samples were submitted for OCP analysis including QC samples.

### Fill Material

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

#### Natural Soil

No samples of natural soil were submitted for OPP analysis.

## 12.3.6 Polychlorinated Biphenyls (PCBs)

The concentrations of PCBs in samples of fill and soil are presented in Table 16.

A total of 84 samples were submitted for PCB analysis including QC samples.

#### Fill Material

PCBs were not detected at concentrations greater than the laboratory reporting limit of 0.1 mg kg<sup>-1</sup> in the samples submitted for analysis and as such were less than SAC.

### Natural Soil

No samples of natural soil were submitted for PCB analysis.

CES Document Reference: CES130608-BP-AR

Page 82 of 100



#### **12.3.7 Phenols**

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

#### Fill Material

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

#### Natural Soil

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

# 12.3.8 Nutrients and Salinity

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

Concentrations of the nutrients tested were as follows:

- Ammonia concentrations ranged from below the laboratory detection limit in sample 090508-208-KW at 0.1-0.2mBGL in ABH206, in sample 130508-304-KW at 0.1-0.2mBGL in ABH272, in sample 300408-106-KW at 0.1-0.3 mBGL in BBH430, in sample 010508-122-KW at 0.1-0.4 mBGL in BBH458 to 19 mg/kg<sup>-1</sup> in sample 070508-93-KW collected from a depth of 0-0.15 in ABH233;
- Total Nitrogen concentrations in those samples tested ranged from 140 mg/kg<sup>-1</sup> in sample 060508-16-KW (Split Field Duplicate of 060508-14-KW) collected from a depth of 0.5-0.8 mBGL in ABH229 to 17 000 mg/kg<sup>-1</sup> in sample 120508-261-KW collected from a depth of 0-0.2mBGL in ABH296;
- Nitrite concentrations were less than the detection limit of the analytical method used in thirty five of the samples but where detected ranged from 0.1 mg/kg<sup>-1</sup> in samples 280408-01-KW collected from 0.2-0.4 mBGL in BBH401 and 290408-74-KW collected from 0.1-0.2 mBGL in BBH437 to 1.8 mg/kg<sup>-1</sup> in sample 070508-93-KW collected at 0-0.15mBGL from ABH233;
- Nitrate concentrations were less than the detection limit of the analytical method used in eighteen of the samples but where detected ranged from 0.6 mg/kg<sup>-1</sup> in sample 060508-14-KW collected from 0.5-0.8 mBGL in ABH229 and 020508-187-KW collected from 0.15-0.35

CES Document Reference: CES130608-BP-AR Page 83 of 100



mBGL in BMW401 to 6.2 mg/kg<sup>-1</sup> in sample 150508-384-KW collected at 0-0.15 mBGL in ABH284;

- Total Phosphorous concentrations ranged from 19 mg/kg<sup>-1</sup> in sample 060508-15-KW collected from 0.5-0.8 mBGL in ABH229 to 2800 mg/kg<sup>-1</sup> in sample 290408-46-KW collected from 0.1-0.2 mBGL in BBH406;
- pH concentrations ranged from 4.8 in sample 120508-261-KW collected from a depth of 0-0.2 mBGL in ABH296 to 9.1 in sample 290408-48-KW collected from 0.0-0.2 mBGL in BBH405;
- Electrical conductivity ranged from 51 us/cm in sample 300408-102-KW (Field Blind Replicate Sample of 300408-101-KW) collected from 0.1-0.4 mBGL in BBH442 and 010508-136-KW collected from 0.1-0.4 mBGL in BBH445 to 3100 us/cm in sample 300408-99-KW collected at 0.4-0.5 mBGL in BBH448;
- Salinity concentrations ranged from 3.2 mg/kg<sup>-1</sup> in sample 300408-99-KW collected from 0.4-0.5 mBGL in BBH448 to 370 mg/kg<sup>-1</sup> in sample 070508-76-KW collected at 0-0.1mBGL in ABH222;
- Resistivity ranged from 17 ohm m in sample 070508-76-KW collected at 0-0.1mBGL in ABH222 to 2000 ohm m in sample 300408-99-KW collected from 0.4-0.5 mBGL in BBH448;
- Chloride concentrations were less than the detection limit of the analytical method used in 21 of the samples but where detected ranged from 100 mg/kg<sup>-1</sup> in samples 060508-16-KW (Split Field Duplicate of 060508-14-KW) collected from 0.5-0.8mBGL in ABH229 to 820 mg/kg<sup>-1</sup> in sample 070508-76-KW collected at 0-0.1mBGL in ABH222; and
- Sulphate concentrations were less than the detection limit of the analytical method used in seventeen of the samples but where detected ranged from 29 mg/kg<sup>-1</sup> in samples 080508-158-KW collected from 0.1-0.25mBGL in ABH221 to 6700 mg/kg<sup>-1</sup> in sample 300408-99-KW collected at 0.4-0.5 mBGL in BBH448.

### 12.3.9 Volatile Organic Compounds (VOCs)

The concentrations of VOCs in samples of fill and soil are presented in Table 19.

A total of 68 samples were submitted for VOC analysis including QC samples.

Although concentrations were detected in ABH2105 (150508-333-KW, 1.4-1.5mBGL) and ABH2107 (150508-341-KW, 1.0-1.1mBGL), all VOC concentrations were below the SAC.

CES Document Reference: CES130608-BP-AR

Page 84 of 100



#### Fill Material

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

#### Natural Soil

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

### 12.3.10 Phenoxyacetic Acid Herbicides (PAAH)

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

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

### **12.3.11** Asbestos

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

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

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

### 12.3.12 Acid Sulfate Soils (SPOCAS)

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

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

CES Document Reference: CES130608-BP-AR

Page 85 of 100



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

### **12.3.13 Hotspots**

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

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

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

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

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

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

■ 150508-341-KW, xylenes, 630 mg/kg<sup>-1</sup> at a depth of 1.0-1.1mBGL in ABH2107.

Lead hotspots were present within fill in the following samples:

- 300408-107-KW, lead 2100 mg kg<sup>-1</sup> at a depth of 2.4-2.6m in BBH430; and
- 010508-159-KW, lead 4400 mg kg<sup>-1</sup> at a depth of 2.4-2.5m in BBH433.

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

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

CES Document Reference: CES130608-BP-AR

Page 86 of 100



Zinc hotspots were present within fill in the following samples:

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

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

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

### 12.3.14 95 % Upper Confidence Limit (UCL) Calculations

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

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

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

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

CES Document Reference: CES130608-BP-AR Page 87 of 100



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

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

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

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

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

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

#### 12.4 GROUNDWATER

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

CES Document Reference: CES130608-BP-AR

Page 88 of 100



#### 12.4.1 Field Parameters

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

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

Groundwater present in the wells was characterised by:

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

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

### 12.4.2 Analytical Data

# 12.4.2.1 *Major Ions*

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

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

#### **Cations**

Calcium concentrations ranged from 76 mg L<sup>-1</sup> in groundwater sampled from AMW201 to 680 mg L<sup>-1</sup> in groundwater sampled from BH304.

CES Document Reference: CES130608-BP-AR

Page 89 of 100



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

Sodium concentrations ranged from 36 mg L<sup>-1</sup> in groundwater sampled from BMW401 to 7300 mg L<sup>-1</sup> in groundwater sampled from AMW203.

Potassium concentrations ranged from  $8.8 \text{ mg L}^{-1}$  in groundwater sampled from ABH2105 to 240 mg L<sup>-1</sup> in groundwater sampled from AMW203.

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

#### Anions

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

### Total Dissolved Solids (TDS)

TDS ranged from  $660 \text{ mg L}^{-1}$  in the sample collected from BMW401 to  $16\ 000\ \text{mg L}^{-1}$  in the sample collected from AMW207.

#### 12.4.2.2 Dissolved Metals and Metalloids

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

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

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

CES Document Reference: CES130608-BP-AR Page 90 of 100



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

#### 12.4.2.3 **TPH** and **BTEX**

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

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

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

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

#### 12.4.2.4 Polycyclic Aromatic Hydrocarbons (PAHs)

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

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

#### 12.4.2.5 *Nutrients*

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

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

Total phosphorus concentrations detected ranged from below laboratory detection limits in AMW202 to 2.7 mg L<sup>-1</sup> in groundwater sampled from AMW201.

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

CES Document Reference: CES130608-BP-AR Page 91 of 100



## 12.4.2.6 Volatile Organic Compounds (VOCs)

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

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

### 12.4.2.7 Organochlorine Pesticides (OCPs)

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

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

## 12.4.2.8 Organophosphate Pesticides (OPPs)

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

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

### 12.4.2.9 Polychlorinated Biphenyls (PCBs)

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

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

### 12.4.3 Sub-Surface Gas Monitoring

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

Methane concentrations were less than 0.3% in all of the landfill gas wells, both before and after purging. Concentrations of carbon dioxide were elevated in ALG204 (10.2%) compared to the other

CES Document Reference: CES130608-BP-AR Page 92 of 100



wells. The lowest oxygen levels were observed in ALG204 (4.0%), with reduced oxygen levels being present in ALG205. No gas formation pressure was observed in any of the wells.

#### 12.5 VOLATILE ORGANIC COMPOUNDS

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

### 13 DISCUSSION AND SITE CHARACTERISATION

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

#### 13.1 SOIL

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

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

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

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

CES Document Reference: CES130608-BP-AR

Page 93 of 100



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

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

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

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

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

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

Asbestos fibres were not found in near-surface fill during drilling works, however fragments of fibrous cement sheeting were found in surface fill in a limited number of locations across the site

CES Document Reference: CES130608-BP-AR

Page 94 of 100



within fill on unsealed surface areas. Remediation or management of the ACM fragments is required to ensure protection of human health. Given the lack of asbestos fibres in soil samples and the presence of only cement bonded fragments in limited areas of the site and the low impact traffic on the paths where cement sheet fragments may be present the presence of the fragments is considered to represent a low risk to the users of the site and no immediate remediation of the site is recommended. As a precaution, until the remediation of the fragments is addressed as part of the redevelopment of the site, management of the areas should be considered when asbestos fragments are found during ongoing use of the site by noting the location and either isolating area from traffic and/or covering it with a layer of clean fill. To ensure clean-up of the fragments is ultimately achieved a written record of the location of impacts should be maintained and provided to the remediation contractor or developer's contractor prior to development commencing.

#### 13.2 GROUNDWATER

Sixteen groundwater wells were installed along the boundary of the site and within the site to assess whether contamination resulting from the presence of landfills to the south was migrating onto the site, with one well being placed in the centre. Four groundwater wells were installed surrounding USTs located in KGC Club House car park. Of the suite of substances analysed in the groundwater samples, copper, lead, nickel, zinc and ammonia were detected at concentrations that exceeded the SAC established for groundwater, while TPH C<sub>6</sub>-C<sub>14</sub> and ethylbenzene concentrations above the laboratory detection limit were detected around the USTs adjacent to the maintenance shed.

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

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

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

Given the fact that the Cooks River is free flowing, is not a stagnant water body and that it is highly degraded due to industrial pollution and stormwater run-off, it is therefore not a sensitive receptor. Consequently, CES consider the elevated metal concentrations and ammonia to have low potential to



adversely impact the receiving waters. CES consider the potential risk to human health and the environment to not be significant or warrant active remediation.

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

## 13.3 LANDFILL GAS

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

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

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

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

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

CES Document Reference: CES130608-BP-AR Page 96 of 100



# 14 CONCLUSIONS AND RECOMMENDATIONS

#### 14.1 CONCLUSIONS

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

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

- o 290,000m<sup>2</sup> of multi-level logistics and warehousing;
- o 20,000m<sup>2</sup> for hotel and visitor accommodation uses;
- o 22.350m<sup>2</sup> for commercial office uses:
- o 10,900m<sup>2</sup> of retail uses.

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

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

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

### 14.2 RECOMMENDATIONS

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

CES Document Reference: CES130608-BP-AR

Page 97 of 100



# 15 LIMITATIONS OF THIS REPORT

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

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

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

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

CES Document Reference: CES130608-BP-AR

Page 98 of 100



#### 16 REFERENCES

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CES Document Reference: CES130608-BP-AR Page 99 of 100



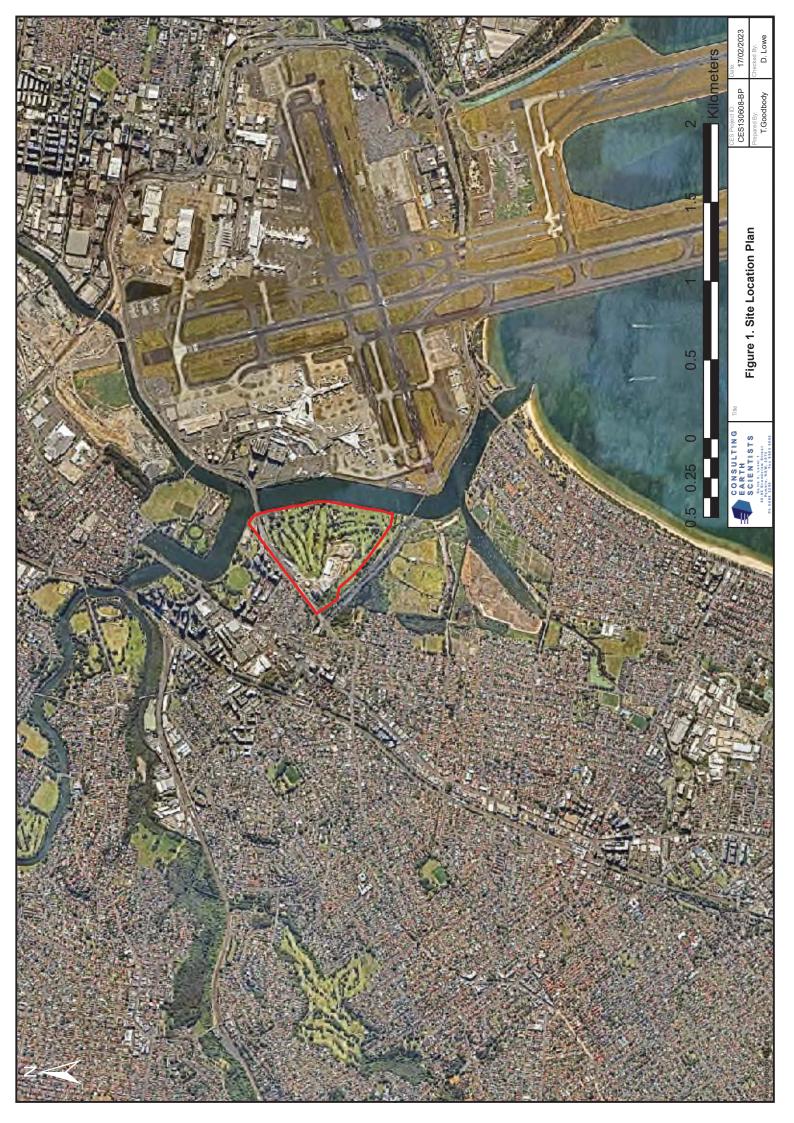
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CES Document Reference: CES130608-BP-AR Page 100 of 100



**Figures** 













**Tables** 

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

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

	Table 1 (continued): Summary	y of Borehole Information		
Borehole ID	Sampling Rationale	Date Drilled	Depth m	Well Screen Interval m
BBH403	Site Coverage	28 Apr 2008	2.8	N/A
BBH404	Site Coverage	28 Apr 2008	2.8	N/A
BBH405	Site Coverage	28 Apr 2008	0.5	N/A
BBH406	Site Coverage	29 Apr 2008	2.8	N/A
BBH407	Site Coverage	29 Apr 2008	2.8	N/A
BBH408	Site Coverage	29 Apr 2008	2.8	N/A
BBH409	Site Coverage	29 Apr 2008	2.8	N/A
BBH410	Site Coverage	29 Apr 2008	2.8	N/A
BBH411	Site Coverage	29 Apr 2008	2.8	N/A
BBH412	Site Coverage	29 Apr 2008	2.8	N/A
BBH413	Site Coverage	29 Apr 2008	2.8	N/A
BBH414	Site Coverage	02 May 2008	2.8	N/A
BBH415	Site Coverage	30 Apr 2008	2.8	N/A
BBH417	Site Coverage	29 Apr 2008	2.8	N/A
BBH418	Site Coverage	29 Apr 2008	2.8	N/A
BBH419	Site Coverage	29 Apr 2008	2.8	N/A
BBH420	Site Coverage	30 Apr 2008	2.8	N/A
BBH421	Site Coverage	30 Apr 2008	2.8	N/A
BBH422	Site Coverage	30 Apr 2008	2.8	N/A
BBH423	Site Coverage	30 Apr 2008	2.8	N/A
BBH425	Site Coverage	29 Apr 2008	2.8	N/A
BBH426	Site Coverage	29 Apr 2008	2.8	N/A
BBH427	Site Coverage	29 Apr 2008	2.8	N/A
BBH428	Site Coverage	01 May 2008	2.8	N/A
BBH429	Site Coverage	01 May 2008	2.8	N/A
BBH430	Site Coverage	30 Apr 2008	2.8	N/A
BBH431	Site Coverage	30 Apr 2008	2.8	N/A
BBH432	Site Coverage	01 May 2008	2.8	N/A
BBH433	Site Coverage	01 May 2008	2.8	N/A
BBH434	Site Coverage	01 May 2008	2.8	N/A
BBH435	Site Coverage	01 May 2008	2.8	N/A
BBH436	Site Coverage	30 Apr 2008	2.8	N/A
BBH438	Site Coverage	30 Apr 2008	2.8	N/A
BBH439	Site Coverage	30 Apr 2008	2.8	N/A
BBH440	Site Coverage	30 Apr 2008	2.8	N/A
BBH441	Site Coverage	30 Apr 2008	2.8	N/A
BBH442	Site Coverage	30 Apr 2008	2.8	N/A
BBH443	Site Coverage	30 Apr 2008	2.8	N/A
BBH445	Site Coverage	01 May 2008	2.8	N/A
BBH446	Site Coverage	01 May 2008	2.8	N/A
BBH447	Site Coverage	01 May 2008	2.8	N/A
BBH448	Site Coverage	01 May 2008	2.8	N/A
BBH450	Site Coverage	01 May 2008	2.8	N/A
BBH451	Site Coverage	01 May 2008	2.8	N/A
BBH452	Site Coverage	01 May 2008	2.8	N/A
BBH453	Site Coverage	01 May 2008	2.8	N/A
BBH455	Site Coverage	01 May 2008	2.8	N/A
BBH456	Site Coverage	01 May 2008	2.8	N/A
BBH457	Site Coverage	30 Apr 2008	2.8	N/A
BBH458	Site Coverage	01 May 2008	4.2	N/A
BBH460	Site Coverage	01 May 2008	2.8	N/A
BLG404	Site Coverage	02 May 2008	2.8	0.3-1.8
BMW401	Site Coverage	02 May 2008	4.5	3.0-4.5
BMW402	Site Coverage Site Coverage	02 May 2008	2.8	1.1-2.6
BMW404	Site Coverage	02 May 2008	3.5	2.0-3.5
211111107	Site Coverage	Installed by Golders	3.3	2.0-3.3
BBH304	Located towards eastern boundary of site	(2001)	5.2	0.8-5.2

ABH201 ABH201 ABH201 ABH202	0.02	0.90508-01-WW	05 May 2008 05 May 2008 05 May 2008	FILL	A STATE OF THE PROPERTY OF THE	0 0
ABH201 ABH202	40.00	USDSUS-US-KW	05 May 2008	QNVS	Send, fine grained, pode grey, enoist, denne. Send, fine grained, bown, dry, boson, gravels and noelden, choloutes, Mbiste at 04 m.	>
	26-2.8	W4-10-100-00	09 May 2008	FILL	Shared Sh	3.8
ABH302 ABH302	0.45-0.55	WX-59-1-80-00-0	09 May 2008 09 May 2008	FILL	Sinto, fine granted, bown, dry, shous, gravels and noelike, edouties. Most of the m. Silv sand, fine grained, bown, lore, most, soal, trace cler, sanddone, granvlls, roots.	3.8
ABH302 ABH302	13-1.4	00508-200-KW 00508-202-KW	09 May 2008 09 May 2008	SAND	Sand, fine to median garined, grychown, wet at [3 m, hydrocarbon edour at [3] m. Strong hydrocarbon edour at 20 m. Sand, fine to median gained, grychown, wet at [3 m, hydrocarbon edour at [3 m, Srong hydrocarbon edour at 20 m.	8.8
ABH302 ABH302	38.4	WX-105-80502 150508-602-9W	09 May 2008 15 May 2008	SAND	fine grained, grey, wee, dense, siley, medium grained, brow, wet, hoose,	6.1
ABH203	0.01	070508-59-KW 070508-60-KW	07 May 2008 07 May 2008	FILL	Grass over silly sand topooli, fine grained, dark brown, moist, dense, roothes. Sand, fine to medium grained, pole groy, moist, dense.	0 0
ABH203 ABH204	26-2.8	0.00508-61-KW 0.00508-55-KW	07 May 2008 07 May 2008	SAND	Sand, fine to madium grained, pade grey, wee, dense, sight IRS odour. Silly sand, fine grained, dark brown/grey, mosk, dense, incustone gravel at 0.2 m, reoderisthroughout.	0.4
ABH204 ABH204	010.4	070508-56-KW Field Birth Repiscus Semple of 070508-55-KW 070508-57-KW Split Field Daplicane of 070508-55-KW	07 May 2008 07 May 2008	FILL	Silly smb, fine grained, dark benembyery, mosk, dense, inonsone grand at 0.2 m, roodke throughout. Silly smb, fine grained, dark benembyery, mosk, dense, inonsone grand at 0.2 m, roodke throughout.	
ABH204 ABH205	134.5	070508-58-KW 060508-49-KW	07 May 2008 06 May 2008	SILTY SAND SAND	Silly sand, fare to medium gan ired, dark grey, moisto wee, deme. Sand, fase granted, dark bowmyney, moist, fam, silly.	9.4
ABH205	1.8-2	060508-50-KW 060508-51-KW	06 May 2008 06 May 2008	SILTY SAND SAND	Silty sand, fine to medium grained, dark becombibits, novie, dense. Sand, fine to me dum grained, paby grey, wet, dense, sky banses, RES edear.	1.1
ABH206 ABH206	01-0.2	090508-208-KW 090508-209-KW	09 May 2008 09 May 2008	SILTY SAND SILTY SAND	Silty sand, fine gmined, dark greybeown, dry, bose to mod dense. Silty sand, fine grained, dark grey, dry, hose, odenthos.	6
ABH206 ABH307	26-2.8	090508-210-KW 090508-207-KW	09 May 2008 09 May 2008	SAND	Stard, fine to median grained, wet from 1.4 m, loose, trace silly, 12/8 obour.  Road best gravels with crushed sandsone, dry and odouthou.	7.2
ABH203	0.003	070308-67-KW 070508-68-KW	07 May 2008 07 May 2008	FILL	0.2 m core bose. Caracover salty sand topsool, fine grainol, dark brown, moist to dry, rocks. Sand, fine grained, dark brown, cutaked sandsone (ounge), with chrosol fugurents.	0.4
ABH338	23.2.4	0.00000 - W.H.W.	07 May 2008	QNVS	Stard, fire to medium grapheness processes and the start of the start	0.5
ABH209	050.6	WALES OF STREET	07 May 2008	SILTY SAND	Silty smol, fine to modating gaineds, years, or of the most, soos, but and gained.  Silty smol, fine to modating gaineds, dark brown, myles, mode and dark design and soon of the control	. 870
ABHZIO	01-0.2	0.030s-04-KW 0.0050s-04-KW	05 May 2008	FILL	Sents, I retignated, post greytovers, is entrated from the sent sent sent sent sent sent sent sen	23.1
ABHZIO	114.2	000008-4-KW 000008-4-KW 000008-4-KW	05 May 2008	SAND	suly start, into time or can sugarate, pare room, most, attact, and any attact and any start, and any start, and any start and a	74
ABH2100 ABH2100	040.5	996593-171-KW 996593-172-KW	09 May 2008 09 May 2008	FILL	Sand, brown, fine grained, house, dry, garreal, beleek, bake meent, shoetlis and odourhess Sand, gary, fine grained, dry and odourhess	0.0
ABR2100	134.4	WA-081-1902060	09 May 2008 09 May 2008	FILL	Sand, yellowigany, fine grained, dry, koose and odouthess Saliy sand, dark groj, fine grained, hoose and dry	0.7
ABR2100 ABR2101	01-0.2	090508-179-KW 090508-174-KW	09 May 2008 09 May 2008	SANDSTONE	Omngo'ye how andstone, fine grained and dry Sand, boown, fine grained, boos, dry with gravels and blue mean's	1.4
ABR2101 ABR2101	0.4-0.5	09608-175-KW 096308-175-KW	09 May 2008 09 May 2008	FILL	Sand, gray, fine grained, house dry and odourhoss Sand, yellowbrown, fine grained, house, dry and odourhoss	1.3
ABR2101 ABR2101	141.5	090503-173-KW 090503-173-KW	09 May 2008 09 May 2008	FILL	Silt sand, date bown, fine grained, day, boss and odoarless Worthered sandsone, whiteverage, moterand odoarless	2.5
ABH2102 ABH2102	02-0.3	090508-185-KW	09 May 2008 09 May 2008	FILL	Clushed sankstone fill, pate brown aberrang, course grained, sandstone garrels, bosts and dey Sand, groybown, loose and dry with black garrels.	14
ABR2 102 ABR2 103	18.2	WA-181-80500 WA-181-80500	09 May 2008 09 May 2008	FILL	Sand, pask gary with silk knees and wet. Redusal on sandsone at 20mBGL. Sond, becom, fine grained, besse, dret to most with garvels and shells. Termson at 0.3m. Absid with centur mentles at 0.8m and gravels.	1.1
ABR2 103 ABR2 103	0.35-0.4	090,908-195-KW Field Blind Replicate Semple of 090,908-194-KW 090508-196-KW	09 May 2008 09 May 2008	FILL	South, become, fine grained, becas, dry to mosie with garrels and shells. Terms out at 0.3m. Absie with central motiles at 0.3m and gravels. South, become, first to mosie with garrels and shells. Terms out at 0.3m. Absie with central motiles at 0.3m and gravels.	4.8
ABH2103	134.4	00608-197-WW 00608-197-WW	09 May 2008 09 May 2008	FILL	brown, f	3.3
ABR2 103	26-2.8	090508-201-XW 090508-198-XW	09 May 2008 09 May 2008	FILL	Silly clayey sand, brown, or f and saturated with several she lik. Sand, brown, for on medium arained, boson and most with arrecis	3.6
ABB2104	050.6	090508-334-KW	09 May 2008	FILL	Sand, yellow, fine grained and odouthess. Grading to grejyellow, fine to medium grained and wet Sand yollow, fine grained and odouthess. Gradina to greedyellow, fine to medium or made and wet	2.7
ABE2 104	28-3	000508-349-KW 000508-39-KW	09 May 2008 09 May 2008	FILL SANDY CLAY	Stally charge stand, garp become, dense and wet with shells Smity charge stand, garp become, and not with with shells	36.9
ABB2105	04-0.5	150508-323-KW	15 May 2008 15 May 2008	FILL	Chrysy send, creangylary, course grained, odouthoss and maioi, large boulder rocks, sandstone and construe. Very strong hydrocarbon odour from Im- Chrosy and creansolymes course amined releasible on maioi have builder rocks, candidaton and courses. Very extent hydrocarbon odour from Im-	. 026
ABH2105	28-3	1500003-06-WW	15 May 2008	GNAS	Sand gray, frame company of the control of the cont	126
ABH2106	0102	090000-201-XV	09 May 2008	FILL	Some de conflicient management en paracelle de conflicient management en de conflicient management en de conflicient management en de conflicient management en de conflicient management de conflicient de conflicient management de conflicient de	6.2
ABR2106	26-28	0000000WW 00000000WW 000000000WW	09 May 2008	H	oute, years, mount games, moother years were steen more, outside the same and a con-	5.7
ABR2107	0.5-0.2	130364-540AW	15 May 2008 15 May 2008	FILL	Sulv. sand deposal, fine to medanin graned, most and educations with gravels. Sand, between grey, fine to medanin grained, gravels and odouthoss.	304
ABR2107 ABR2107	15:1.6	150503-341-KW 150503-342-KW	15 May 2008 15 May 2008	FILL	Rocks, sand, gay becoming brown, moist to wet with strong hydrocarben colour and surface shorn. EOH at I shiftli due to access neutriciones. Rocks, sand, gay becoming brown, moist to wet with strong hydrocarben colour and surface shorn. EOH at I sintEGL due to access neutricions.	1670
ABH2 108 ABH2 108	01-0.2	150508-3 WW	15 May 2008 15 May 2008	FILL	Sind, yellow, fine grained, most to dry. Rodes at 0.3m Silty sand, dark bown, fine grained with trace dry, moise with slight HC odour	388
ABB2 108	3.31	WA-06-80-001	15 May 2008 15 May 2008	FILL	Very strong Pydrocarbon odour Silve snak, dank arev, fine to inclinin strained, wer with slottle and hydrocarbon odour	55.4
ABB2108	42.4.5	150508-348-KW	15 May 2008	SAND	Sand, publings, saily knew, a odouthoss and mosed (Farmon) and rendense	9.08
ABR2 109	0.5-0.6	WA-TE-050202	15 May 2008	HIL	Silty sand, dark brown, the to median grained, most and odourless:	23.6
ABH2 109	28-3	150508-334-XW 150508-331-XW	15 May 2008 15 May 2008	SILTY SAND	Sard, grey, fire to medium gra teet, most and odoutioss Silly sand, grey, fire to medium gratiest, most and dense	17
ABHZII	1.12	120508-214-KW 120508-215-KW	12 May 2008 12 May 2008	FILL	Canso over siky sand, trace oby, dark brown, Ine ganied, moist, deuse with roofstes Sand, pole gavy, mediam ganied, moist to wet HZS odour, dense, siit kasses throughout, anteriod at 1 Am to 2.0m	3.5
ABHZII	11.2	120508-216-KW Split Field Duplicate Sample of 120508-215-KW 120508-217-KW	12 May 2008 12 May 2008	FILL	Sand, pade gavy, mediam gamied, moist to wet, IES odour, deme, silk banses throughout, astarated at 1 Am to 2 Am. Sand, pade gavy, course gained, danse and wet	3.8
ABH212 ABH212	0.35-0.45	080508-161-KW 080508-162-KW	08 May 2008 08 May 2008	FILL	Siley sand, fine to medium grained, become, firm, chaecoal fregments and shells at 0.4m. Trace clay and most Sand, ye low, fine grained, dense and dry to most	. 2.8
ABH213 ABH213	26-2.8	080508-1654W 120508-211-KW	08 May 2008 12 May 2008	SAND	Sand, white, fine grained, very dense, hard and dry (near rig to fusal)  Grass over sally sand toposal, dark brown, bose, dry to moist with nootdes	5.7
ABH213 ABH213	05-0.6	126508-212-KW 126508-213-KW	12 May 2008 12 May 2008	FILL	Sands, yellow, medium grained, day, black charcon latt). An Sandssone, course grained and day. Refusal at Lim BGL on sandssone bedrook	3.5
ABH214 ABH214	0.40.5	070508-70.KW 070508-71-KW	07 May 2008 07 May 2008	FILL	Gans: over silty sand opposit dark brown, moist with roodets. Sand. ye low/pals groy, frate to medaim grained, denso, moist and H2S odear. Saltk ness from 0.8m. Wet from 0.6m. Saturated from 1.5-2.0m.	0.3
ABH215 ABH215	0.02	000508-36-KW 000508-37-KW	06 May 2008 06 May 2008	FILL	Genso over silly day between, firm to 100f, moist with routlets. Send, vellowinshing any, fine to mediating an intel, dense, moist with rootlets. Silt haves and HES odour throughout	0.9
ABH215 ABH215	2.22	060508-38-KW Field Bind Replicate Semple of 060308-37-KW 060308-39-KW	06 May 2008 06 May 2008	FILL	Sand, yellyowlydog gory, fine to modiann ganised, denso, mosis with rocaches. Silk bansos and 1828 odour throughout Sand, pade gory, fine to modiann ganised, modeantely densee, mosis to wet with 1226 odour.	0.9
ABH216 ABH216	0.02		06 May 2008 06 May 2008	FILL	Gracover sily clay topooli, brownbunge, moše, dense with rockes Silv-direct snak dark brown, fate to medjam amined, dense, moše and odoar/ses	0.5
ABHZI6	26-2.8		06 May 2008	QNVS	ony vary y man, was even in a new or necessary sease, mean are occurs not Sury y man, was even in a new or necessary sease, mean are occurs not form covering and ment by we, we, the or necessary gained, datas with IES obsert.	0.3
ABH217	02.0.5		06 May 2008	HIT	Silly said, free to rack dum grained support and so maximal partners are constituted with trace siles with depth  Silly said, free to rack dum grained support of the support dense with So dough Creding to said with trace siles with depth  Long and the support of the support o	13
ABH218	100		06 May 2008	FILL	Cans over silv seat doposit der former, worden green er an en	2
ABHZ19	0.02	MAR 00 moore MAR 000 moore	05 May 2008	FILL	Since of the grant to grant of the first and to the control of the first of the fir	13
ABH219 ABH220	02-03		06 May 2008 06 May 2008	FILL	Sand, dark grey, fine to modium grained and most. Redisal on sandstone in DimBGL.  Ash fill, black grey, crisp and dry to moise	0.5
ABH220 ABH221	05.0.6	060508-05-KW 080508-1-58-KW	06 May 2008 08 May 2008	FILL	Sand, more eday, light brown, dense and moise. Re fissal on sandsonne bedrock at 0 cmBGL. Gense over silly sand toposal, dark bown, fine to medium garined, roots and moist.	2.7
ABHZ21	0.75-0.85	08:05:08:1.93-4;W 08:05:08:160-4;W	08 May 2008 08 May 2008	FILL	Sand, fine grained, beown, sook, were to subarrated at 1.5-1.8m	3.9
ABH222 ABH222	03-0.4	0.03508.75.KW 0.03508.77.KW	07 May 2308 07 May 2308	FILL	Silty toposial, brown, moist with roods Silty sand, dark brown black, fare grained, moist and soft	0.3
ABH222 ABH223	16-1.8	070508-73-KW 070508-72-KW	07 May 2008 08 May 2008	SAND	Sand, pale grey, fine to medium grained, moist to wee, soft and bose with H2S odour. Silk benes from 2.0. Stannted from 1.7-2.5 m. Grass over sandy toposal, brown, dy with game hand routlets.	0.4
ABH223	0.50.6	0.0508-73-KW 000608-74-KW	07 May 2008	FILL	Sand, fine grained, brown, dry and bosse with gravels and not at 0.5.0 cm. Shells and standarding grave b, dense and moist at depth.  She cound become from mined form makes with gravely and seconds only.	9.0
ABH223	373.8	WA-25-80-20-0	08 May 2008	SILTY SAND	Silly sand, dark gay, fite to medium gained, moist to wer at 28m. Sutariod at 3.7-4.1 m	0.3

MACCO-800000 MACCO-8000000 MACCO-80000000 MACCO-80000000 MACCO-80000000 MACCO-800000000 MACCO-800000000000000000000000000000000000	23.4KW   20.08   20.	1111   1   1   1   1   1   1   1   1	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Contention of the property of the princial bose, moint with news
0.000000000000000000000000000000000000	of 1000 506 1 4.KW of 1000 506 1 4.KW of 1000 506 1 5.KW pipe of 100 506 1 5.KW	718 718 718 718 718 718 718 718 718 718	GNS 2000	South side grows with the control mental men
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0.000000 0.000000000000000000000000000	of 100 300 14 kW of 100 300 14 kW of 100 300 14 kW	1   1   1   1   1   1   1   1   1   1	GNSS 2000	Sily such lower, five to meeting gained witnesse date, the one and set with slight ITES.  Sand, yellow, first to meeting gained witnesse and witnesse and set w
0.000000 (0.000000000000000000000000000	of 000000 14XV of 000000 14XV of 000000 14XV pile of 0000001 15XW	1   1   1   1   1   1   1   1   1   1	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Sand, yellon, dire to medium gained, morkendy dense, ment, dolle, edinoral gavels and two roots  Sand, yellon, dire to medium gained, morkendy dense, ment, dolle, edinoral gavels and two roots  Sand, boy, and was also sand and sand sand sand sand sand sand
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00000 15 VW 1544 W 154 W	1000301.1.1.0.V	1	NASS SAND	Smit, pule pery, fire gained, dense, most with 125 other 2014 to the Charles A had if the large species of the control of the Charles A had been considered as a facility.  Smit, pule pery, fire gained, dense, most with 125 other 2014 to posturat from 1.2m. Well from 1.5m. Refined aroundation at 1 forsificit.  Smit, pule pery, fire gained, dense, most with 125 other 2014 deportant from 1.2m. Well form 1.5m. Refined a unstandone at 1 forsificit.  Smit, pule pery, fire gained, dense, most with 125 other 2014 deportation from 1.2m. Well for 125. Refined as unstantone at 1 forsificit.  Smit, pule pery, fire gained, dense, most with 125 other 2014 deportation from 1.2m. Well for 125. Refined as unstantone at 1 forsificit.
100 (1900) 15 CW Hall Mile (1900) 10 CW Hall	VALUE (1000) 14 KW	1	NN	sant, progr. The galanci classe, in contract contract to the contract and the contract contract contract contract contract and the contract contrac
MI 14 (1900)  MI 14 (1900)  MI 15 (1900)  MI	000000 144W	1   1   1   1   1   1   1   1   1   1	NND 11 11 11 11 11 11 11 11 11 11 11 11 11	Sand, pule grey, fine grained, derse, moist with H2s orbue. Silt clay contant from 1.2m. Wet from 1.5m. Relitad on sandstone at 1.6mBGL, eard boxon fine to modern motioned 1.0cm Arter model with gravels, candidating and minor charceal.
401 4000000 401 40000000 401 4000000 401 40000000 401 40000000 401 40000000 401 40000000000	Table of (10) 505 & 15 KW	1   1   1   1   1   1   1   1   1   1	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Sand bosons fine to median analosod. Joses deuto moist with gravels, sandstone and minor charcoal
05 418/08/09  101 418	rejec of 100 50s 15 K W	1   1   1   1   1   1   1   1   1   1	11. 11. 11. 11. 11. 11. 11. 11. 11. 11.	SHIM, BOWIL, HIN W. HAMBIII BRITISH, DAVIN, MYTH HINGE THE SERVES CONTROL VARIANCE CONTROL
(18 480/80) (18 48	mple of (100.50s.) SS. K. W. W. M. C.	1   1   1   1   1   1   1   1   1   1	2008:	Shale rocks, crushed brick, brown clay, stiff, dry and sandstone rubble
101.480900 101.48	rejec of (10) (50) & 15, KAV rejec of (10) (50) & 14, KW	1   200   1   1   1   1   1   1   1   1   1	SAND  11.1	Weathered sands one, consegnance, while and wet
101 400 000 101 4	pile of 00/801-15,KVV	1   1   1   1   1   1   1   1   1   1	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Sand, pare gov/rotwowl, the genance, and only  Sand, pare gov/rotwowl, the genance, and only  Sand to allow for a conselium consisted, and described the demonstration of the constitution
201 (1808) 201 (1808)	imple of O'D/SIS-S-E-KW	1   1   1   1   1   1   1   1   1   1	20ANDS 20ANDS 117 117 117 117 117 117 117 117 117 11	Sand, vellow, fine to medium grained, moderately days and moist
0000000 500000000000000000000000000000	imple of O'D/SOB-94-KW	1   1   1   1   1   1   1   1   1   1	11. THE	Silty sand, grey, fine grained, dense and moist with concrete gravels
0.000 (0.00 4.5)  0.000 (0.00 4.5)  0.000 (0.00 4.5)  0.000 (0.00 4.5)  0.000 (0.00 4.5)  0.000 (0.00 4.5)  0.000 (0.00 4.5)  0.000 (0.00 4.5)  0.000 (0.00 4.5)  0.000 (0.00 4.5)  0.000 (0.00 4.5)  0.000 (0.00 4.5)  0.000 (0.00 4.5)	ingle of 070/98-94-KW	H   SO   SO   H   SO   SO   H   SO   SO	DAVYS TIT	Grass over silly clay topsoil, dank brown, soft and moist
000000 000000 000000000000000000000000	imple of O'D/SIS-54-KW	100   100	DAVS TI TI TI TI TI TI	Sity sand, dark brown, fine grained, most and odourless
070508-95 KW Fred Blink (0.000 694) All Complex (0.000 694) All Complex (0.000 695) All Complex (0.000	mple of 070/SIS-94-KW	100   100	LL LL SAND LL LL LL SAND	Safto, pare grey, tire to medium gramed, oense, motis with still renes, wer art 4th Grass over all vessel to recil, those with roots
078568-95-KW Field Blind Register 078568-82-KW Field Blind Field Blind 078568-83-10 078568-83-10 088596-10 088596-10 088596-10 088596-10 088596-10 088596-10	ruple of 070/508-94-KW	FI   FI   FI   FI   FI   FI   FI   FI	SAND LL LL SAND	Sandstone tubble, white/orange, hard, Clay with sand, brown, fine grained and moist
070508-82-AV Fred Bland Replicat 070508-82-AV Fred Bland Replicat 070508-83-AV 070508-83-AV 070508-81-00 080509-100 080509-100	mple of 070/508-81-KW	100   100	SAND LL LL SAND	
070508-82-XV Field Hind Replicate 070508-83-3 070508-83-3 070508-83-3 080508-102 080508-102 080508-103 080508-103	ngle of 070508-81-kW	FILE	LL SAND	Silty chy sand, grey, wet with H2S odour
070508-82-KW Fired I Bland Replicat 070508-79-1 070508-79-1 070508-79-1 080209-101- 080209-101- 080209-101- 080209-101-	mple of 070 508-81-KW	100   100	SAND	Silty sand, dark brown, fine grained, very dense and moist
(170508-27-1 (170508-27-1 (170508-27-1 (170508		100   100	SAND	Silty sand, dark brown, fine grained, very dense and moist
0.0508.90 0.0508.80 0.0508.90 0.0508.90 0.0508.27 0.0508.27 0.0508.27 0.0508.27		100   100		Silty sand, dark gay, fine to medium grained, soft to derise and most to wet
0.80508-103- 0.80508-103- 0.80508-104- 0.80508-27-1		008 SILTY 008 SILTY 008 SILTY 008 SILTY 008 FE	3 5	Cariss over 8 stilly stated to populate the state of the
080508-103- 080508-104- 060508-27-		008 FILTY 008 SILTY 008 FILTY 008 FILTY 008 FILTY 008 FILTY	3 5	Grass ourse silv send knowed dark brown. The certain of send to the control of chars ourse silv send knowed dark brown. The certain of the certain of the control of the certain of the ce
080508-104-		008 SILTY 008 FI 008 SILTY 008 SILTY 008 FI	13	Sand, pale grey with crange mottles, fine to medium gained, trace silt knyes, shells and moist
060508-27-1		008 FI 008 SILTY 008 FI	SAND	Silty clayey sand, brown/grey, fine to medium grained, wet, soft with H2S odour. Saturated from 1.4-2.5m
	KW 06 May 2 vw 06 May 2	008 SILTY 008 FI	13	Grass over silty sand top soil, brown, fine to medium grained, moist and brose
060508-28-1	Company 2	008 FI	Ti .	Sand, yellow, fine to medium grained, silty clay lenses at 1.0-1.2m, moderately dense, moist and shells
060508-29-1	NW or many	308 FI	SAND	Sility clay sand, dark grey, fine to medium grained, moderately dense, wet and H2S odour
060508-23-1 060508-24-VW-Eicklindiged Benfind	KW 06 May 21	200		Sand, yellow, fine to medium grained, loose, moist with shells at 0.7 m. Sand, wellow, fine to medium consists with shells at 0.7 m.
060508-25-1	KW 06 May 2	308 F.L	1 3	Salty, Send, dark brown, fire to medium grained, dense and moist
197:803090	KW 06 May 2	YTIS 800	SAND	Silty sand with tasce clays, brown grey, moist, dense, organic odour and shells. Saturated from 1.5m
080508-121	-KW 08 May 21	008 FI	TI TI	over silty sand topsoil, dark brown, fine grained, loose, moist
080508-122-	-KW 08 May 21	800 10		own, fine grained, loose and mo
080508-124-KW Field Blind Benlicate San	nole of 080508-123-KW	708 FI	1 1	Sand, yearlow fine to medium gament loose, mist with a salest Sand, vellow, fine to medium entired, loose, mist with shelk
080508-125-KW Split Field Dupl	likate of 080508-123-KW 08 May 21	308 FL	73	Sand, yellow, fine to medium grained, loose
080508-126-	-KW 08 May 2	308 FI	п	Sand, pale grey, fine to medium grained, dense, moist with slight organic odour
080508-127-	,	900 FI	33	Grass over silty clay topsoil, dark brown, Jose, moist with rootlets
W3-521-30-50-0		308 FI	10	Sand, yellow, fine to medium grained, loose, most with shells and orange motifies Silvoclaure and chark howen soft and motie. Saturated from 14.1 fm. Clau contant and eithese invessed with clearly
080508-144-		908 F.E	111	Only viewy onthe ware cover, some and tensor, consumers that the construction of three or in when
080508-145		14 800		Sand, pale gray, fine grained, dense, moist with grange mottles, rootlets and shells
080508-146-KW Field Blind Replicate Sample of	te Sample of 080508-145-KW 08 May 2008	908 FI	п	Sand, pale grey, fine grained, dense, moist with orange monthes, roodlets and shelk
080508-147-		800 SA	9:	Sand, pale grey, fine to medium grained, dense and wet
080508-141-		308 FI	36	Grass over stifty sand topsoil, dark brown, time grained, loose, moist with roots Silve and dark brown fine enained dense and moiet with black charcoal at 0.2m
080508-143-		VI SILTY	SAND	Stry start, that other, into granted, other more with other control at 0 2011 Silty clay start, dark grey, soft and wet
(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		308 F.L	70	Ash fill, white gravels, some sand, moist to wet
070508-91-1		908 F1	TI.	Ash fill, white gravels, minor sand, moist to wet
070508-92-1		NS SA	9 :	Sand, pule grey, fine to medium grained with ailt benses, moderately dense, moist to wet with HZS odour. Salurated from 1.5-2.7m
070508-88-81		308 FE	111111111111111111111111111111111111111	Sand, dark brown, fire grained, took with akin
070508-89-1		VS 800	QN	Sand, pale grey, fine to medium grained, loose to mederately dense and moist. Saturated from 1.5-2.8m with H2S odoar
070508-84-1		800 EI	3	Grass over silty sand topsoil, dark brown, moist with roots
-C8-80-00/0	KW U7 May 2008	VS 800	Q G	Sand, page grey, three for meetlum graneed, from meets, with sile lecters and 14.2 Social Shangton and 14.2 Zon
070508-98-1			11	Silty sand, dark brown, fine to medium gained, dense, black charcoal and gravels
070508-99-KW Field Blind Replicat	070508-98-KW		70	Silty sand, dark brown, fine to medium gained, dense, black charcoal and gravels
0.70508-100			TI TI	Sand, pale grey, fine to medium grained, dense, moist with sitt lenses and shells
070508-101-			9 :	Sand, pale grey, fine to medium grained, dense, moist with H2S edour
080508-106-			3 3	Sand, vellow, fine to medium grained, loose, dry to moist with sill knoss and shells
080508-107-KW Field Blind Replicat	080508-106-KW		TI TI	Sand, yellow, fine to medium grained, loose, dry to moist with silt knoes and shells
080508-108-		1	9 :	Sand, pale grey, fine to medium, moderately, moist to wet with H2S odour
080508-110-	-KW 08 May 2008		FILL	Silty sand, grey, fine grained, derse, moist with ash waste (black and white)
080508-1111			13	Sand, gawy, silyycally lenses, fine to medium grained, and moist
080508-112-		VIIIS 800	SAND	Silty clayey sand, dark grey, fine grained, wet. Saturated from 1.5-2.2m
080508-113-		008 F1	3	Sand, yellow, fine to medium grained, loose, dry to moist, shells, black gawels with trace silty clay knoss
080508-114		708 SILTY	SAND	Silv claves and fine orained soft and wet Salmated from 14-2 fm
080508-116-		708 FI		posiul, dark brown, fine
080508-117-		JH 800	70	Silty sand with tace clay, brown, firm and moist with roots
080508-130-		008 F1	TI.	Grass over silty sand topsoil, dark brown, fine to mediumgained, moist with rootlets
080508-131	-KW 08 May 2	008 F1	3:	Sand, yellow, fine to medium ganined, dense and moist with shells
080508-132-		800 800	3 5	S. Hy sand, dank grey, the to mediamigrathed, dense and moist
080508-133-		008 FI	3	Gases over silty sand topeoil, dark brown, loose, moist with roots
080508-134	-KW 08 May 2	008 F1	1	Sand, yellow, fine to medium grained, loose and mo ist with shells

254 0.6.0.7 254 0.6.0.7 254 2.6.2.8	MX-9EI-809080	08 May 2008	FILL	Grass over silty clay toposil, trace sand, dark brown, firm, moset with roots and shells	3.2
254 2.628	100 FEB 11 2 FEB 12	08 May 2008	FILL	Silbs until dark ones, noft and wor food dan	8
	060008-13 / AW	08 May 2008 08 May 2008	SILTY SAND	Shipy seared, early, garry, notil and wet to 0.0 den  Thy sand with trace of lay, garry, roodlest, dense and moist	2.1
255 0.0.2	MX-0H-000000 MX-6EI-000000	08 May 2008 08 May 2008	THE	Ginscover silly sand topoolt, dark brown, datee, molet with roote Silv-sand, silly city bases throughout, dark arev, dense and molet to wer	61
256 0.0.1	120508-354-KW	12 May 2008		Grass over silty sand, brown, mo	63
256 1.2.1.3	120508-365-KW	12 May 2008	QNVS	Stad, pale gavy, fine to medium grained, moderat dy dane, silt knase, Wet from 1.5-26m with slight 1128 obsur at 2.0m. Stad, note gavy, fine to medium grained, moderat dy dane, silt knase, Wet from 1.5-26m with slight 1138 obsur at 2.0m.	5.7
257 0.0.2	120508-254-KW	12 May 2008	TILE	res over sity sand topsoil, dark brown, fate ga	7.1
257 2.2.2.3	120508-253-KW	12 May 2008	SAND	Sund, path with trace lary, and trown, mostum granted, coose, mose with coose and grave in to A-4-2.mn Sand, path grey, medium granted, dense, most to wet with salt knoss. Saturated from 1.4-2.2m	14.1
258 0.0.2	120508-251-KW	12 May 2008	THE	Genss over silly sand topool, dark trown, fine grained, dense, moist with mode (the send deep bosons dans remined some denses and mosin	8.4
258 1.41.5	120508-233-KW	12 May 2008	SAND	Sand, pale gays, fine to modium grained, silt knees, moiet, trace clay from 1.5m. Sanard of from 1.5-2.1m with H2S odour	7.9
259 0.60.7	120508-248-KW 120508-349-KW	12 May 2008 12 May 2008	FILL	Grass on silty sand toposil, dark bownt, boose and moist with roots Sand, pale gray, fine grained, boose, moist with silt knose	10.6
259 1.8.1.9	120508-250-KW	12 May 2008	QNVS	Stad, pale grey, fine to medium grained, most and loose	6.8
200 0002	12/2008-343-KW 12/2008-345-KW	12 May 2008	FILL	Ginscover safty sand toposal, dark brown, dry, boose, roofs with gravels Sand, pale grey, fine grained, dry, boose, shells and moist from 1.0m	12.8
260 0.60.8	120508-246-KW Field Blind Replicate Sample of 120508-245-KW	12 May 2008	HILL	Sand, pale grey, fine graited, dry, boose, shells and moist from 1.0m	12.8
261 0.02		12 May 2008 12 May 2008	FILL	Shify sand, layered counge/beaving grey with trace sand, moist, shells and wet from 15-1.8m Grass on sile y sand (opsor), beone and dry	5.3
261 1.3.1.4		12 May 2008	FILL	Sand, yellow, fine to median ganized, day to moist, bosse with sportadic shells	3.5
261 2.7.2.8		12 May 2008	GNVS	Stand, grey, fine to medium grained, firm, moiet with silk basses. Stand, wellow, for no medium grained, better belonds	8.1
262 1.7.1.9		12 May 2008	FILL	Sund, grey, silk hasses, shells and wet	
262 1.7.1.9	120508-240-KW Field Blind Replicate Sample of 120508-239-KW 120508-235-KW	12 May 2008	THE	Sand, grey, sith banes, shells and wet Grave on eard neon). The enrised dry roots and hone	. 00
263 1-1.2	120503-236-XW	12 May 2008	FILL	SAnd, yellow, fire grained, koose and dry. Median grained with shells at 12m	601
263 2.2.1	120508-237-KW	12 May 2008	THA	Calycys sandy off, firm and mosts (Perso now also cond bosons) for most document bosons	7.7
264 0.2.0.4	120508-233-KW	12 May 2008	TILL	Sand, yellow, fair to medium grained, loos, day with she lis.	4.8
25.2.3	120508-234-KW	12 May 2008	SILTY SAND	Silty dayaty stand, bowwingrey, soft and wet with she lis at 2.7m Grassover silty stand, dark brown, dates, model, fine grained with roote and shells	9
1780 0911	120508-229-KW	12 May 2008	TTIE	Stard, pale grey, medianing grained, dense, moster with siles like and wet of 1,0m	7.7
265 1.61.7	120508-21-KW	12 May 2008	SILTY SAND	Shychrycysand, dark grey, nost with shells at 25m	2.9
266 0.1-0.2	120508-226-KW	12 May 2008	THE	Grass over sand silk brown, fine grained moist, losse with rook bis Silve and over moist to wet fair to mediamonimed with the list	3
267 0.0.2	120508-223-KW	12 May 2008	FILL	Grass over sally sandopsoil brown, fire to medium grained dry, recolects and she lik	
267 1.1-1.2	120508-224-KW 120508-225-KW	12 May 2008	FILL	Sund, put grey/yellow, modium granted, most and bose with shells and roots. Sund, put grey/yellow, modium grained, most and bose with shells and roots.	5 5
268 0.0.2	120508-275-KW	12 May 2008	FILL		
9751 897	120508-274-KW	12 May 2008	SILTY SAND	Salty shara wan unce carry, strength goes, faste grained, family such as such as Salty chayey send, dark grey, fine grained, fami, most to wet	5.2
269 0.0.1	130508-314-KW	13 May 2008	FILL	Grass over silty stand topsooil, dark brown, fine grained, day and bosse	6.9
269 1.21.4	130508-31-5KW	13 May 2008	FILL	Onty auto, can extern a more, took wat or grant outour Cutshod sandstone, yellow/cornegs, moist and hard	7.2
270 0.1-0.2	130508-311-KW	13 May 2008	THE	Sand, ye llow, fine to medium ganized, bose, mosts with numerous she k. Wet at 1.5m. Sand, vellow, fear to medium ganized, bose, mosts with numerous she k. Wet at 1.5m.	53
270 2.7.2.8	130508-313-KW	13 May 2008	SILTY SAND	Silty sand, dark grey, fine grained, dense, moist with receives	9.8
271 0.40.5	13608-305-KW	13 May 2008	THE	Sand, tolk error, fine to medium raminod, dry, koose with roots Sand, tolk error, fine to medium raminod, dry randnat to mosist with depth, shell kind loose	5.8
271 1.81.9	13/608-310-KW	13 May 2008	THE	Siky sand with trace chy, dark gay, fine to meetium gratied, numerous shells. Siky chy knoss:	8.1
272 0.1-0.5	130508-305-KW Field Blind Replicate Sample of 130508-304-KW	13 May 2008	HILL	pale brown, fine to medium	3.9
272 2.1-2.2	130508-307-KW 130508-392-KW	13 May 2008	FILL	Sandy silt, dark grey, soft and wet ad toesoil, bown, fine amined, dry and bose	3.9
273 0.70.8	136508-293-KW	13 May 2008	FILL	Send, yellowing hak gusy with comage mortdes and traces silks and serveral shells. Fine grained and mose	2.4
274 0.1-0.3	130508-289-KW	13 May 2008	TIH	ne, orango brown, course grained with clay a	4.2
274 0.50.6	130508-250-KW 130508-291-KW	13 May 2008 13 May 2008	SAND	Sund, dark becown, fine to medium grained, loose and moist Sund, pubs grey, fine to medium grained, loose, moster with shells. Saturated from 1.4.2.5m	2.7
275 0.0.2	130508-285-KW	13 May 2008	TILE	Cares over sity sand brown, fine grained, loose, moid with noots	2.8
275 0.8.1.2	130508-287-KW Field Blind Replicate Sample of 130508-286-KW	13 May 2008 13 May 2008	THE	Stard, yellow, fine to meditinn grained, mederately turbal, dense, large shells and moint Stard, yellow, fine to meditinn grained, mederately turbal, dense, large shells and moint	8.5
275 0.8.1.2	130508-288-KW Split Field Daplicate of 130508-286-KW	13 May 2008	TILE	Sand, yellow, fine to medium granted, mederat ely turbol, dense, large shells and moist	8.5
276 0.05-0.25	136508-282-KW 136508-283-KW	13 May 2008 13 May 2008	FILL	Sand, brown, fine to medium grained, gravels and reh (black/gray)white), dry to most and koose. Sand, brown, fine to medium grained, gravels and ash (black/gray)white), dry to most and koose.	2.9
276 1.21.4	130508-284-KW	13 May 2008	THE	3 .5	5.6
277 0.2.0.4	130508-279-KW Field Blind Repleate Sample of 130508-278-KW	13 May 2008	FILL	9.9	
277 1.1-1.2	13:05:05-250-KW 13:05:05-251-KW	13 May 2008 13 May 2008	FILL	Sandy chayey sift, dark brown black, strong Jt2S octour Silvy chayey sand, free grained, dark brown, soft and anturated with 112S octour	43
278 0.0.2	12050S-276-KW	13 May 2008	FILL	2	12.4
278 0.8-1	12/508-277-KW 13/508-319-KW	13 May 2008 13 May 2008	FILL	표명	2.6
279 0.80.9	13668-320-KW	13 May 2008	Tilld	Sand and silk thyoric brown, gray with shells	0.3
280 0.0.2	13008-299-KW	13 May 2008	FILL	SARIO, July grey, including gain nock, wer, dottow with times sail and salicits Grass over standy toposal, brown, fine to medianing garanol, dry and bosse	3.3
280 0.50.6	13/05/05-300-KW	13 May 2008	SAND	Chy, becoming mothes, gravels and very stiff Sand, talk area, fine (concident grained, bose, mosts with she lise	10.2
281 0.0.2	130508-302-KW	13 May 2008	HILL	Grass over unknown due to over losss	3.8
282 0.0.2	13008-30-KW	13 May 2008	FILL	Sally sand, line to inclaimignined, axe and most to week craaling through reven agey/yellsward gayy. Well from 1.4m Grass over sally sand topool, dark brown, maste with modelsts	3.4
282 1.3.1.4	130508-297-KW	13 May 2008	THE	Sund, puls gary, with dark brown, fine to counse grained, moderate by dense and moist with silk knees, creage mottles and shells.  Steeplesseemed amore moderate and note.	9
283 0.0.2	13000-381-KW	15 May 2008	FILL	One over selfty chapt y sand topooli, dark brown, firm, day to most with nooss and charcoal	10.3
283 0.5.0.6	150508-382-KW	15 May 2008	TILL	Stind, park yellow, grading to grey, fine to medium grained, koose and moist. Wet at 1.5 m Stard retak may medium maraned medicateds desses and sust wells shells.	4.9
284 0.0.15	150508-384-KW	15 May 2008	TILL	ark brown, fe	5.3
ABR284 13.1.6 ABR284 13.1.6	150508-386-KW Field Blind Repleare Sumple of 150508-385-KW	15 May 2008 15 May 2008	FILL	Sariel, ye llow, fine to medium gan nool, ounge most bes, shells and wet from L4m Sariel, ye llow, fine to medium gan nool, ounge most bes, shells and wet from L4m	3.4
284 1.31.6	150508-387-KW Split Pield Duplicate of 150508-385-KW	15 May 2008	FILL	I, omnge mott	3.4
285 0.0.2	1505008-389-XW	15 May 2008	FILL	Bank over stilly send topical, dark brown, day, loose with roots	9
286 0.1-0-3	13G08-390-KW 15G08-391-KW	15 May 2008	HILL	Sand, palz gry with comple months and steelis, tine to insteading granteed, toose to ottobe und most, werd at 1-4m Sand, yellow, fine to meedium grained, dry, koose, shells and ounge meetles. Ash at 0.3 m	2.4
286 09-1	150508-392-KW	15 May 2008	FILL	Sand, yellow, fine to medium grained, dry, koose, alodk and ounge meetles. Ash at 0.3 m.	7.1
286 23.25	150508-394-KW Field Blid Repleate Sample of 150508-393-KW	15 May 2008	SILTY SAND	Silly said, grey, fins to medium grained, moderally dense, we re it with roodsks	8.2
287 0.0.4	150508-379-KW Field Blid Replore Sample of 120508-373-KW	15 May 2008	FILL	Grass over silly topoul, bown, fine granted, dry, kose with readets Grass over silly topoul, bown, fine annived, dry, kose with readets	69
1.61.7	150508-330-KW	15 May 2008	TILL	Sand, pale grey, silk hasses and creage mottles, shelk, fine to medium grained, moist at depth and wet from 1.3 m	5.3
288 0.7-0.8	13608-374-KW	15 May 2008	TILL	Ceras, over salty stills topostal, our expent, time granted, moster and records a Sand, pole grey, fine to me disma grained, bose and most with shells.	3.4
288 2.7.2.8	150508-375-KW	15 May 2008	SLTY CLAY	Silty c.lay, dark bown, soft and moist	4.2
ABH289 0-0.3 ABH289 0-0.3	150508-371-KW Field Blind Replence Sample of 150508-370-KW	15 May 2008	TIL	Crass over sary cary expressi, dank beown, most wan recease Grass over salv edve deep depart and beown, most with recease	10.0
			-	CALADO CINI DESCRIPTION CONTRACTOR CONTRACTO	10.3

150508-358-KW   150508-328-KW   150508-368-KW   150508-368-K	15 May 2008 15 May 2008 115 May 2008 115 May 2008	FILT.	SOIL SAMPLES	
150080-353-KW   150080-359-KW   150080-359-KW   150080-359-KW   150080-359-KW   150080-359-KW   150080-359-KW   150080-359-KW   150080-359-KW   150080-359-KW   150080-339-KW   150080-339-K	15 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 13 May 2008 13 May 2008	·	CONT.	
150508-353-KW Field Bill of Bythesia Sumple of 150508-353-KW     150508-353-KW Field Bill of Bythesia Sumple of 150508-353-KW     150508-353-KW Field Bill of Bythesia Sumple of 150508-353-KW     150508-353-KW Field Bill of Bythesia Sumple of 150508-323-KW     150508-323-KW Field Bill of Bythesia Sumple of 150508-323-KW     150508-323-KW Field Bill of Bythesia Sumple of 150508-323-KW     150508-323-KW Field Bill of Bythesia Sumple of 150508-323-KW     150508-324-KW Field Bill of Bythesia Sumple of 150508-323-KW     150508-324-KW Field Bill of Bythesia Sumple of 150508-323-KW     150508-324-KW Field Bill of Bythesia Sumple of 150508-324-KW     150508-324-KW Field Bill of Bythesia Sumple of 150508-354-KW     150508-375-KW Field Bill Bythesia Sumple of 150508-354-KW     150508-375-KW Field Bythesia Sum	15 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 13 May 2008	FILT.	Grass over silty sand topsoil, dark brown, firm, dry with trace clay Silve clav, dark brown, firm and dry	15.2
150508-353-KW Field Blind Replicate Sample of 150508-352-KW     150508-354-KW Split Fall Duplicate of 150508-352-KW     150508-354-KW Split Fall Duplicate of 150508-352-KW     150508-355-KW     150508-351-KW     150508-36-KW     150508-36	15 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 13 May 2008	FILL	brown, fine to medium grained, loose to c	13.3
150508-354-KW Split Field Daplicate of 150508-352-KW   150608-355-KW   150608-357-KW   150608-170-KW   000508-116-KW   150608-377-KW   15060	15 May 2008 15 May 2008 15 May 2008 15 May 2008	FILL	Sand, pale brown, fine to medium gained, loose to denies, dry to moist with sandstone grawls	13.3
190908-335-KW   190908-325-KW   190908-325-KW   190908-165-KW   190908-105-KW   190908-315-KW   190908-155-KW   190908-155-K	15 May 2008 15 May 2008 15 May 2008 13 May 2008	FILL	Sand, pale brown, fine to medium grained, loose to dense, dry to moist with sandstone gravels	13.3
190008-335-KW   190008-335-KW   190008-337-KW   190008-335-KW   190008-335-KW   190008-335-KW   190008-335-KW   190008-335-KW   190008-335-KW   190008-335-KW   190008-335-KW   190008-335-KW   190008-305-KW   190008-305-KW   190008-305-KW   190008-305-KW   190008-305-KW   190008-305-KW   190008-305-KW   190008-105-KW   190008-205-KW   190008-205-KW   190008-305-KW   190008-305-K	15 May 2008 15 May 2008 13 May 2008	FILL	Silty clay sand, brown, soft, moist with shells	14.2
1900/08/35/4/W   1900/08/35/4/W   1900/08/35/4/W   1900/08/35/4/W   1900/08/35/4/W   1900/08/35/4/W   1900/08/35/4/W   1900/08/35/4/W   1900/08/35/4/W   1900/08/36/4/W   1900/08/37/4/W   1900	15 May 2008	FILL	black/v	14.6
1900/08/326.KW   1900	13 May 2008	SAND	Sand with trace clay, brown, fine grained and n	15.3
1900/08/376.kW    1900/08/376.kW    1900/08/376.kW    1900/08/376.kW    1900/08/376.kW    1900/08/376.kW    1900/08/36/kW    1900/08/36/kW    1900/08/36/kW    1900/08/36/kW    1900/08/376.kW    1900/08/376.kW    1900/08/16/kW    1900/08/376/kW    1900/08/376	COOM SWAN CT	FILL	ne to medium grained, moist and le	5.1
130508-327-KW   130508-327-KW   130508-327-KW   130508-329-KW   130508-339-KW   130508-339-K	13 May 2008	FILL	Silty sand, yellow, fine to medium grained, with shells and as gravels	
130508-339-KW   130508-323-KW   130508-323-KW   130508-323-KW   130508-323-KW   130508-323-KW   130508-323-KW   130508-323-KW   130508-323-KW   130508-165-KW   130508-176-KW   130508-176-KW   130508-377-KW   130508-377-KW   130508-377-KW   130508-377-KW   130508-376-KW   130508-376-K	13 May 2008	FILL	k, dense and moist with ash wast, glass and gr	7.4
130908-330-KW   130908-30-KW   130908-30-KW   130908-16-KW   090908-16-KW   130908-31-KW   130908-11-KW   130908-31-KW   1309	13 May 2008	FILL	de l'brown), brown	- :
193089-354-KW   193089-354-KW   193089-354-KW   193089-354-KW   193089-354-KW   193089-364-KW   193089-324-KW   193089-324-KW   193089-324-KW   193089-324-KW   193089-324-KW   193089-324-KW   193089-324-KW   193089-324-KW   193089-346-KW   193089-346-KW   193089-346-KW   193089-346-KW   193089-346-KW   193089-346-KW   193089-346-KW   193089-347-KW   193089-347-KW   193089-347-KW   193089-377-KW   193089-377-KW   193089-377-KW   193089-377-KW   193089-377-KW   193089-377-KW   193089-377-KW   193089-377-KW   193089-377-KW   193089-376-KW   193089-376-KW   193089-376-KW   193089-376-KW   193089-376-KW   193089-376-KW   193089-376-KW   193089-376-KW   193089-36-KW   193089-15-KW   193089-36-KW   193089-15-KW   193089-36-KW   193089-15-KW   193089-36-KW   193089-3	+	FILL	Sily sand, brwon/grey writ charcoal	3.8
130508-358-KW   150508-358-KW   150508-358-KW   150508-358-KW   150508-358-KW   150508-328-KW   150508-328-KW   150508-328-KW   150508-328-KW   150508-328-KW   120508-328-KW   120508-268-KW   120508-268-KW   120508-268-KW   120508-168-KW   120508-279-KW   120508-279-KW   120508-279-KW   120508-279-KW   120508-279-KW   120508-278-KW   120508-278-KW   120508-268-KW   120508-288-KW   120508-288-KW   120508-288-KW   120508-288-KW   120508-198-KW   120508-198-K	+	SILTY CLAY	Silty dark grey, firm and most with shelis	9
19008-30-4KW   19008-16-KW   19008-16-KW   19008-16-KW   19008-16-KW   19008-16-KW   19008-11-KW   19008-11-KW   19008-11-KW   19008-11-KW   19008-11-KW   19008-11-KW   19008-11-KW   19008-11-KW   19008-21-KW   19008-11-KW	15 May 2008	FILL	Grass over silty clay sand, dark brown, most with roots	14.9
15008-324-KW   15008-325-KW   15008-325-KW   15008-325-KW   15008-325-KW   15008-325-KW   15008-325-KW   15008-325-KW   15008-325-KW   12008-265-KW   12008-265-KW   12008-165-KW   15008-165-KW   15008-265-KW   16008-150-KW   1600	15 May 2008	FILL	Silty clay, brownigrey, firm and dry with rootlets	11.1
130086-324-KW   130086-323-KW   130086-323-KW   130086-323-KW   130086-323-KW   130086-323-KW   120086-233-KW   120086-233-KW   120086-233-KW   120086-233-KW   120086-233-KW   120086-233-KW   120086-164-KW   0009081-164-KW   120086-237-KW   120088-236-KW   120088-237-KW   120088-237-KW   150088-237-KW   150088-237-K	15 May 2008	FILL	silty clay, dark grey, soft and wet	11.5
130508-324-KW Field Billoft Replicate Sample of 130508-323-KW     130508-201-KW     120508-201-KW     120508-201-KW     120508-201-KW     120508-201-KW     120508-101-KW     120508-201-KW     120508-201-KW     120508-201-KW     120508-201-KW     120508-201-KW     120508-201-KW     120508-201-KW     120508-201-KW     120508-201-KW     120508-301-KW     120508-21-KW     12050	13 May 2008	FILL	Grass over silty sand topsoil, fine grained, dry and loose with roots	6.9
12-1.4         130508-324-KW Field Blind Replaces Sample of 130508-323-KW           0-0.2         120508-305-KW           0-4.05         120508-305-KW           0-5-10         120508-305-KW           0-5-13         120508-305-KW           0-5-14         0.9018-305-KW           0-5-15         0.9018-305-KW           0-5-16         0.9018-305-KW           0-5-17         0.9018-305-KW           0-1-12         0.9018-305-KW           0-1-13         0.9018-305-KW           0-1-14         0.9018-305-KW           0-1-15         0.9018-305-KW           0-1-16         0.9018-305-KW           0-1-17         0.9018-305-KW           0-1-18         0.9018-305-KW           0-1-19         0.9018-305-KW           0-1-1         0.9018-305-KW           0-1-1         0.9018-305-KW           0-0-1         1.305-305-305-KW           0-0-1         1.305-305-305-KW           0-0-1         1.305-305-305-KW           0-0-1         1.305-305-305-KW           0-0-1         1.305-305-305-KW           0-1-2         1.205-305-305-KW           0-1-1         1.305-305-305-KW           0-1-1         1.305-305-305-KW <td>13 May 2008</td> <td>FILL</td> <td>yellow,</td> <td>4.2</td>	13 May 2008	FILL	yellow,	4.2
120089-261-KW   120089-261-KW   120089-261-KW   120089-261-KW   120089-261-KW   120089-261-KW   120089-261-KW   120089-261-KW   120089-161-KW   120089-261-KW   120089-261-KW   120089-261-KW   120089-261-KW   120089-271-KW   120089-271-K	13 May 2008	FILL	Sand, yellow, fine to medium grained, loose and dry with shells. Moist at 1.4m. Wet at 1.6m with silt lenses	
2.6.2.8         120508-3.62-kW           2.6.2.8         120508-3.62-kW           0.9.10         090308-16-kW           0.4-0.2         090308-16-kW           0.5-0.53         090308-16-kW           0.5-0.53         090308-16-kW           0.5-0.53         090308-16-kW           0.1-0.2         090308-16-kW           0.1-0.2         090308-16-kW           0.1-0.2         090308-16-kW           0.1-1.1         090308-16-kW           1.1-1.2         090308-16-kW           1.2-1.3         090308-16-kW           0.2-0.4         120508-20-kW           0.2-0.4         120508-20-kW           0.4-1.2         090308-18-kW           0.4-1.3         120508-27-kW Field Blind Replicate Sample of 120508-271-kW           0.4-1.3         120508-27-kW Field Blind Replicate Sample of 120508-271-kW           0.4-1.3         150508-27-kW Field Blind Replicate Sample of 120508-271-kW           0.4-1.3         150508-27-kW Field Blind Replicate Sample of 120508-27-kW           0.4-1.2         150508-27-kW Field Blind Replicate Sample of 120508-28-kW           0.4-1.2         150508-27-kW Field Blind Replicate Sample of 120508-28-kW           0.4-1.2         150508-25-kW Field Blind Replicate Sample of 120508-28-kW           <	12 May 2008	FILL	Grass over silty topsoil, dark brown, dense and moist with roots	7.2
2.62.8         120508-62.8 KW           2.62.8         120508-65.4 KW           0.1-0.2         0.040808-164.4 KW           0.1-0.2         0.040808-165.4 KW           0.9-1         0.9-1           1.2-1.3         0.040808-165.4 KW           0.1-0.2         0.040808-165.4 KW           0.1-0.2         0.040808-165.4 KW           0.5-1.4         0.040808-165.4 KW           1.2-1.3         0.040808-165.4 KW           0.5-0.4         0.040808-165.4 KW           1.2-1.3         0.040808-165.4 KW           0.7-0.8         1.20508-20-4 KW           1.1-1.3         0.040808-20-4 KW           0.0-2         1.20508-20-4 KW           0.0-1         1.20508-27-4 KW           0.0-2         1.20508-27-4 KW           0.0-1         1.20508-27-5 KW <td>12 May 2008</td> <td>FILL</td> <td>Silty sand, dark brown, fine grained, dense and moist</td> <td>3.3</td>	12 May 2008	FILL	Silty sand, dark brown, fine grained, dense and moist	3.3
0.94.10   0.90368-165-KW   0.1-0.2   0.90368-165-KW   0.1-0.2   0.90368-165-KW   0.5-0.5   0.5-0.5   0.90368-165-KW   0.5-0.5   0.90368-165-KW   0.5-0.5   0.90368-165-KW   0.1-0.2   0.90368-165-KW   0.1-0.2   0.90368-165-KW   0.1-0.2   0.90368-181-KW   0.1-0.2   0.90368-181-KW   0.1-0.2   0.90368-181-KW   0.1-0.2   0.90368-181-KW   0.1-0.2   0.90368-131-KW   0.1-0.2   0.90368-131-KW   0.1-0.2   0.90368-131-KW   0.1-0.2   0.90368-131-KW   0.1-1.3   0.90368-205-KW   0.0-1.2   0.00368-205-KW   0.0-1.2	12 May 2008	SAND	Sand, pale grey, fine to medium grained, loose to moderately dense, moist with trace silt lenses and roots	11.4
0.9.4.0.2         0.90308-164-KW           0.9.1         0.9.1           0.9.1         0.9.1           0.9.1         0.9.1           0.9.2         0.90308-166-KW           0.1.0.2         0.90308-166-KW           0.1.0.2         0.90308-181-KW           0.1.0.2         0.90308-181-KW           0.5.0.6         0.90308-181-KW           0.5.0.6         0.90308-181-KW           0.5.0.6         0.90308-181-KW           0.5.0.6         0.90308-182-KW           0.4.1.5         0.90308-182-KW           0.7.0.8         1.20308-202-KW           0.7.0.8         1.20308-202-KW           0.0.2         1.20308-202-KW           0.0.2         1.20308-202-KW           0.0.1         1.30308-317-KW           0.0.1         1.30308-328-KW           0.0.1         1.303	09 May 2008	FILL	Silty sand, dark grey, fine grained, loose, dry and odourless	
0.9.13         0.900803-163-KW           0.9-13         0.901803-163-KW           0.1-0.2         0.901803-163-KW           0.1-0.2         0.90308-181-KW           0.1-0.2         0.90308-181-KW           0.1-0.3         0.90308-174-KW           1-1.1         0.90308-174-KW           1-1-1.3         0.90308-174-KW           1-1-1.4         0.90308-174-KW           1-1-1.5         0.90308-174-KW           1-1-1.3         0.90308-174-KW           0.0-1.2         1.20308-208-KW           0.0-1.2         1.20308-208-KW           0.0-1.2         1.20308-208-KW           0.0-1.3         1.20308-208-KW           0.0-1.4         1.20308-208-KW           0.0-1.2         1.20308-208-KW           0.0-1.3         1.20308-208-KW           0.0-1.4         1.20308-208-KW           0.0-1.5         1.20308-208-KW           0.0-1.2         1.20308-208-KW           0.0-1.2         1.20308-208-KW           0.0-1.2         1.20308-208-KW           0.0-1.2         1.20308-208-KW           0.0-1.3         1.20308-208-KW           0.0-1.4         0.90308-208-KW           0.0-1.2         0.00308-208-KW	09 May 2008	FILL	Sand, dark brown, fine to medium grained, loose and dry with gravels and shell fragments	0
12-13   0904508-165-KW   12-13   0904508-165-KW   12-13   0904508-167-KW   12-13   0904508-167-KW   12-13   0904508-167-KW   12-13   0904508-168-KW   12-13   0904508-170-KW   12-14-15   1204508-270-KW   1204508-270-KW   12-14-15   1204508-270	09 May 2008	FILL	Sand, dark brown, fine to medium grained, loose and dry with gravels and shell fragments	1.1
14-13   090308-181-KW   1-1-15   090308-181-KW   1-1-15   090308-181-KW   1-1-15   090308-181-KW   1-1-15   090308-181-KW   0-1-02   090308-181-KW   0-1-03   090308-181-KW   1-1-13   090308-181-KW   1-1-13   090308-181-KW   0-2-04   1-1-13   090308-181-KW   0-2-04   1-1-13   1-1-0308-201-KW   0-0-02   1-1-13   1-1-0308-201-KW   0-0-12   1-1-13   1-1-0308-201-KW   0-0-12   1-1-13   1-1-0308-201-KW   1-1-0308-201-	+	FILL	Sand, yellow, fine grained, loose, dry and odourless	1.4
14-12   090308-16-3-KW   1-1-12   090308-16-3-KW   1-1-12   090308-16-3-KW   1-1-13   090308-16-4-KW   1-1-13   090308-16-4-KW   1-1-13   090308-10-4-KW   1-1-13   090308-10-4-KW   1-1-13   090308-10-4-KW   1-1-13   090308-20-4-KW   1-1-13   1-20508-20-5-KW   1-1-12   1-20508-20-5-KW   1-	-	SANDSTONE	Sanstone, yellow/white/orange, course grained, moist and odourless. Refusal on sandstone bedrock at 1.3mBGL	1.6
14-15   090308-184-KW   1-4-15   090308-184-KW   1-4-15   090308-169-KW   1-4-15   090308-169-KW   1-4-15   090308-169-KW   1-4-15   090308-109-KW   1-4-15   090308-109-KW   1-4-15   090308-183-KW   0-4-05   120308-270-KW   0-2-04   120308-271-KW   0-10-12   120308-271-KW   0-0-12   120308-271-KW   0-0-12   120308-271-KW   0-0-12   120308-271-KW   0-1-12   120308-271-KW   0-1-12   120308-271-KW   0-1-12   120308-231-KW   0-1-12   120308-231-KW   0-1-12   120308-231-KW   0-1-12   120308-231-KW   0-1-12   120308-230-KW   0-1-12   120308-230-KW   0-1-12   120308-230-KW   0-1-12   120308-230-KW   0-1-12   120308-230-KW   0-1-12   090308-118-KW   0-1-12   090308-118	09 May 2008	FILL	Sand, brown, fine to medium grained, looseand dry with gravels, shells and trace clay	0.3
0.94.04   0.90308-1.08-KW   0.5-4.06   0.90308-1.08-KW   0.5-4.06   0.90308-1.08-KW   0.5-4.06   0.90308-1.70-KW   0.4-1.3   0.90308-1.70-KW   0.7-4.05   0.70308-2.70-KW   0.7-4.05   0.703	09 May 2008	FILL	Sand, yellow, fine to medium grained, loose and dry. Refusal on sandstone at 1.5mBGL	1
1-1, 1	09 May 2008	FILL	Sand, brown, fine to medium grained, loose, dry with gravels, shells and charcoal	8.0
000508-170-KW   000508-170-KW   000508-182-KW   120508-236-KW   120508-236-KW   120508-236-KW   120508-236-KW   120508-236-KW   120508-236-KW   120508-236-KW   120508-236-KW   120508-236-KW   150508-316-KW   150508-316-KW   150508-316-KW   150508-316-KW   150508-316-KW   150508-316-KW   150508-316-KW   150508-36-KW   000508-196-KW   000508-196-KW   000508-196-KW   000508-196-KW   000508-196-KW   000508-196-KW   000508-196-KW   000508-196-KW   000508-196-KW   000508-136-KW   000508-	09 May 2008	FILL	Sand, grey/brown, fine grained, loose, dry to moist and odourless	1.6
14.12.13   0.00508-B.S.KW   14.15.1   0.00508-B.S.KW   0.4-0.5   1.20508-207-kW   0.4-0.5   1.20508-207-kW   0.4-0.5   1.20508-207-kW   0.2-0.4   1.1-1.3   1.20508-207-kW   1.1-1.3   1.20508-207-kW   1.1-1.3   1.20508-207-kW   1.1-1.2   1.20508-207-kW   0.0-0.2   0.00508-190-kW   0.0-0.2   0.00508-190-kW   0.0-0.2   0.00508-190-kW   0.0-0.2   0.00508-190-kW   0.0-0.2   0.00508-207-kW   0.007-kW   0	09 May 2008	FILL	Sand, yellow, fine grained, dense, dry and odourless	0.2
120089-207-KW   120089-307-KW   120089-307-K	09 May 2008	FILL	Silty sand, dark grey, fine grained, dry, loose and odourless	1.2
120508-267-KW   120508-267-KW   120508-267-KW   120508-209-KW   120508-209-KW   120508-209-KW   120508-270-KW   120508-271-KW   150508-271-KW   150508-271-KW   150508-217-KW   150508-217-KW   150508-217-KW   150508-217-KW   150508-217-KW   150508-217-KW   150508-217-KW   150508-217-KW   150508-217-KW   150508-236-KW   150508-256-KW   150508-256-KW   150508-256-KW   150508-256-KW   150508-256-KW   0050508-118-KW   0050508-108-KW   0050508-108-		FILL	Sandstone, yellow/orange, course grained and moist. Refusal on sandstone at 1.5mBGL	
14-15   120508-208-KW   1-151508-208-KW   0-2-0.4   120508-270-kW   0-2-0.4   120508-271-kW   0-1-15   120508-271-kW   0-1-13   120508-271-kW   0-0.2   130508-371-kW   0-0.2   130508-371-kW   0-0.2   130508-371-kW   0-0.2   130508-371-kW   0-0.2   130508-371-kW   0-0.2   130508-370-kW   0-0.1   150508-370-kW   0-0.1   0-0.0108-370-kW   0-0.01   0-0.0108-370-kW   0-0.0108-370-kW   0-0.01   0-0.0108-370-kW   0-0.0108-370-kW   0-0.01   0-0.0108-370-kW   0-0.0108-370-kW   0-0.01   0-0.0108-370-kW   0-0.0108-370-kW   0-0.0108-370-kW   0-0.0108-370-kW   0-0.0108-370-kW   0-0.0108-370-kW   0-0.008-370-kW	12 May 2008	FILL	ed, moist,	5.5
120508-220-KW   120508-220-KW   120508-271-KW   120508-271-KW   120508-271-KW   120508-271-KW   120508-271-KW   120508-271-KW   120508-317-KW   120508-318-KW   120508-318-KW   150508-318-KW   150508-318-KW   150508-318-KW   150508-354-KW   150508-354-KW   150508-365-KW   150508-365-KW   150508-365-KW   120508-258-KW   120508-258-KW   120508-258-KW   120508-258-KW   120508-258-KW   120508-258-KW   000508-119-KW   000508-110-KW   000508-110-K	12 May 2008	FILL	Silty	11.2
120508-272-KW   12008-271-KW   120508-271-KW   120508-271-KW   120508-271-KW   150508-271-KW   150508-371-KW   150508-318-KW   150508-318-KW   150508-318-KW   150508-377-KW   150508-377-KW   150508-377-KW   150508-377-KW   150508-377-KW   150508-377-KW   150508-36-KW   150508-36-KW   120508-36-KW   120508-36-KW   120508-23-KW   120508-23-KW   120508-23-KW   120508-23-KW   120508-23-KW   120508-23-KW   100508-19-KW   1005	12 May 2008	SAND	Sand, pale grey, fine to medium grained, moderately dense with silt lenses. Saturated from 1.5-2.6m. H2S odour at 2.0m	6.5
120508-272-KW Field Blind Replicate Sample of 120508-271-KW   120508-271-KW   130508-371-KW   130508-371-KW   130508-371-KW   130508-371-KW   150508-371-KW   150508-376-KW   150508-365-KW   150508-365-KW   150508-365-KW   150508-365-KW   120508-365-KW   120508-256-KW   120508-256-KW   120508-256-KW   120508-256-KW   120508-258-KW   120508-258-KW   070508-365-KW   070508-365-KW   070508-358-KW	12 May 2008	FILL	Sand, pale brown, fine grained, dry and loose with sandstone fragments (white), minor coal fragments. Orange/red mottles	9.4
120508-272-KW Field Blind Replicus Sample of 120508-271-KW   130508-317-KW   130508-317-KW   130508-317-KW   130508-317-KW   150508-376-KW   150508-376-KW   150508-376-KW   150508-376-KW   150508-376-KW   150508-356-KW   150508-256-KW   150508-196-KW   150508-196-KW   150508-196-KW   150508-196-KW   150508-196-KW   150508-196-KW   150508-196-KW   150508-156-KW   150508-156-KW   150508-156-KW   150508-156-KW   150508-166-KW	12 May 2008	FILL	Sand, pale brown, fine grained, dry and loose with sandstone fragments (white), minor coal fragments. Orange/red mottles	4.8
130608-317-KW   130608-317-KW   150608-318-KW   150608-377-KW   150608-36-KW   150608-190-KW   150608-119-KW   150608-360-KW	12 May 2008	FILL	Sand, pale brown, fine grained, dry and loose with sandstone fragments (white), minor coal fragments. Orange/red mottles	4.8
130908-376-KW   130908-376-KW   150908-376-KW   150908-376-KW   150908-376-KW   150908-376-KW   150908-376-KW   150908-365-KW   150908-365-KW   150908-365-KW   150908-365-KW   150908-365-KW   150908-365-KW   150908-256-KW   150908-256-KW   170908-256-KW   170908-256-KW   170908-256-KW   170908-256-KW   170908-256-KW   170908-256-KW   170908-156-KW   170908-360-KW   170908-360-K	12 May 2008	FILL	Grass over silty sand, topsoil, dark brown, fine grained, loose, dry to moist	8.3
150508-376-KW   150508-377-KW   150508-377-KW   150508-377-KW   150508-375-KW   150508-365-KW   150508-365-KW   150508-365-KW   150508-365-KW   120508-257-KW   120508-257-KW   120508-257-KW   120508-257-KW   120508-258-KW   120508-268-KW   120508-258-KW   120508-268-KW   120508-198-KW   120508-198-KW   120508-198-KW   120508-198-KW   120508-368-KW   120508-368-K	12 May 2008	FILL	Sand, yellow, medium grained, loose, moist with shells and silt lenses, orange mottles and wet at 1.5m	8.2
150008-377.KW   150008-377.KW   150008-337.KW   150008-336.KW   150008-336.KW   150008-336.KW   150008-336.KW   150008-237.KW   120008-237.KW   120008-237.KW   120008-237.KW   120008-237.KW   120008-237.KW   120008-237.KW   070008-336.KW   070008-336.K	15 May 2008	FILL	Grass over silty clay topsoil, dark brown, moist with roots	4
150008-36.kW   150008-36.kW   150008-36.kW   150008-36.kW   150008-23.4KW   120008-23.4KW   120008-23.4KW   120008-23.4KW   120008-23.4KW   120008-23.4KW   120008-23.4KW   120008-23.4KW   120008-23.4KW   120008-23.4KW   120008-34.4KW   120008-34.4KW   120008-18.4KW   120008-18.4KW 	15 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry, shelts. Wet at 1.4m	3.6
150008-364 KW   150008-364 KW   150008-364 KW   150008-365 KW   150008-365 KW   120008-275 KW   120008-275 KW   120008-275 KW   120008-275 KW   120008-285 KW   120008-286 KW   120008-286 KW   120008-286 KW   120008-366 KW   120008-366 KW   120008-366 KW   120008-366 KW   120008-366 KW   120008-366 KW   120008-196 KW   120008-196 KW   120008-196 KW   120008-196 KW   120008-196 KW   120008-156 KW   120008-366 KW   130008-366 K	15 May 2008	FILL	Grass on silty sand, dark brown, firm, dry to moist	10.2
150008-36.KW   150008-36.KW   150008-36.KW   120008-36.KW   120008-236.KW   120008-236.KW   120008-236.KW   120008-236.KW   120508-236.KW   120508-236.KW   070508-36.KW   070508-36.KW   070508-36.KW   070508-45.KW   070508-45.KW   070508-45.KW   070508-45.KW   070508-45.KW   070508-45.KW   070508-45.KW   070508-45.KW   070508-119.KW   070508-119.KW   070508-119.KW   070508-116.KW   070508-116.	15 May 2008	FILL	Sand, pale grey, fine to medium grained, moist, sandstone gravels with charcoal and ash	15.9
150608-255-KW   150608-257-KW   120608-257-KW   120608-257-KW   120608-257-KW   120608-257-KW   120608-258-KW   120608-258-KW   070608-258-KW   070608-258-KW   070608-65-KW   070608-65-KW   070608-65-KW   070608-65-KW   070608-65-KW   070608-65-KW   070608-65-KW   070608-65-KW   070608-195-KW   070608-195-KW   080608-195-KW   080608-195-KW   080608-155-KW   0806	15 May 2008	FILL	Crushed sandstone, gey and white	13.3
120508-259-KW Feld Blnd Replaces Sample of 120508-238-KW 120508-260-KW Split Feld Duplicate of 120508-258-KW 120508-260-KW Split Feld Duplicate of 120508-258-KW 070508-65-KW 070508-65-KW 070508-65-KW 070508-65-KW 070508-65-KW 070508-190-KW 070508-190-KW 070508-190-KW 070508-119-KW	15 May 2008	SILTY CLAY	Silty clay, shells, moist to wet with H2S odour	10.5
120508-259.KW Field Blind Repticate Sample of 120508-258.KW     120508-294.KW Field Blind Repticate Sample of 120508-258.KW     120508-204.KW Split Field Duplicate of 120508-258.KW     070508-655.KW     070508-655.KW     070508-655.KW     070508-188.KW     090508-189.KW     080508-119.KW     080508-119.KW     080508-119.KW     080508-119.KW     080508-119.KW     080508-119.KW     080508-119.KW     080508-115.KW     080508-115.KW     080508-115.KW     080508-115.KW     080508-115.KW     080508-115.KW     080508-115.KW     150508-361.KW Field Blind Replicate Sample of 150508-360.KW	12 May 2008	FILL	Sand, pale brown, fine grained, moderately dense, moist with gravels	7.3
120508-259-KW Field Billod Replicate Sample of 120508-258-KW     120508-250-KW Spiri Field Diplicate of 120508-258-KW     120508-260-KW Spiri Field Diplicate of 120508-258-KW     070508-65-KW     070508-65-KW     070508-158-KW     070508-36-KW Field Billod Replicate Sample of 150508-360-KW     070508-361-KW Field Billod Replicate Sample of 150508-360-KW     070508-360-KW Field Billod Replicate S	12 May 2008	SAND		2.1
0.9.1.2         120508-260-KW Split Field Duploate of 120508-258-KW           0.40.5.5         0.40.5.           0.40.5.3         0.70508-66-KW           0.72.40.3         0.70508-66-KW           0.72.40.3         0.90508-188-KW           1.9.2         0.90508-188-KW           0.6.1         0.80508-118-KW           0.9.1         0.80508-118-KW           0.4.1         0.80508-118-KW           0.4.2.3         0.80508-118-KW           0.4.1         0.80508-118-KW           0.5.4.3         0.80508-118-KW           0.5.4.4         0.80508-156-KW           0.5.0.4         1.50508-360-KW           0.2.0.4         1.50508-360-KW	12 May 2008	SAND	Sand, pale grey, fine to medium grained, moist with silt lenses	2.1
0.70508-65-KW 0.00508-65-KW 0.00508-189-KW 0.00508-189-KW 0.00508-119-KW	12 May 2008	SAND	Sand, pale grey, fine to medium grained, moist with silt lenses	2.1
0.4-0.5         0.05008-66.KW           0.2-0.3.5         0.05008-189.KW           0.7-0.8         0.05008-189.KW           0.4.1         0.05008-189.KW           0.4.1         0.05008-119.KW           0.9-1         0.05008-119.KW           0.1-0.2         0.08008-119.KW           0.1-0.2         0.08008-119.KW           0.6-0.7         0.08008-155.KW           0.6-0.7         0.08008-155.KW           0.2-0.4         150008-361-KW           0.2-0.4         150008-361-KW	07 May 2008	FILL	Silty sand, pale brown, fine grained, dense, moist with sandstone gravels, tiles and no odour	0.2
0.25-0.35         0.09108-188-KW           0.70.88         0.09108-188-KW           1.9-2         0.0108-199-KW           0.0-1         0.00108-191-8-KW           0.9-1         0.00108-118-KW           0.1-0.2         0.00108-118-KW           0.1-0.2         0.00108-118-KW           0.1-0.2         0.00108-118-KW           0.1-0.2         0.00108-118-KW           0.1-0.2         0.00108-118-KW           0.2-0.4         0.00108-118-KW           0.2-0.4         1.50508-36-KW           0.2-0.4         1.50508-36-KW           0.2-0.4         1.50508-36-KW	07 May 2008	FILL	Sithy clayey sand, brown/orange, moist, dense with no odour	0.3
0,7-0.8         OPDG008L-198-KW           1,9-2         ODG008L-198-KW           0-0.1         0.00108L-198-KW           0,9-1         0.00108L-198-KW           0,1-0.2         0.001508L-19-KW           0,6-0.7         0.001508L-19-KW           0,6-0.7         0.001508L-15-KW           2-2.2         0.001508L-15-KW           0,2-0.4         1.50508-36-LKW           0,2-0.4         1.50508-36-LKW	09 May 2008	FILL	Ash fill, black gravels with sand	1.1
000506-19.kW   0005	09 May 2008	FILL	Ash waste, black and dry	1.5
0801050-119-KW   0801050-119-KW   0801050-119-KW   0801050-120-KW   0801050-15-KW   0801050-15-KW   0801050-15-KW   150108-36-KW   150108-36-KW   150108-36-KW   150108-36-KW   150108-36-KW   150108-36-KW   150108-360-KW	09 May 2008	FILL	Sand, pale brown/yellow, fine to medium grained, moist to wet at 1.4m. Shells and H2S odour	2.8
0.9-1         0.08008-110-kW           2.6-2.8         0.08008-120-kW           0.1-0.2         0.080508-155-kW           0.6-0.7         0.080508-155-kW           2.2.2         0.080508-157-kW           0.2-0.4         1.50508-36-kW Field Blind Replicate Sample of 150508-360-kW	09 May 2008	FILL	Grass over silty sand top soil, dark brown, fine grained, leose, dry to moist with roots	3.1
080508-124KW 080508-154KW 080508-154KW 080508-154KW 150508-36-15KW 150508-36-15KW Field Blind Replicate Sample of 150508-360-KW	08 May 2008	FILL	Silty clay, brown, soft and moist	3.3
(08006-154.W) (08006-154.W) (08006-154.W) (08006-154.W) (15008-304.W) (15008-304.W) Feld Bland Roplicas Sample of 15008-304.W)	08 May 2008	SAND	Sand, grey, fine to mediun	0.4
080508-156-KW 080508-157-KW 150508-361-KW Field Bind Replicate Sample of 1	08 May 2008	FILL	loose to	3.3
080508-157-KW 150508-360-KW 150508-361-KW Field Blind Replicate Sample of I	08 May 2008	FILL	Sifty clay, brown, firm and moist	- 3
150508-361-KW Field Blind Replicate Sample of 1	08 May 2008	SAND	ey, fine grained, dense and wet with shells. Refusal at 2.2mBGL	2.5
120200-201-KW FIGH DIIIIU Nepileate Sample of 1	15 May 2006	FILL	moist, grading to pale grey with	12.9
1 8-2	15 May 2008	FILT	yenow, me gramed, dense, motst, gaung to pate grey with	10.7
	12 May 2008	FILT	Sandy siny visity, sort at overly, sort and very large sort i. 2011 (Filty sand towes) have not a 1-911.	1.0.
	12 May 2008		Sand fill fine to modium orained alternatino sand lavers. Dark brown/ores/rule howay/ores/rule to solidyth mistraducts all their shawings at 0 fine	1.9
. 10	12 May 2008		and this into to medium given where a party of the control of the	4
	12 May 2008	FILL	Salloy Gay to Case/Sallad, pate from 100 and 1	3 4
	12 May 2008	FILL	CLINGS SHILL, DOVEN, WELL, THE UT BENDER, SHILL HAS NOW HELL TALS ORDOR SHIPLE AND A failed from soft and were soft and with shall k	13

Location	Location Sample Depth	Sample Id	Date Sampled	Table 2 (cc Date Sampled Material Type	Table 2 (continued): Summary of Sample Information Material Description	PID (ppm)
POPLAGG	1000	ANA BU OUFVUV	0000		-	
BBH401	0.2-0.4	280408-01-KW		FILL	Sand, medium graned, white/brown, dry, odouriess whiteforals brown loses receiple thin neat with shalls medium to deep brown/men Moier at 1	10.3
BBH401	0.3-0.0	280408-02-NW	26 Apr 2006	LIE	Sand, whitekels the town. Toose, possible tim pear with shells gradient pears and shell shell and shell and shell	6.1
BBH401	1 8-7	280408-03-KW 280408-04-KW	19 Jun 2008	SANDY SILT	toose, possible trin peat with snells grading to dark brownigrey. Moist at t. says eit, dark oney organics, come shells, dense and wet	10.5
BBH402	0.1.03	280408-05-KW	28 Apr 2008	FILL	own roote d	151
BBH402	0.5-0.6	280408-06-KW	28 Apr 2008	FILL		10.6
BBH402	6.0-8.0	280408-07-KW	28 Apr 2008	FILL	derately dense, fine to medium grain	7.5
BBH402	1.3-1.4	280408-08-KW	28 Apr 2008	FILL	Silty sand, trace clay, black/dark brown, shells with organic odour. Very dense, fine grained and mo	13.4
BBH402	2.6-2.8	280408-09-KW	28 Apr 2008	FILL	ndy clay, black, shells, moist to wet. Dense a	1.6
BBH403	0-0.1	280408-10-KW	28 Apr 2008	FILL	Grass over silty sand topsoil, brown with rootlets	12.3
BBH403	0.5-0.7	280408-11-KW	28 Apr 2008	FILL	Becoming dark brown, shells at 0.7m	3.8
BBH403	1.1-1.4		28 Apr 2008	SAND	Becoming dark grey, silty clay lenses, organic odour	5.9
BBH403	1.1-1.4	280408-13-KW Field Blind Replicate Sample of 280408-12-KW	28 Apr 2008	SAND	Becoming dark grey, silty clay lenses, or ganic odour	5.9
BBH403	1.1-1.4	280408-14-KW Split Field Duplicate of 280408-12-KW	28 Apr 2008	SAND	Becoming dark grey, silty clay lenses, or ganic odour	5.9
BBH404	0-0.1	280408-15-KW	28 Apr 2008	FILL	Grass over sand, light grey, fine to medium grained, moist with shells, rootlets and gravels	9.91
BBH404	6.0-8.0	280408-16-KW	28 Apr 2008	FILL	Dark brown, silty sand, fine grained, gravels, organic odour, moist and dense	6.7
BBH404	1.8-1.9	280408-17-KW	28 Apr 2008	SAND	Becoming grew or anne fine to medium grained	-
BBH405	0-0.2	290408-48-KW	28 Apr 2008	FILL	Grass over classes and tonsoil orange brown medium to course orange device moist orangles and mollets	1 0
BBH405	0.4-0.5	290408-49-KW	28 Apr 2008	FILL	Crished sandstone fill white/brown/crance course oration moist to dry miror black bitmen oracels. Refital on fill	99
BBH406	0.1.0.2	290408-46-KW	29 Apr 2008	EILI	Greek start and a feet and a feet and a feet because the start and a feet because the start and a feet and a feet because the start	81
DBH406	2.0-1.0	2,50406-40-KW	29 Apr 2008	TIE	Unides over still y still the property and the property a	0.1
DBH407	0.05.0.15	2,50408-47-KW	29 Apr 2008	TIE	Connec states of the control toward from marined states investigations.	> 5
DBH407	0.03-0.13	290408-43-KW	20 Am 2000	LIFE	Classical for the control of the con	t: 0
DBH40/	0.4-0.3	200408-44-KW	29 Apr 2008	CII TV CAND	Clayey sand, line to medium gainted, light prowny change with custod white sandside and retistione gravers, most and dense Clinical John Services (Clinical John Services) and the control of the contro	0 2
DD11400	0.1-0.1	WA-C4-004062	29 Apr 2000	SILI I SAIND	5115 state, data grey, the grainer, very cense, those to were at a 1-11.	1.2
DDIT408	12.14	WX-00-9000C	29 Apr 2008	FILL	Cond. come, conditions and to be an advantable date in the Late Organic advantage of the Condition and	6.9
DD11400	12.14	- 10	29 Apr 2008	SAND	Sand, grey, medium grained, most, wer at 1-ym. Organic otour	6.6
BBH408	1.2-1.4	290408-32-K W Field Blind Replicate Sample of 290408-31-KW	29 Apr 2008	SAND	Sand, grey, medulin grained, moderately dense, most, wet at 1.4m. Organic odour	9.9
BBH409	0.2-0.5		29 Apr 2008	CLAYEY SAND	Dark brown, fine to medium grained, dense, moist	16.7
BBH409	0.2-0.5	290408-40-KW Field Blind Replicate Sample of 290408-39-KW	29 Apr 2008	CLAYEY SAND	Dark brown, fine to medium grained, dense, moist	16.7
BBH409	0.2-0.5	290408-41-KW Split Field Duplicate of 290408-39-KW	29 Apr 2008	CLAYEY SAND	Dark brown, fine to medium grained, dense, moist	16.7
BBH409	1.9-2	290408-42-KW	29 Apr 2008	SAND	Pale grey, medium grained, wet at 0.8m, moderately dense	3.7
BBH410	0.1-0.4	280408-25-KW	29 Apr 2008	FILL	Grass over sandy topsoil, brown/orange/yellow, fine grained with minor clay. Ash at 0.1m. Red ironstone gravels at 0.5m, black charcoal fragments throughout	11.9
BBH410	0.9-1	280408-26-KW	29 Apr 2008	FILL	Sand, dark brown, fine grained with glass, bone, moist and loose	12.6
BBH410	1.6-1.8	280408-27-KW	29 Apr 2008	CLAY	Clay, black, wet at 1.6m, plastic, organic odour, roots, shells with bacterial sheen	8.9
BBH410	2.6-2.8	280408-28-KW	28 Apr 2008	SAND	Sand, fine to medium grained, grey with shells throughout and wet	11.5
BBH411	0.2-0.4	290408-36-KW	29 Apr 2008	FILL	Clay, grey/red/orange, stiff and dry with trace sand, gravels, ironstone gravels, sandstone and shale fragments with ash at 0.8-0.9m	9.6
BBH411	6.0-8.0	290408-37-KW	29 Apr 2008	FILL	grey/red/orange, stiff and dry with trace sand, gravels, ironstone gravels, sandstone and shale fragments with ash at 0.8-0	2.2
BBH411	2.5-2.6	290408-38-KW	29 Apr 2008	SILT	Sand, medium grained, grey, moist and dense	0
BBH412	0-0.2	280408-21-KW	29 Apr 2008	FILL	Grass overlying sandy clay topsoil, brown, rootlets, moist with charcoal pieces	12.1
BBH412	9.0-5.0	280408-22-KW	29 Apr 2008	FILL	Sand, dark brown/grey, fine grained, loose, trace clay moist	11.2
BBH412	1-1.2	280408-23-KW	29 Apr 2008	FILL	sifty sandy clay, black with glass and ash inclusions, ash odour	3.5
BBH412	2.1-2.2	280408-24-KW	29 Apr 2008	SAND	Sand, grey, with trace silt and clay, moderately dense, moist and fine grained	11.2
BBH413	0-0.4	280408-18-KW	29 Apr 2008	FILL	Grass with sandy tonsoi; brown, rootlets, dry with shells	12.4
BBH413	1-1.3	280408-19-KW	29 Apr 2008	FILL	Sand onev with dark brown lenses shelts Moist to wet	17.8
BBH413	1-1.3	280408-20-KW Field Blind Replicate Sample of 280408-19-KW	29 Apr 2008	FILL	Sand over with dark brown lenses shells Moist to wer	17.8
BBH414	0.1-0.4		02 May 2008	FILL	Sand, brown, race clay, fine grained, moist with some gravels	20.1
BBH414	0.1-0.4	020508-169-KW Field Blind Replicate Sample of 020508-168-KW	02 May 2008	FILL	Sand brown trace clay fine oralized maist with some oravels	20.1
BBH414	0.1-0.4	10	02 May 2008	FILL	Sand brown trace day fine oralized maist with some oravels	20.1
BBH414	13-14		02 May 2008	FILL	Sand vollaw fine to medium crained losse shelf a maist silt lenses wer at 15m	1.67
BBH415	0.1.0.3	3.00408-78-KW	30 Apr 2008	FILL	Classics and organizations maist medium remined model dense with cratefore	4.7
BRH415	0.4-1	300408-79-KW	30 Apr 2008	SII TV SAND		4.7
BRH415	2-2 1	300408.WW	30 Apr 2008	SILTY SAND	Only assure and dark more medium menined moderately dense, we with HDS orders at 7 6m	4.3
BRH417	0.2.0.4	200000 C	29 Apr 2008	FILL	h ash and plass fra	0
BBH417	11-13	2,00408-20-KW	29 Apr 2008	EILI	(noseible ash) mois	v
BBH417	2.2.1	200408-30-KW	29 Apr 2008	SII TV SAND	to vist moderately dense organic ordan. Shalls and ro	. "
DDITATO	0100	WASS 80000C	20 Apr. 2000	THE	Guest of the conditional toward fine amoined model to	,
DD11410	0.1-0.2	290400-00N W	Apr.	FILL	reass over siny sand topson, nine	
DD11410	16.16	Z30400-07W	Apr	FILL	brown, soit, dense. Layered grey orange	0 0
DBH410	1.3-1.0	250400-004W	29 Apr 2006	SAIND	sand, pale grey, wet medium grained and dense	5.6
BBH419	0.2-0.3	290408-62-KW	Ā.	FILL	Drown grey, tine to medium grained, loose, moist with gravels coal	6.5
BBH419	0.5-0.7	290408-63-KW	29 Apr 2008	FILL	Clay, grey/orange, motst, stiff with gravets	2.4
BBH419	2-2.1	290408-64-KW	29 Apr 2008	FILL	Fibrous black mass, silt, ash, rock, glass and wet	0
BBH419	2.6-2.8	290408-65-KW	29 Apr 2008	SAND	Sand, grey with silt, shells, moist to wet and dense	2.2
BBH420	0-0.1	020508-165-KW	02 May 2008	FILL	sand top soil, dark brown, fine grained, loose, moist w	22.3
BBH420	9.5-0.6	020508-166-KW	02 May 2008	FILL	l, yellow, fine grained to grained. Moderately dense, moist with	28.9
BBH420	2.4-2.6	020508-167-KW	02 May 2008	FILL	Crushed sansdtone, orange/white, clay content, moist (wet at 2.4m) and odourless	20.4
BBH421	0-0.1	300408-105-KW	30 Apr 2008	FILL	Grass over sandy topsoil, brown, fine grained, loose, dry with ro	
BBH421	0.5-0.6	300408-104-KW	30 Apr 2008	FILL	grained, loose, dry with rootlets. Silty clay lense	7.3
BBH422	0.2-0.4	300408-112-KW	30 Apr 2008	FILL	Sand, yellow, fine to medium grained, moderately dense with gravels from 0.2-0.4m	2.4
BBH422	2-2.2	300408-113-KW	30 Apr 2008	SILTY CLAY	Silty clay, dark brown, soft and wet (sturated at 2.0-2.2m) and organic odour	2.3
BBH423	0.1-0.3	300408-81-KW	30 Apr 2008	FILL	Weathered sandstone, orange/white, medium to course grained, moderately dense and moist	7.6
BBH423	0.7-0.8	300408-82-KW	30 Apr 2008	FILL	Sand, grey to dark grey, medium grained, moderately dense, moist, gravels and ash at 0.7-0.8m	1.9

				Table 2 (co	Table 2 (continued): Summary of Sample Information	
Location	Sample Depth	Sample Id	Date Sampled	Material Type	Material Description SOII SAMPLES	PID (ppm)
BBH423	1.5-1.6	300408-83-KW	30 Apr 2008	FILL	Silty sand, dark grey, fine to medium grained, dense, wet with H2S odour. Shells at 2,2m	0.5
BBH425	0.2-0.4	290408-57-KW	29 Apr 2008	FILL	Sand, yellow, fine to medium grained, loose, dry to moist, moderately dense with shells at 0.8-1.1m	11.8
BBH425	1.3-1.4	290408-58-KW	29 Apr 2008	FILL	Clayey silt, black, moderntely dense with organic odour	7.5
BBH426	0.1-0.2	290408-69-KW	29 Apr 2008	FILL	Grass over silty sand topsoil, brown, medium grained, loose, dry to moist	,
BBH426	0.5-0.6	290408-70-KW	29 Apr 2008	FILL	Sand, yellow grading to pale grey with depth, dense and dry to moist	7.7
BBH426	1.7-1.8	290408-71-KW	29 Apr 2008	FILL	Silt, dark brown, soft with glass, gravel and roots	1
BBH427	0.1-0.3	290408-59-KW	29 Apr 2008	FILL	Cayey sand, brown/orange with concrete rubble, gravels and shells. Some stiffer brown clay	4.2
BBH427	0.8-1	290408-60-KW	29 Apr 2008	FILL	Sand, yellow, medium grained,	8
BBH427	1.8-2	290408-61-KW	29 Apr 2008	FILL	Orange sand lenses	10.4
BBH428	0.1-0.2	010508-162-KW	01 May 2008	FILL	Silty sand, brown, fine grained moist with gravels and roots	16.2
BBH428	0.6-0.7	010508-163-KW	01 May 2008	FILL	Sand, yellow/pale grey with orange mottles, shells and peat sections throughout	5.8
BBH428	2.4-2.6	010508-164-KW	01 May 2008	FILL	Silty sand, moist with gravels, glass and organic odour	26.2
BBH429	0-0.1	010508-152-KW	01 May 2008	FILL	Grass over silty clay topsoil, dark brown, roots and grave is	2.3
BBH429	0.5-0.7	010508-153-KW	01 May 2008	FILL	Clay, dark grey/brown mottles, moist, stiff, roots and sand at 1.3m	4.2
BBH429	2.4-2.5	010508-155-KW	01 May 2008	FILL	Sandy silt, black, roots, glass, plastic, moist to wet with gravels and H2S odour	15
BBH430	0.1-0.3	300408-106-KW	30 Apr 2008	FILL	Sand, pale grey, fine to medium grained, moderately dense, moist with shells throughout	2.4
BBH430	2.4-2.6	300408-107-KW	30 Apr 2008	FILL	Sith, black with gravels and organic odour	3.2
BBH431	0.1-0.2	300408-84-KW	30 Apr 2008	FILL	ey grading t	1.6
BBH431	0.5-0.6	300408-85-KW	30 Apr 2008	FILL	Sailty sand, dark grey, fine to medium grained, moist, loose with ash and gravels	4.5
BBH431	2-2.1	300408-86-KW	30 Apr 2008	CLAYEY SAND	Clayey silty sand, grey, medium grained, dense, soft with organic odour. Shells at 2.1-2.2m. Grading to silty clay with trace sands at 2.5m	11.3
BBH432	0-0.1	010508-160-KW	01 May 2008	FILL	Grass over silty sand topsoil, moist with roots	2.3
BBH432	1.3-1.4	010508-161-KW	01 May 2008	FILL	Silty clay, dark grey, soft and moist	2.2
BBH433	0.1-0.3	010508-156-KW	01 May 2008	FILL	Sandy silt clay, brown with gravels, ceramic peices, charcoal, moist and dense	2.1
BBH433	0.1-0.3	010508-157-KW Field Blind Replicate Sample of 010508-156-KW	01 May 2008	FILL	Sandy silt clay, brown with gravels, ceramic peices, charcoal, moist and dense	2.1
BBH433	2.4-2.5	010508-159-KW	01 May 2008	FILL	Silt, black, moist with glass, gravels and sand	8.1
BBH434	0-0.2	300408-108-KW	30 Apr 2008	FILL	Grass over sandy topsoil, dark brown, lose dry to moist, rootlets with trace clays	. ;
BBH434	0.5-0.6	300408-109-KW	30 Apr 2008	FILL	Sand, yellow, thre to medium granted, concrete rubble and gravels at 0-km. Sand, yellow, the to medium granted, concrete rubble and gravels at 0-km.	3.5
BBH433	0.1-0.3	300408-111-KW	30 Apr 2008	FILL	Sand collocar reading to read the first reading readin	5.7
BBH436	0.1-1.1	300408-87-F W	30 Apr 2008	FILL	Santa, yeti oo yoo yoo ka ta	3.6
BBH436	0.5-0.5	300408-88-K W	30 Apr 2008	FILL	Sand with trace sit and clave at 1 In brown/ore/crose moist Sand with trace sit and clave at 1 In brown/ore/crose moist	5.0
BBH438	0.2-0.3	290408-72-KW	30 Apr 2008	FILL	brown, dry to moist.	4.1
BBH438	1.9-2	290408-73-KW	30 Apr 2008	FILL	Clavev silt dark brown, soft, dense and wet	3.3
BBH439	0.1-0.2	010508-133-KW	01 May 2008	FILL	Sandy clay, brown sand with orange clay, black graveds, glass, dry and osourless	6.3
BBH439	0.2-0.4	010508-134-KW	01 May 2008	FILL	Silty sand, dark brown/orange with black gravels	8.1
BBH439	2-2.1	010508-135-KW	30 Apr 2008	FILL	Silty clay sand, dark grey, dense and moist to wet	,
BBH440	0.2-0.4	010508-148-KW	01 May 2008	FILL	Sand, yellow/pale grey with onange mortles throughout, shells throughout, moist and moderately dense	
BBH440	1-1.1	010508-149-KW	01 May 2008	FILL	Sand, yellow/pale grey with onange mottles throughout, shells throughout, moist and moderately dense	
BBH441	0-0.2	010508-150-KW	01 May 2008	FILL	Grass over silty sand topsoil, fine grained, dark brown, loose, dry with roots	
BBH441	1.5-1.6	010508-151-KW	30 Apr 2008	FILL	Sand, pale grey, finr to medium grained, slightly dense, moist to wet with shells throughout	
BBH442	0.1-0.4	300408-101-KW	30 Apr 2008	FILL	Sand, brownigrey, fine to medium grained, loose, moist with shells.	2 6
BBH442	0.1-0.4	300408-102-K W Field Blind Replicate Sample of 300408-101-K W	30 Apr 2008	FILL	Sand, brown grey, in the medium granted, loses, most will shall see Co. J. a. L. brown grey, in the in medium granted, loses, most will shall see Co. J. a. L. brown grey, in the intending granted, loses, most will shall be a considered to the construction of the con	2
BBH442 BBH443	0.4-0.5	300408-103-KW	30 Apr 2008	FILL	Sand, pile gock, produin galnete, moste, occurso and control and c	-,
BBH443	0.4-0.5	300408-90-KW Field Blind Replicate Sample of 300408-89-KW	30 Apr 2008	FILL	Crashed sandstone, orange/white, course grained, dones, moist to dry with reak-grane's	
BBH443	2.2-2.4	300408-91-KW	30 Apr 2008	SILTY CLAY	Silty day, dark grey, fine grained, dense and moist	1.9
BBH445	0.1-0.4	010508-136-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, loses, dry. Brown silty lense at 1.2m	3.5
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry. Brown silty lense at 1.2m	3.5
BBH445	0.1-0.4	010508-138-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry. Brown silty lense at 1.2m	3.5
BBH445	1.8-1.9	010508-139-KW	01 May 2008	FILL	Silly clay, dark brown, soft and wet	11.4
BBH446	0.1-0.2	010508-146-KW	01 May 2008	FILL	Grass vers sally delty (Jopson, Lark Provon, most with rods and gravels	4.8
BBH440	0.4-0.5	010308-14/-KW	01 May 2008	FILL	Sand stalling and several location and several loca	9.3
BBH447	0.1-0.2	010508-1444-KW	01 May 2008	FILE	Silve sand dele brown fine ornined rooting research and most	c 1
BBH448	0.1-0.2	300408-98-KW	30 Apr 2008	FILL	Sand, pale grey, fine to medium grained, loose to dense, most. Shells at 0.3m	1.8
BBH448	0.4-0.5	300408-99-KW	30 Apr 2008	FILL	Siliy clay, dark brown, shells, soft with organic odour	1.7
BBH448	1.2-1.3	300408-100-KW	01 May 2008	FILL	Sand, Tine to medium grained, pule grey, and wet	3.6
BBH450	0.4-0.5	010508-140-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, loose, dry to moist (increasing with depth), minor charcoal/coal fragments, from 0.1-0.8m. Crushed white sandstone at 0.8m	3
BBH450	0.8-1	010508-141-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, loose, day to moist (increasing with depth), minor charcoal/coal fragments, from 0.1-0.8m. Crushed white sandstone at 0.8m	1.9
BBH451	0-0.2	010508-142-KW	01 May 2008	FILL	Sand, yellow, fine to medium, moist and loose	

	L			Table 2 (continued):	Table 2 (continued): Summary of Sample Information	
Location	Sample Depth	Sample 1d	Date Sampled	Material Type So		PID (ppm)
BBH451	0-0.1	010508-A1-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, moist and loose	
BBH451		010508-143-KW	01 May 2008	FILL	Silty clay, brown, moist and soft with roots	3.2
BBH452 BBH452	0.5-0.7	300408-50-KW 300408-97-KW	30 Apr 2008 01 May 2008	FILL	Sand, pale grey, fire to medium grained, loose and dense, moist with shells at 0.7-0.8m	2.1
BBH453		300408-92-KW	30 Apr 2008	FILL	Crushed sandstone, orange/white, course grained and dry	1.5
BBH453		300408-93-KW	30 Apr 2008	FILL	rown, fine to medium grained, loose an	2.1
BBH455	0.1-0.2	010508-120-KW	01 May 2008	FILL	Sand, light brown, fine to medium grained, loose, dry to moist	6
BBH456		010508-118-KW	01 May 2008	FILL	Sandy clay, brown with weathered crushed sandstone (white/yellow)	10.2
BBH456		010508-119-KW	01 May 2008	FILL	Sand, yellow, fine to medium grained, slightly dense, moist with shells	9.1
BBH457		300408-94-KW	30 Apr 2008	FILL	Sand, dry to moist, black with ash (black and white), crunchy and sharp	2.2
BBH457 BBH458	0.1-0.4	300408-95-KW	30 Apr 2008 01 May 2008	SILIY CLAY	Sifty clay, dark brown, tine grained, stiff, soft from 1.1m, shells at 1.3m and organic odour Sand note move fine to medium engined Toose and dry Tetreenessed silt lavence. 1728 odour at 7.6m. Model to wet at 7.8m.	0.0
BBH458		010508-123-KW	01 May 2008	FILL	grey.	7.4
BBH458		010508-124-KW	01 May 2008	FILL	Sand pale grey, fine to medium grained, loose and dry. Interspersed stit layeres. H2S odour at 2.6m. Moist to wet at 2.8m	7.4
BBH458	0.9-1.1	010508-125-KW	01 May 2008	FILL	fine to	9
BBH460		010508-114-KW	01 May 2008	FILL	8 3	- 91
BI G404		020508-113-KW	01 May 2008	FILL	yenow, tine to medium gramed, moderately ocnse, mots siteus, sitty cray, Silv sand ton soil, brown, fine orained, dry and losse with orawels	0.1
BLG404		020508-179-KW	02 May 2008	FILL	ev. fine grained, ury and	7.4
BLG404		020508-180-KW	02 May 2008	SILTY CLAY	rowr	
BMW401	_	020508-187-KW	02 May 2008	FILL	Crushed weathered sandstone and white	10.4
BMW401	0.6-0.7	020508-A2-KW	02 May 2008	FILL	Clay, brown/orange, sand, dry with black gravels	
BMW401		020508-188-KW	02 May 2008	FILL	Clay brown/orange, stiff, dry, gravels, crushed sandstone and ash at 1.3m	22.4
BMW401		020508-128-LJ 020508-125-KW	02 May 2008	FILL	Clay, brown/crapes, 41ff, fdt, gravels, crashed and salt at 1.3m  Craphad and darma white armae armine armada metada and salt at 1.3m	22.4
BMW404	0.4-0.5	020208-173-KW	02 May 2008	FILL	Sandstone, write, course granter, graves Sand black dry with ash orayel	
BMW404		020508-177-KW	02 May 2008	_	Sand with trace si	17.9
					GROUNDWATER SAMPLES	
AMW201		290508-05-LJ	29 May 2008	WATER	Pale brown tint, almost clear, odourless.	
AMW201	,	290508-06-LJ Field Blind Replicate Sample of 290508-05-LJ	29 May 2008	WATER	Pale brown tint, almost clear, colourless.	
AMW201		290508-07-LJ Split Field Duplicate of 290508-05-LJ	29 May 2008	WATER	Pate brown tint almost clear, dourtess.  Pate brown tint almost clear, dourtess.	
AMW203		300308-12-L3 290508-11-1	29 May 2008	WATER	Free Drown first Hands, down f	
AMW204		290508-08-LJ	29 May 2008	WATER	Orange/red, turbal, odourless.	
AMW205		290508-04-LJ	29 May 2008	WATER	Grey tint, slightly turbid, organic odour.	
AMW206		300508-10-LJ	30 May 2008	WATER	Pale brown, slightly turbid, odourless.	
AMW206		300508-11-LJ	30 May 2008	WATER	Pale brown, slightly turbid, odourless,	
AMIW207		300208-03-1 200808-03-1	30 May 2008	WATER	Pale Prown titl. I harbot, obouness.  Pale hvooran titl shoon sith harbot, obouness.  Pale hvooran titl shoon sith harbot, obouness.	
ABH2105		290508-02-LJ	29 May 2008	WATER	Almost clear, hown tint, broaden odour.	
ABH2110		300508-13-LJ	30 May 2008	WATER	nost c	
ABH2100		300508-14-LJ	30 May 2008	WATER	Pale brown tint, almost clear, odourless.	
BMW401		17-10-8090L1	17 June 2008	WATER	Clert, colouriess, colouriess	
BMW402 RMW403		1.700-8-03-1	17 June 2008	WATER	Pale brown/document unit, dountees  Pale brown/document inithat industries  Pale brown/document inithat initial and initial an	
BMW404		LT-60-809071	17 June 2008	WATER	Black, very turbid, rich capanic colour.	
BMW404		170608-04-LJ Field Blind Replicate Sample of 170608-03-LJ	17 June 2008	WATER	Black, very turbid, rich organic odour.	
BBH304		180608-06-LJ	18 June 2008	WATER		
00000		40000	2000	F	GAS SAMPLES	
ALG202		ALG202	16 June 2008	GAS		
BLG402		BLG402	To June 2008	GAS	. Saldwes 20	
Trip Blank		Trip Blank	5/5/08, 6/5/08 and 7/5/08		Sand	
Trip Spike		Trip Spike	5/5/08, 6/5/08 and 7/5/08	TIOS	Sand	
Trip Blank		Trip Blank	8 May 2008	SOIL	pur S	
Trip Blank		Trip Space Trip Blank	9 May 2008	SOIL	Sand	
Trip Spike		Trip Spike	9 May 2008	SOIL	Sand	
Trip Blank		Trip Blank	12 May 2008	SOIL	Sand	
Trip Spike		Trip Spike	12 May 2008	SOIL	pre	
Trip Spike		Trip Spike	13 May 2008	SOIL	nine Sand	
Trip Blank		Trip Blank	15 May 2008	SOIL	Sand	
Trip Spike		Trip Spike	15 May 2008	NOIL	Sand	,
Trip Blank		Trip Blank	28/4/08 and 29/4/08	SOIL	pus c	
Trip Spike		Trip Blank	30/4/08 and 29/4/08	SOIL	pung	
Trip Spike		Trip Spike	30/4/08 and 1/5/08	SOIL	Sand	,
Trip Blank	,	Trip Blank	2 May 2008	Nos	Sand	
Trip Spike		Trip Spike Trin Block	2 May 2008	SOIL	Sand	
Trip Spike		Trip Spike	29/5/08 and 30/5/08	WATER	water	
Rinsate		090508-500-KW	9/05/2008	WATER	Water	
Trip Blank		Trip Blank	17 June 2008	WATER	Water	
Irip Spike		Ттр эрке	17 June 2008	WAIEK	Water	

	Table 3: Containers, preserva	Table 3: Containers, preservation requirements and holding times - Soil	g times - Soil	
Parameter	Container	Preservation	Maximum holding time	Colour code
Acid digestible metals and metalloids (As	250 mL glass	Nil	6 months	Orange
Mercury	250 mL glass	$4^{\circ}$ C	28 days	Orange
TPH/BTEX	250 mL glass	$4^{\circ}$ C	14 days	Orange
PAHs	250 mL glass	4°C, zero headspace	14 days	Orange
OCPs/OPPs/PCBs	250 mL glass	4°C, zero headspace	14 days	Orange
VOCs, PAAHs, Phenols	250 mL glass	4°C, zero headspace	14 days	Orange
Nutrients	250 mL glass	$4^{\circ}$ C	7 days	Orange
Asbestos	Sealed plastic bag	Nil	Nil	Nil
SPOCAS	Sealed plastic bag	Frozen	Nil	Nil
Salinity indicators	Sealed plastic bag - min 1500g	Nil	Nil	Nil

Table 4: Contain	4: Containers, preservation requirements and holding times - Groundwater	ements and holding	g times - Gro	undwater	
Parameter	Container Volume (mL)	Preservative	Maximum holding	Colour	Field Filtered
Metals and metalloids	125 mL Plastic	$HNO_3 / 4^{\circ}C$	6 months	Red	Yes
Anions	250 ml Plastic	None / 4°C	48 Hrs	Green	No
Cations	125 mL Plastic	$HNO_3 / 4^{\circ}C$	7 days	Red	Yes
Nutrients	250 ml Plastic	$\mathrm{H}_{2}\mathrm{SO}_{4}$ / $4^{\circ}\mathrm{C}$	28 days	Purple	No
TPH (C <sub>6</sub> -C <sub>9</sub> )/BTEX/VOCs	4 x 43 mL Glass	$HCI / 4^{\circ}C$		Orange	No
			14 days		
TPH $(C_{10}$ - $C_{36})$ /PAHs	1000 mL Glass	None / 4°C	28 days	Orange	No
PAAHs/Phenols	1000 mL Glass	None / $4^{\circ}$ C	28 days	Orange	No
Salinity Indicators	1000 mL	None / 4°C	48 Hrs	Green	No

Table 5: Conta	iners and preservat	ion requirements –
Parameter	Container Volume (mL)	Preservative
VOC	4 L	Tedlar Gas Bag

			d methods - Soil
Parameter	Unit	PQL	Method Based On
	etals and Met	alloids in So	il
Arsenic <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
Cadmiun 1	mg kg <sup>-1</sup>	1	USEPA 200.7
Chromium <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
Copper <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
Mercury <sup>2</sup>	mg kg <sup>-1</sup>		
Nickel <sup>1</sup>	mg kg	0.1	USEPA 7471A
Lead 1		1	USEPA 200.7
Zinc <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
		1	USEPA 200.7
Total Petroleum H	ydrocarbons (	(TPH) and B	STEX Compounds
C <sub>6</sub> -C <sub>9</sub> fraction	mg kg <sup>-1</sup>	2	USEPA 8015B
C <sub>10</sub> -C <sub>14</sub> fraction	mg kg <sup>-1</sup>	50	USEPA 8015B
C <sub>15</sub> -C <sub>28</sub> fraction	mg kg <sup>-1</sup>	100	USEPA 8015B
C <sub>29</sub> -C <sub>36</sub> fraction	mg kg <sup>-1</sup>	100	USEPA 8015B
Total C <sub>6</sub> -C <sub>36</sub>	mg kg <sup>-1</sup>		USEPA 8015B
Benzene	mg kg <sup>-1</sup>	0.2	USEPA 8021A
Toluene	mg kg <sup>-1</sup>	0.5	USEPA 8021A
Ethylbenzene	mg kg <sup>-1</sup>	0.5	USEPA 8021A
m&p-xylene	mg kg <sup>-1</sup>	1	USEPA 8021A
o-xylenes	mg kg <sup>-1</sup>	0.5	USEPA 8021A
	Organics		
Polycyclic Aromatic Hydrocarbons	mg kg <sup>-1</sup>	0.5-1	USEPA 8270 SIM
Organochlorine Pesticides	mg kg <sup>-1</sup>	0.05-0.2	USEPA 8081A
Outron Describer	mg kg <sup>-1</sup>	0.05.0.2	LIGEDA 0001A
Organophosphorus Pesticides Phenols	mg kg	0.05-0.2	USEPA 8081A
Flienois	ilig kg	5	APHA
Polychlorinated Biphenyls	mg kg <sup>-1</sup>	0.1	USEPA 8081A
	Asbes	stos	
Asbestos	-	-	Polarised Light Microscopy
	SPOCAS	analysis	
SPOCAS	r mol H <sup>+</sup> ton	0.001-0.01	Ahern et al (1998)
	Salinity In	dicators	
рН	pH units	0.01	AS2159:1995
Electrical Conductivity	μS cm <sup>-1</sup>	1	AS2159:1995
Salinity	ppt	1	AS2159:1995 AS2159:1995
Resistivity	Ohms	1	AS2159:1995
		-	
Soluble sulfate	mg kg <sup>-1</sup>	10	AS2159:1995
Chloride	mg kg <sup>-1</sup>	10	AS2159:1995

Note 1: Acid soluble metals by ICP-AES.

Note 2: Total recoverable mercury.

	Sa	alinity Indic	ators
рН	pH units	0.1	AS2159:1995
Electrical conductivity	μS cm <sup>-1</sup>	1	AS2159:1995
Salinity	ppt	1	AS2159:1995
Total dissolved solids	mg L <sup>-1</sup>	1	AS2159:1995
Resistivity	Ohms	1	AS2159:1995
Alkalinity	mg L <sup>-1</sup>	1	AS2159:1995
Sulfate	mg L <sup>-1</sup>	0.1	AS2159:1995
Chloride	mg L <sup>-1</sup>	0.1	AS2159:1995

	Table 8: Site Assessm	nent Criteria – Soil	s (mg kg <sup>-1</sup> )
Contaminant	HIL (Setting C)	HIL (Setting D)	Source
Arsenic (total)	300	3000	NEPC (2014) – Schedule (B1)
Benzo(a)pyrene TEQ	3	40	NEPC (2014) – Schedule (B1)
Cadmium	90	900	NEPC (2014) – Schedule (B1)
Copper	17000	240000	NEPC (2014) – Schedule (B1)
Lead	600	1500	NEPC (2014) – Schedule (B1)
Mercury (inorganic)	80	730	NEPC (2014) – Schedule (B1)
Nickel	2100	6000	NEPC (2014) – Schedule (B1)
Zinc	30000	4000000	NEPC (2014) – Schedule (B1)
Total PAHs	300	400	NEPC (2014) – Schedule (B1)
TPH C <sub>6</sub> -C <sub>9</sub>	-	-	-
TPH C <sub>10</sub> -C <sub>40</sub>	-	-	-
Benzene	-	-	-
Toluene	-	-	-
Ethylbenzene	-	-	-
Total Xylene	-	-	-
Aldrin + Dieldrin	10	45	NEPC (2014) – Schedule (B1)
Chlordane	70	530	NEPC (2014) – Schedule (B1)
DDT+DDD+DDE	400	3600	NEPC (2014) – Schedule (B1)
Phenol	40000	240000	NEPC (2014) – Schedule (B1)
Heptachlor	10	50	NEPC (2014) – Schedule (B1)
Polychlorinated Biphenyls	-	-	NEPC (2014) – Schedule (B1)

	Table 8: Site Assessme		5 (mg ng )
	EIL (Urban	EIL	
	Residential/Public	(Commercial/	
Contaminant	Open Space)	Industrial)	Source
Arsenic (total)	100	160	NEPC (2014) - Schedule (B1)
Benzo(a)pyrene			NEPC (2014) - Schedule (B1)
Cadmium			NEPC (2014) - Schedule (B1)
Chromium (III)	200	320	NEPC (2014) - Schedule (B1)
Copper	103	148	NEPC (2014) - Schedule (B1)
Lead	1131	1831	NEPC (2014) - Schedule (B1)
Mercury (inorganic)			NEPC (2014) - Schedule (B1)
Nickel	35	60	NEPC (2014) - Schedule (B1)
Zinc	275	405	NEPC (2014) - Schedule (B1)
Vaphthalene	170	370	NEPC (2014) - Schedule (B1)
Γotal PAHs			NEPC (2014) - Schedule (B1)
ГРН С <sub>6</sub> -С <sub>9</sub>			NEPC (2014) - Schedule (B1)
TPH C <sub>10</sub> -C <sub>40</sub>			NEPC (2014) – Schedule (B1)
Benzene			NEPC (2014) - Schedule (B1)
Γoluene			NEPC (2014) - Schedule (B1)
Ethylbenzene			NEPC (2014) - Schedule (B1)
Γotal Xylene			NEPC (2014) - Schedule (B1)
Aldrin + Dieldrin			NEPC (2014) – Schedule (B1)
Chlordane			NEPC (2014) – Schedule (B1)
ODT+DDD+DDE			NEPC (2014) - Schedule (B1)
DDT	180	640	NEPC (2014) - Schedule (B1)
Phenol			NEPC (2014) – Schedule (B1)
Heptachlor			NEPC (2014) – Schedule (B1)
Polychlorinated Biphenyls			NEPC (2014) – Schedule (B1)

Type of Material	n criteria base	Action	· ·	1	riteria if
• •		1-1000	tonnes	1000 t	onnes
	Approx. clay	Sulfur trail	Acid trail	Sulfur trail	Acid trail
Texture range <sup>1</sup>	<b>content</b> (%<0.002 mm)	% S oxidisable (oven-dry basis) eg S <sub>TOS</sub> or S <sub>POS</sub>	mol H+/tonne (oven-dry basis) eg TPA or TSA	% S oxidisable (oven-dry basis) eg S <sub>TOS</sub> or S <sub>POS</sub>	mol H+/tonne (oven-dry basis) eg TPA or TSA
Coarse Texture					
Sands to loamy sands	≤5	0.03	18	0.03	18
Medium Texture Sandy loams to light clays	May-40	0.06	18	0.03	18
Fine Texture					
Medium to heavy clays and silty clays.	≥40	0.1	18	0.03	18

Table 10: Summ	ary of site assessm	ent criteria - groundwater
Parameter	Criterion (µg L <sup>-1</sup> )	Source and Comments <sup>1</sup>
	Metals and Met	alloids
Arsenic (V)	13	NEPM 2013 GIL- Marine Waters
Cadmium	0.7	NEPM 2013 GIL- Marine Waters
Chromium VI	4.4	NEPM 2013 GIL- Marine Waters
Copper	1.3	NEPM 2013 GIL- Marine Waters
Nickel	7	NEPM 2013 GIL- Marine Waters
Lead	4.4	NEPM 2013 GIL- Marine Waters
Zinc	15	NEPM 2013 GIL- Marine Waters
Mercury (inorganic)	0.1	NEPM 2013 GIL- Marine Waters
	Nutrients	
Nitrate	700	ANZG 2018 <sup>5</sup>
Ammonia	0.91	ANZG 2018
	TPH and BT	EX
TPH C <sub>6</sub> -C <sub>36</sub>	285	ANZG 2018 <sup>4</sup>
Benzene	500	ANZG 2018 (99 % marine)
Toluene	180	ANZG 2018
Ethylbenzene	5	ANZG 2018
m + p xylene	ID	ANZG 2018
o-xylene	350	ANZG 2018
Total xylenes	380	-
Po	olycyclic Aromatic H	ydrocarbons
Fluoranthene	1	ANZG 2018
Phenanthrene	0.6	ANZG 2018
Anthracene	0.01	ANZG 2018
Benzo(a)pyrene	0.1	ANZG 2018
Napthalene	50	ANZG 2018 (99%)
	Organic Compo	ounds
Ammonia	0.91	ANZG 2018
Organochlorine Pesticides	See Table 29	ANZG 2018
Polychlorinated		
Biphenyls	See Table 31	ANZG 2018
Volatile Organic Compounds	See Table 28	ANZG 2018
	Organic Compo	ounds
Ammonia	0.91	ANZG 2018
Endosulfan	0.005	ANZG 2018 (99%)
Endrin	0.004	ANZG 2018 (99%)
Chlorpyrifos	0.009	ANZG 2018
1,1,2-trichloroethane 1,2,4-trichlorobenzene	1900	ANZG 2018 ANZG 2018 (99%)
1,2,1 dicinoroccinzone	20	11123 2010 (7770)

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

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

Note 3: ID - insufficient data for guideline development.

Note 4: Addition of the combined detection limits

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

		Table 11: Soil Analytical Resul	lts - Metals								
Location	Sample Depth (m)	Sample ID	Date Sampled	Arsenic	Cadmium	Chromium	Copper	Nickel	Lead	Zinc	Mercury
CD4 Eti			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP4 Enterprise ABH202	0.45-0.55	090508-192-KW	09 May 2008	7.1	< 1	8.5	24	4.7	180	69	< 0.1
ABH202	1.9-2.2	090508-202-KW	09 May 2008	8	< 1	3.6	< 1	1.6	1.7	1.4	< 0.1
ABH202 ABH204	3.8-4 0.1-0.4	150508-601-KW 070508-55-KW	15 May 2008 07 May 2008	nt < 4	nt < 1	nt 3.1	nt 3.9	nt 1	9.9	nt 4.8	nt < 0.1
ABH204	0.1-0.4	070508-56-KW Field Blind Replicate Sample of 070508-55-KW	07 May 2008	< 4	< 1	3	6.5	1	16	16	< 0.1
ABH204	0.1-0.4	070508-57-KW Split Field Duplicate of 070508-55-KW	07 May 2008	< 5	< 1	2	6	< 2	9	8	< 0.1
ABH205 ABH205	0.1-0.2 0.4-0.5	060508-49-KW 060508-50-KW	06 May 2008 06 May 2008	< 4 9.3	< 1	3.4 7	12	3.9 1.5	33 23	64 13	< 0.14
ABH206	0.1-0.2	090508-208-KW	09 May 2008	< 4	< 1	3.1	11	2.7	47	36	0.9
ABH206 ABH207	1-1.2 0.2-0.4	090508-209-KW 090508-207-KW	09 May 2008 09 May 2008	< 4	< 1	< 1 6	1.9	< 1 1.7	< 1 6.3	33 7.1	< 0.1
ABH210	0.1-0.2	060508-46-KW	06 May 2008	13	< 1	4	8.1	3.4	26	27	< 0.1
ABH2102	0.7-0.8	090508-186-KW	09 May 2008	4.6	< 1	3.9	13	7.2	40	44	0.26
ABH2103 ABH2103	0.1-0.2 0.1-0.2	090508-194-KW 090508-195-KW Field Blind Replicate Sample of 090508-194-KW	09 May 2008 09 May 2008	< 4	< 1	9.7 4.2	7.3	12	950 1200	41 34	< 0.1
ABH2103	0.9-1	090508-197-KW	09 May 2008	< 4	< 1	2.8	13	1.5	61	57	0.53
ABH2104 ABH2105	0.3-0.5 1.4-1.5	090508-198-KW 150508-333-KW	09 May 2008 15 May 2008	< 4	< 1 nt	11 nt	22 nt	15 nt	990 37	200	< 0.1
ABH2105	3.8-4	150508-555-KW 150508-600-KW	15 May 2008	nt nt	nt	nt nt	nt nt	nt	2.2	nt nt	nt nt
ABH2106	0.1-0.2	090508-204-KW	09 May 2008	< 4	< 1	6.7	25	9.2	130	89	< 0.1
ABH2107 ABH2107	1-1.1 1.5-1.6	150508-341-KW 150508-342-KW	15 May 2008 15 May 2008	nt nt	nt nt	nt nt	nt nt	nt nt	58 2.8	nt nt	nt nt
ABH2108	0.1-0.2	150508-342-KW	15 May 2008	< 4	< 1	4.2	4.6	4.2	54	20	< 0.1
ABH2108	1.1-1.2	150508-345-KW	15 May 2008	nt	nt	nt	nt	nt	8.2	nt	nt
ABH2108 ABH211	4.2-4.5 1-1.2	150508-348-KW 120508-215-KW	15 May 2008 12 May 2008	nt < 4	nt < 1	nt 1.6	nt < 1	nt < 1	2.1	nt 2.1	nt 0.14
ABH211	1-1.2	120508-215-KW Split Field Duplicate Sample of 120508-215-KW	12 May 2008	< 5	< 1	2	< 5	< 2	< 5	< 5	< 0.14
ABH212	0.35-0.45	080508-161-KW	08 May 2008	6.3	< 1	7.2	240	8.6	33	340	< 0.1
ABH213 ABH215	0.5-0.6 0-0.2	120508-212-KW 060508-36-KW	12 May 2008 06 May 2008	< 4 11	< 1	2.2	3.1 12	1.3 7.4	10 29	11 82	< 0.1
ABH215	0.7-0.9	060508-37-KW Field Blind Replicate Sample of 060508-36-KW	06 May 2008	6.5	< 1	2.7	<1	1.6	1.4	3	< 0.1
ABH215	0.7-0.9	060508-38-KW Split Sample Replicate of Sample 060508-37-KW	06 May 2008	<5	<1	3	<5	<5	<2	<5	< 0.1
ABH216 ABH216	0-0.2 2.6-2.8	060508-40-KW 060508-42-KW	06 May 2008 06 May 2008	12	< 1	23	10	6.4	20 < 1	34 4.4	< 0.1
ABH217	0-0.2	060508-43-KW	06 May 2008	< 4	< 1	3.5	11	1.9	36	38	< 0.1
ABH226 ABH227	0-0.1 0.8-1	060508-06-KW 060508-09-KW	06 May 2008 06 May 2008	9.6	< 1	4.2 1.9	9.9	1.6	45 12	50 6.1	< 0.1
ABH227	0.2-0.3	060508-04-KW	06 May 2008	7	< 1	3.9	27	21	11	38	0.71
ABH229	0.5-0.6	060508-05-KW	06 May 2008	< 4	< 1	1.4	1.5	< 1	7.7	7.1	< 0.1
ABH229 ABH297	0.1-0.25 0.5-0.55	080508-158-KW 090508-165-KW	08 May 2008 09 May 2008	< 4 6.2	< 1	1.9 2.1	7.6 3.6	1.5	34 14	67 11	0.29
ABH297	0.9-1.0	090508-166-KW	09 May 2008	4.5	< 1	2.1	8.5	1.6	31	51	0.28
ABH299	0.1-0.2	090508-168-KW	09 May 2008	5.1	< 1	3.8	2	1.8	5.7	7.9	< 0.1
ABH299 AMW203	1.2-1.3 0.25-0.35	090508-182-KW 090508-188-KW	09 May 2008 09 May 2008	< 4 4.5	< 1	1.7 5.4	< 1 16	< 1 4.5	3 68	28 47	< 0.1
AMW203	0.7-0.8	090508-189-KW	09 May 2008	< 4	< 1	2.4	33	15	21	33	< 0.1
E1 Public Recreatio											
BBH401 BBH402	0.2-0.4 0.5-0.6	280408-01-KW 280408-06-KW	28 Apr 2008 28 Apr 2008	4.9 8.7	< 1	4.1	3.4 44	2.3	7.7 64	12 65	< 0.13
BBH426	0.1-0.2	290408-69-KW	29 Apr 2008	< 4	< 1	4.4	7.6	1.4	34	46	< 0.1
BBH426	0.5-0.6	290408-70-KW	29 Apr 2008	< 4	< 1	< 1	< 1	< 1	2.4	2.8	< 0.1
P4 Enterprise ABH228	2.5-2.6	060508-12-KW	06 May 2008	< 4	< 1	1.2	< 1	< 1	1.2	14	< 0.1
ABH229	0.1-0.3	060508-13-KW	06 May 2008	68	< 1	9.7	31	2	68	13	0.27
ABH229	0.5-0.8	060508-14-KW 060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	< 4	< 1	2.1	< 1	< 1		1.3	
ABH229	0.5.0.0								1.1	36	< 0.1
ABH229	0.5-0.8 0.5-0.8		06 May 2008	< 4 <5	< 1 <1	1.8	< 1 <5	< 1 <5	1.2	36 12	< 0.1 < 0.1
ABH229 ABH230	0.5-0.8 0.5-0.8 0.5-0.6	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW		< 4 <5 4.9	<1 <1 <1	1.8 <2 7.3	<1 <5 11	< 1 <5 5.4	-	36	< 0.1
ABH230 ABH231	0.5-0.8 0.5-0.6 0-0.3	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW	06 May 2008 06 May 2008 08 May 2008 08 May 2008	<5 4.9 < 4	<1 <1 <1	<2 7.3 <1	<5 11 3.4	<5 5.4 <1	1.2 <2 26 18	36 12 28 29 18	< 0.1 < 0.1 < 0.1 < 0.1 < 0.1
ABH230 ABH231 ABH231	0.5-0.8 0.5-0.6 0-0.3 0.6-0.7	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-152-KW	06 May 2008 06 May 2008 08 May 2008	<5 4.9 < 4 < 4	<1 <1 <1 <1	<2 7.3 <1 1.3	<5 11 3.4 1.6	<5 5.4 <1 <1	1.2 <2 26 18 7.8	36 12 28 29 18	< 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1
ABH230 ABH231	0.5-0.8 0.5-0.6 0-0.3 0.6-0.7 0.6-0.7	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW	06 May 2008 06 May 2008 08 May 2008 08 May 2008 08 May 2008	<5 4.9 < 4	<1 <1 <1	<2 7.3 <1	<5 11 3.4	<5 5.4 <1	1.2 <2 26 18	36 12 28 29 18	< 0.1 < 0.1 < 0.1 < 0.1 < 0.1
ABH230 ABH231 ABH231 ABH231 AEI Public Recreation	0.5-0.8 0.5-0.6 0-0.3 0.6-0.7 0.6-0.7	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-152-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW 070508-79-KW	06 May 2008 06 May 2008 08 May 2008 08 May 2008 08 May 2008 08 May 2008 08 May 2008	<5 4.9 <4 <4 <4	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1	<2 7.3 <1 1.3 1.2	<5 11 3.4 1.6 1.8	<5 5.4 <1 <1 <1	1.2 <2 26 18 7.8 9.1	36 12 28 29 18 9 12	< 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1
ABH230 ABH231 ABH231 ABH231 EEI Public Recreatio ABH235 ABH235	0.5-0.8 0.5-0.6 0-0.3 0.6-0.7 0.6-0.7	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW	06 May 2008 06 May 2008 08 May 2008 08 May 2008 08 May 2008 08 May 2008 08 May 2008	<5 4.9 <4 <4 <4	<1 <1 <1 <1 <1 <1 <1 <1 <1	<2 7.3 <1 1.3 1.2	<5 11 3.4 1.6 1.8	<5 5.4 <1 <1 <1	1.2 <2 26 18 7.8 9.1	36 12 28 29 18 9	< 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1
ABH230 ABH231 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 ABH235 P4 Enterprise ABH236	0.5-0.8 0.5-0.6 0-0.3 0.6-0.7 0.6-0.7	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-152-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW 070508-79-KW	06 May 2008 06 May 2008 08 May 2008 08 May 2008 08 May 2008 08 May 2008 08 May 2008	<5 4.9 <4 <4 <4	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1	<2 7.3 <1 1.3 1.2	<5 11 3.4 1.6 1.8	<5 5.4 <1 <1 <1	1.2 <2 26 18 7.8 9.1	36 12 28 29 18 9 12	< 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1
ABH230 ABH231 ABH231 ABH231 EF Public Recreation ABH235 ABH235 ABH235 ABH236 ABH236 ABH236	0.5-0.8 0.5-0.6 0-0.3 0.6-0.7 0.6-0.7 0.6-0.7 0.0-0.1 0.4-0.55	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-152-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW 070508-79-KW 070508-80-KW	06 May 2008 06 May 2008 08 May 2008 08 May 2008 08 May 2008 08 May 2008 07 May 2008 07 May 2008 08 May 2008	<5 4.9 <4 <4 <4 <4 23	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	<2 7.3 <1 1.3 1.2 3.4 31 4.3 2.1	<5 11 3.4 1.6 1.8 9.5 8.4 7.9 5.3	<5 5.4 <1 <1 <1 <1 1.4 11	1.2 <2 26 18 7.8 9.1 36 21	36 12 28 29 18 9 12 21 40	< 0.1 < 0.1
ABH230 ABH231 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 ABH235 P4 Enterprise ABH236	0.5-0.8 0.5-0.6 0-0.3 0.6-0.7 0.6-0.7 0.0-0.1 0-0.1	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW 070508-79-KW 070508-80-KW	06 May 2008 06 May 2008 08 May 2008 08 May 2008 08 May 2008 08 May 2008 07 May 2008 07 May 2008	<5 4.9 <4 <4 <4 <4 23	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	<2 7.3 <1 1.3 1.2 3.4 31	<5 11 3.4 1.6 1.8 9.5 8.4	<5 5.4 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	1.2 <2 26 18 7.8 9.1 36 21	36 12 28 29 18 9 12 21 40	< 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1 < 0.1
ABH230 ABH231 ABH231 ABH231 ABH231 EF Public Recreatio ABH235 ABH235 ABH236 ABH236 ABH237 ABH238 ABH240 ABH240	0.5-0.8 0.5-0.6 0.0-0.3 0.6-0.7 0.6-0.7 0.4-0.55	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-1-49-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW 070508-79-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-23-KW 080508-123-KW	06 May 2008 06 May 2008 08 May 2008 08 May 2008 08 May 2008 08 May 2008 07 May 2008 07 May 2008 08 May 2008 07 May 2008 08 May 2008 06 May 2008 06 May 2008 06 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	<2 7.3 <1 1.3 1.2 3.4 31 4.3 2.1 3.5 2 2.6	<5 11 3.4 1.6 1.8 9.5 8.4 7.9 5.3 2.3 1.8	<5   5.4   <1   <1   <1   <1   <1   <1   <1   <	1.2 <2 26 18 7.8 9.1 36 21 32 21 3.3 3.5 2	36 12 28 29 18 9 12 21 40 38 33 9.7 5.3 3.3	< 0.1 <
ABH230 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 P4 Enterprise ABH236 ABH237 ABH238 ABH240 ABH240 ABH240	0.5-0.8 0.5-0.6 0.0-0.3 0.6-0.7 0.6-0.7  0-0.1 0.4-0.55  0-0.1 0-0.2 0.1-0.5 0.1-0.4 0.1-0.4	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-152-KW 070508-79-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-23-KW 080508-123-KW 080508-125-KW	06 May 2008 06 May 2008 08 May 2008 07 May 2008 07 May 2008 07 May 2008 06 May 2008 06 May 2008 06 May 2008 06 May 2008 08 May 2008 08 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <5	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	7.3 < 1 1.3 1.2 3.4 31 4.3 2.1 3.5 2 2.6 2	<5 11 3.4 1.6 1.8 9.5 8.4 7.9 5.3 2.3 1.8 1.6 <5	<5   5.4   <1   <1   <1   <1   <1   <1   <1   <	1.2 <2 26 18 7.8 9.1 36 21 32 21 3.3 3.5 2	36 12 28 29 18 9 12 21 40 38 33 9.7 5.3 3.3 <5	<pre>&lt; 0.1 &lt; 0.1</pre>
ABH230 ABH231 ABH231 ABH231 ABH231 EF Public Recreatio ABH235 ABH235 ABH236 ABH236 ABH237 ABH238 ABH240 ABH240	0.5-0.8 0.5-0.6 0.0-0.3 0.6-0.7 0.6-0.7 0.4-0.55	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW 070508-79-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-23-KW 080508-123-KW	06 May 2008 06 May 2008 08 May 2008 08 May 2008 08 May 2008 08 May 2008 07 May 2008 07 May 2008 08 May 2008 07 May 2008 08 May 2008 06 May 2008 06 May 2008 06 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	<2 7.3 <1 1.3 1.2 3.4 31 4.3 2.1 3.5 2 2.6	<5 11 3.4 1.6 1.8 9.5 8.4 7.9 5.3 2.3 1.8	<5   5.4   <1   <1   <1   <1   <1   <1   <1   <	1.2 <2 26 18 7.8 9.1 36 21 32 21 3.3 3.5 2	36 12 28 29 18 9 12 21 40 38 33 9.7 5.3 3.3	< 0.1 <
ABH230 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 P4 Enterprise ABH236 ABH237 ABH238 ABH240 ABH240 ABH240 ABH240 ABH240 ABH242 ABH242	0.5-0.8 0.5-0.6 0.0-0.3 0.6-0.7 0.6-0.7 0.6-0.7  0-0.1 0.4-0.55  0-0.1 0-0.2 0.1-0.5 0.1-0.4 0.1-0.4 0.1-0.4 0.5-0.7 0.5-0.7	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-152-KW 070508-79-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-23-KW 080508-123-KW 080508-123-KW 080508-123-KW 080508-123-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-145-KW	06 May 2008 06 May 2008 08 May 2008 07 May 2008 07 May 2008 08 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <6 <7	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	7.3 <1 1.3 1.2 3.4 31 4.3 2.1 3.5 2 2.6 2 3.1 7.2 12	<5 11 3.4 1.6 1.8 9.5 9.4 7.9 5.3 2.3 1.8 1.6  1.6 5 12 9.7 13	<5   5.4   <1   <1   <1   <1   <1   <1   <1   <	1.2 <2 26 18 7.8 9.1 36 21 32 21 3.3 3.5 2 <5 27 26 26	36 12 28 29 18 9 12 21 40 38 33 9,7 5.3 3.3 <5	< 0.1 < 0.1
ABH230 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 P4 Enterprise ABH236 ABH237 ABH238 ABH240 ABH240 ABH240 ABH241 ABH242 ABH242 ABH242	0.5-0.8 0.5-0.6 0.5-0.6 0-0.3 0.6-0.7 0.6-0.7  0.0-0.1 0-0.1 0-0.2 0.1-0.5 0.1-0.4 0.1-0.4 0.1-0.4 0.5-0.7 0.5-0.7 0.5-0.7	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-152-KW 080508-152-KW 080508-152-KW 070508-79-KW 070508-80-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-27-KW 060508-23-KW 080508-123-KW 080508-123-KW 080508-124-KW Field Blind Replicate Sample of 080508-123-KW 080508-125-KW Split Field Duplicate Sample of 080508-123-KW 080508-125-KW Split Field Duplicate Sample of 080508-123-KW 080508-125-KW Split Field Split Spl	06 May 2008 06 May 2008 08 May 2008 07 May 2008 08 May 2008 08 May 2008 09 May 2008 09 May 2008 09 May 2008 09 May 2008 08 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <5 <4 <6.7 <4	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	7.3 <1 1.3 1.2 3.4 31 4.3 2.1 3.5 2 2.6 2 3.1 7.2 <1	<5 11 3.4 1.6 1.8 9.5 8.4 7.9 5.3 2.3 1.8 1.6 <5 12 9.7 13 <1	Control   Cont	1.2 <2 26 18 7.8 9.1 36 21 32 21 3.3 3.5 2 <5 27 26 26 <1	36 12 28 29 18 9 12 21 40 38 33 9.7 5.3 3.3 <5 48 32 23	< 0.1
ABH230 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 P4 Enterprise ABH236 ABH237 ABH238 ABH240 ABH240 ABH240 ABH240 ABH240 ABH242 ABH242	0.5-0.8 0.5-0.6 0.5-0.6 0-0.3 0.6-0.7 0.6-0.7 0.6-0.7  0.0-0.1 0.4-0.55  0-0.1 0-0.2 0.1-0.5 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.5-0.7 0.5-0.7 0.5-0.7 0.5-0.7 0.5-0.7	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-152-KW 070508-79-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-23-KW 080508-123-KW 080508-123-KW 080508-123-KW 080508-123-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-145-KW	06 May 2008 06 May 2008 08 May 2008 07 May 2008 07 May 2008 08 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <6 <7	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	7.3 <1 1.3 1.2 3.4 31 4.3 2.1 3.5 2 2.6 2 3.1 7.2 12	<5 11 3.4 1.6 1.8 9.5 9.4 7.9 5.3 2.3 1.8 1.6  1.6 5 12 9.7 13	<5   5.4   <1   <1   <1   <1   <1   <1   <1   <	1.2 <2 26 18 7.8 9.1 36 21 32 21 3.3 3.5 2 <5 27 26 26	36 12 28 29 18 9 12 21 40 38 33 9,7 5.3 3.3 <5	< 0.1 <
ABH230 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 P4 Enterprise ABH235 ABH237 ABH238 ABH240 ABH240 ABH240 ABH240 ABH240 ABH240 ABH242 ABH243	0.5-0.8 0.5-0.6 0.0-0.3 0.6-0.7 0.6-0.7  0.0-0.1 0.4-0.55  0-0.1 0-0.2 0.1-0.5 0.1-0.4 0.1-0.4 0.1-0.4 0.5-0.7 0.5-0.7 0.5-0.7 0.5-0.7 0.5-0.7 0.2-0.3 0.1-0.4	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-152-KW 070508-79-KW 070508-80-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-23-KW 080508-123-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Split Sample of 080508-123-KW 080508-125-KW Split Field Split S	06 May 2008 06 May 2008 08 May 2008 07 May 2008 08 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <5 <4 <4 <8.1	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	<2 7.3 <1 1.3 1.2 3.4 31 4.3 2.1 3.5 2 2.6 2 3.1 7.2 12 <1 20  5.8	<5 11 3.4 1.6 1.8 9.5 8.4 7.9 5.3 2.3 1.8 1.6 <55 12 9.7 13 <1 110 2.6	<5 5.4 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <2 <3 <2.1 <2.1 <2.9 <1 <1 <4	1.2 <2 26 18 7.8 9.1 36 21 32 21 3.3 3.5 2 <5 27 26 <1 180	36 12 28 29 18 9 12 21 40 38 33 9.7 5.3 3.3 4.5 48 32 <11 320	< 0.1
ABH230 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 P4 Enterprise ABH236 ABH237 ABH238 ABH240 ABH240 ABH240 ABH241 ABH242 ABH242 ABH242 ABH242 ABH242 ABH242 ABH243 ABH242 ABH243 ABH243 ABH244	0.5-0.8 0.5-0.6 0.5-0.6 0-0.3 0.6-0.7 0.6-0.7 0.6-0.7  0.0-0.1 0.4-0.55  0-0.1 0.0-0.2 0.1-0.5 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.5-0.7 0.5-0.7 0.5-0.7 0.5-0.7 0.5-0.7 1-1.1	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW 070508-79-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-27-KW 060508-23-KW 080508-123-KW 080508-124-KW Field Blind Replicate Sample of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-145-KW 080508-145-KW 080508-145-KW 080508-145-KW 080508-145-KW 080508-145-KW 080508-145-KW	06 May 2008 06 May 2008 08 May 2008 07 May 2008 08 May 2008 09 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	C    C    C    C    C    C    C    C	<5 11 3.4 1.6 1.8 9.5 8.4 7.9 5.3 2.3 1.8 1.6 <5 12 9.7 13 <1 110 2.6 <1	<pre>&lt;5 5.4 &lt;1 &lt;1 &lt;1 1.4 11  2.3 1.1 1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1</pre>	1.2 <2 26 18 7.8 9.1 32 21 32 21 33.3 3.5 2 <5 27 26 <1 180 3.9 1.1	36 12 28 29 18 9 12 21 40 38 33 33 <5 33 48 32 23 <1 320	$ \begin{array}{c} <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1\\ <0.1$
ABH230 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 P4 Enterprise ABH235 ABH237 ABH238 ABH240 ABH240 ABH240 ABH240 ABH240 ABH240 ABH242 ABH243	0.5-0.8 0.5-0.6 0.0-0.3 0.6-0.7 0.6-0.7  0.0-0.1 0.4-0.55  0-0.1 0-0.2 0.1-0.5 0.1-0.4 0.1-0.4 0.1-0.4 0.5-0.7 0.5-0.7 0.5-0.7 0.5-0.7 0.5-0.7 0.2-0.3 0.1-0.4	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-149-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-152-KW 070508-79-KW 070508-80-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-23-KW 080508-123-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Split Sample of 080508-123-KW 080508-125-KW Split Field Split S	06 May 2008 06 May 2008 08 May 2008 07 May 2008 08 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <5 <4 <4 <8.1	<1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	<2 7.3 <1 1.3 1.2 3.4 31 4.3 2.1 3.5 2 2.6 2 3.1 7.2 12 <1 20  5.8	<5 11 3.4 1.6 1.8 9.5 8.4 7.9 5.3 2.3 1.8 1.6 <.5 12 9.7 13 <.1 110	<5 5.4 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	1.2 <2 26 18 7.8 9.1 36 21 32 21 3.3 3.5 2 <5 27 26 <1 180	36 12 28 29 18 9 12 21 40 38 33 33 9.7 5.3 3.3 3.5 48 32 23 41 320	< 0.1
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ABH230 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 ABH235 P4 Enterprise ABH236 ABH237 ABH238 ABH240 ABH240 ABH240 ABH240 ABH240 ABH240 ABH241 ABH242 ABH242 ABH242 ABH242 ABH242 ABH242 ABH242 ABH243 ABH243 ABH244 ABH244 ABH244 ABH244 ABH244 ABH245 ABH245 ABH245 ABH248 ABH248 ABH248 ABH248 ABH248 ABH248 ABH248 ABH249 ABH249	0.5-0.8 0.5-0.6 0.5-0.6 0-0.3 0.6-0.7 0.6-0.7 0.4-0.55  0-0.1 0.4-0.55  0-0.1 0.0-0.2 0.1-0.5 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 1.1-1.1 1-1.1	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-1-19-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW 070508-80-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-23-KW 080508-123-KW 080508-123-KW 080508-124-KW Field Blind Replicate Sample of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-145-KW 080508-142-KW 080508-142-KW 080508-142-KW	06 May 2008 06 May 2008 08 May 2008 07 May 2008 07 May 2008 08 May 2008 09 May 2008	<5 4.9 <4 <4 <4 23 <4 <4 <4 <4 <4 <4 <4 <4 <5 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4	C    C    C    C    C    C    C    C	7.3 7.3 1.2 3.4 3.1 3.5 2.1 3.5 2.6 2.3 3.1 7.2 2.1 2.6 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2	<5 11 3.4 1.6 1.8 9.5 8.4 7.9 5.3 2.3 1.8 1.6 <5 1.2 9.7 13 <1 110 2.6 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <p< td=""><td>  CS   S.4   C   C   C   C   C   C   C   C   C  </td><td>1.2 &lt;2 26 18 7.8 9.1 36 21 32 21 3.3 3.5 2 2 &lt;5 2 &lt;6 4 180 180 180 180 180 180 180 180</td><td>36 12 28 29 18 9 12 21 40 38 33 9.7 5.3 3.3 &lt;5 48 32 23 &lt;11 320 63 1.7 4.2</td><td>  &lt; 0.1</td></p<>	CS   S.4   C   C   C   C   C   C   C   C   C	1.2 <2 26 18 7.8 9.1 36 21 32 21 3.3 3.5 2 2 <5 2 <6 4 180 180 180 180 180 180 180 180	36 12 28 29 18 9 12 21 40 38 33 9.7 5.3 3.3 <5 48 32 23 <11 320 63 1.7 4.2	< 0.1
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ABH230 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 P4 Enterprise ABH236 ABH237 ABH238 ABH240 ABH240 ABH240 ABH241 ABH242 ABH242 ABH242 ABH242 ABH242 ABH242 ABH248 ABH248 ABH249 ABH250 ABH250 ABH251	0.5-0.8 0.5-0.6 0.5-0.6 0-0.3 0.6-0.7 0.6-0.7 0.6-0.7  0.0-0.1 0.4-0.55  0-0.1 0-0.2 0.1-0.5 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 1.1-1.1 1.1.1 1.1.1 1.2-1.4 0.7-0.9 0.7-0.9 0.5-0.7	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-1-18-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW 070508-80-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-23-KW 080508-123-KW 080508-123-KW 080508-124-KW Field Blind Replicate Sample of 080508-123-KW 080508-124-KW Field Blind Replicate Sample of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-145-KW 080508-145-KW 080508-146-KW Field Blind Replicate Sample of 080508-106-KW 080508-116-KW 080508-116-KW 080508-111-KW 080508-111-KW 080508-111-KW	06 May 2008 06 May 2008 08 May 2008 07 May 2008 09 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4	C    C    C    C    C    C    C    C	22 7.3 1.2 3.4 31 2.1 3.5 2 2.6 2 2.6 2 3.1 7.2 12 20 5.8 1 1.6 3.2 5.8 1	CS   11   3.4   1.6   1.8   1.6   1.8   1.6   1.8   1.6   1.8   1.6   1.8   1.6   1.8   1.6   1.8   1.6   1.6   1.8   1.6	CS   S.4   C   C   C   C   C   C   C   C   C	1.2 -2 -2 -2 -18 -7.8 -9.1 -36 -21 -3.3 -3.3 -3.3 -3.3 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2	36 12 28 29 18 29 18 9 12 21 40 38 33 3.3 3.5 <5 48 32 23 1.7 4.2 49 4.5 14 12 32	< 0.1
ABH230 ABH231 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 ABH235 P4 Enterprise ABH236 ABH237 ABH238 ABH240 ABH240 ABH240 ABH240 ABH240 ABH241 ABH242 ABH242 ABH242 ABH242 ABH242 ABH248 ABH249 ABH250 ABH250 ABH251 ABH251 ABH252 ABH253 ABH254 ABH254	0.5-0.8 0.5-0.6 0.0-0.3 0.6-0.7 0.6-0.7 0.6-0.7  0.0-0.1 0.4-0.55  0-0.1 0-0.2 0.1-0.5 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 1-1.1 1-1.1 1-1.1 1-1.1 1-1.1 1-1.1 1-1.1 1-1.1 0.7-0.9 1.5-1.6 0-0.1 0.6-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-1-18-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW 070508-79-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-23-KW 060508-23-KW 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-145-KW Split Field Blind Replicate Sample of 080508-145-KW 080508-145-KW 080508-145-KW 080508-146-KW Field Blind Replicate Sample of 080508-145-KW 080508-141-KW 080508-111-KW	06 May 2008 06 May 2008 08 May 2008 07 May 2008 08 May 2008 09 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4	C    C    C    C    C    C    C    C	27.3 3.4 31.2 3.4 31.2 2.1 3.5 2.2 2.6 2 3.1 7.2 12 <1 20 1.6 3.2 5.8 1 1.9 1.6 3.2 5.3 1.4 4.3 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.3 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2	<5 11 3.4 1.6 1.8 9.5 8.4 7.9 5.3 2.3 1.8 1.6 <5 12 13 <1 110 2.6 <1 <1 <1 6.3 1.5 8.5 9.7 13 <1 <1 6.3 1.6 6.3 1.5 8.5 9.6 18 16 36	CS   S.4   C   C   C   C   C   C   C   C   C	1.2	36 12 28 29 18 9 12 40 38 33 9.7 5.3 3.3 <5 48 32 23 <11 320 49 49 4.5 14 12 32 43 73 48 150	Color   Colo
ABH230 ABH231 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 P4 Enterprise ABH236 ABH237 ABH238 ABH240 ABH240 ABH240 ABH240 ABH240 ABH240 ABH241 ABH242 ABH242 ABH242 ABH242 ABH242 ABH243 ABH243 ABH243 ABH243 ABH243 ABH243 ABH243 ABH243 ABH243 ABH245 ABH248 ABH248 ABH248 ABH248 ABH249 ABH249 ABH249 ABH250 ABH250 ABH250 ABH251 ABH252 ABH253 ABH253 ABH253 ABH254 ABH254 ABH254	0.5-0.8 0.5-0.6 0.5-0.6 0.0-0.3 0.6-0.7 0.6-0.7 0.6-0.7  0.0-0.1 0.4-0.55  0-0.1 0.0-0.2 0.1-0.5 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 1-1.1 1.2-1.4 1.7-0.9 1.5-1.6 0.0-0.1 0.6-0.1 0.6-0.1 0.6-0.1 0.6-0.1 0.6-0.7 0.5-0.7	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-1-15-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW 070508-80-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-27-KW 060508-23-KW 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-145-KW 080508-145-KW 080508-144-KW 080508-146-KW Field Blind Replicate Sample of 080508-145-KW 080508-141-KW 080508-141-KW 080508-141-KW 080508-141-KW 080508-141-KW 080508-115-KW 080508-115-KW 080508-115-KW 080508-116-KW 080508-116-KW 080508-111-KW 080508-111-KW 080508-111-KW 080508-111-KW 080508-111-KW 080508-111-KW 080508-116-KW	06 May 2008 06 May 2008 08 May 2008 07 May 2008 08 May 2008 09 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4	C    C    C    C    C    C    C    C	22 7.3 1.2 3.4 31 2.1 3.5 2 2.6 2 2.6 2 2.6 2 12 2.1 20 1.6 3.2 1.9 1.6 3.2 1.9 1.6 3.2 1.9 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	CS   11   3.4   1.6   1.8   1.6   1.8   1.6   1.8   1.6   1.8   1.6   1.8   1.6   1.8   1.6	CS   S.4   C   C   C   C   C   C   C   C   C	1.2	36 12 28 29 18 29 18 29 12 21 40 21 40 38 33 33 33 33 <55 48 32 41 320 42 45 14 12 32 43 73 48	< 0.1
ABH230 ABH231 ABH231 ABH231 ABH231 ABH231 ABH235 ABH235 ABH235 P4 Enterprise ABH236 ABH237 ABH238 ABH240 ABH240 ABH240 ABH240 ABH240 ABH241 ABH242 ABH242 ABH242 ABH242 ABH242 ABH248 ABH249 ABH250 ABH250 ABH251 ABH251 ABH252 ABH253 ABH254 ABH254	0.5-0.8 0.5-0.6 0.5-0.6 0.0-0.3 0.6-0.7 0.6-0.7 0.6-0.7  0.0-0.1 0.4-0.55  0-0.1 0.0-0.2 0.1-0.5 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 1-1.1 1.2-1.4 1.7-0.9 1.5-1.6 0.0-0.1 0.6-0.1 0.6-0.1 0.6-0.1 0.6-0.1 0.6-0.7 0.5-0.7	060508-16-KW Split Field Duplicate of 060508-14-KW 080508-1-18-KW 080508-151-KW 080508-151-KW 080508-152-KW 080508-153-KW Field Blind Replicate Sample of 080508-152-KW 070508-79-KW 070508-80-KW 080508-102-KW 060508-27-KW 060508-23-KW 060508-23-KW 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-145-KW Split Field Blind Replicate Sample of 080508-145-KW 080508-145-KW 080508-145-KW 080508-146-KW Field Blind Replicate Sample of 080508-145-KW 080508-141-KW 080508-111-KW	06 May 2008 06 May 2008 08 May 2008 07 May 2008 08 May 2008 09 May 2008	<5 4.9 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4	C    C    C    C    C    C    C    C	27.3 3.4 31.2 3.4 31.2 2.1 3.5 2.2 2.6 2 3.1 7.2 12 <1 20 1.6 3.2 5.8 1 1.9 1.6 3.2 5.3 1.4 4.3 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.3 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2	<5 11 3.4 1.6 1.8 9.5 8.4 7.9 5.3 2.3 2.3 1.8 1.6 <5 12 13 <1 110 2.6 <1 <1 <1 6.3 1.5 8.5 9.7 13 <1 6.3 1.6 6.3 1.5 8.5 1.6 6.3 1.6 3.6 3.6 3.6 3.6 3.7	CS   S.4   C   C   C   C   C   C   C   C   C	1.2	36 12 28 29 18 9 12 40 38 33 9.7 5.3 3.3 <5 48 32 23 <11 320 49 49 4.5 14 12 32 43 73 48 150	Color   Colo

		Table 11: Soil Analytical Resul	ts - Metals <sup>1</sup>								
Location	Sample Depth (m)	Sample ID	Date Sampled Units	mg/kg	Cadmium Cadmium	Chromium	Copper Copper	mg/kg	mg/kg	Zinc mg/kg	Mercury Mercury
SP4 Enterprise			•								
ABH261	0-0.2	120508-244-KW	12 May 2008	< 4	< 1	4.1	22	1.6	100	130	< 0.1
ABH265	0-0.1	120508-228-KW	12 May 2008	4.7	< 1	5.1	8.3	2.3	21	32	< 0.1
ABH265	0.9-1.1	120508-229-KW	12 May 2008	< 4	< 1	< 1	1.2	< 1	< 1	2.1	< 0.1
ABH265	0.9-1.1	120508-230-KW Split Field Duplicate Sample of 120508-229-KW	12 May 2008	< 5	< 1	< 2	< 5	< 2	< 5	< 5	< 0.1
ABH266 ABH267	1.2-1.3 0-0.2	120508-227-KW 120508-223-KW	12 May 2008 12 May 2008	5.8	< 1	15 2.3	15 6.4	2.8 1.2	18 23	59 26	< 0.1
ABH268	0-0.2	120508-275-KW	12 May 2008	< 4	< 1	4.6	11	2.6	28	33	0.24
RE1 Public Recreati											
ABH270	0.1-0.2	130508-311-KW	13 May 2008	< 4	< 1	< 1	1.3	< 1	2.7	5.1	< 0.1
ABH270	1.5-1.6	130508-312-KW	13 May 2008	< 4	< 1	< 1	< 1	< 1	1.2	< 1	< 0.1
ABH271	0-0.2	130508-308-KW	13 May 2008	12	< 1	8.8	20	4.5	36	42	0.29
ABH271	0.4-0.5	130508-309-KW	13 May 2008	< 4	< 1	< 1	1.8	< 1	< 1	< 1	< 0.1
ABH272	0.1-0.5	130508-304-KW	13 May 2008	< 4	< 1	4.1	13	2	72	120	0.12
ABH272	0.1-0.5	130508-305-KW Field Blind Replicate Sample of 130508-304-KW	13 May 2008	< 4	< 1	4.8	17	2.2	81	110	0.18
ABH272 ABH273	2.1-2.2 0.05-0.15	130508-307-KW 130508-292-KW	13 May 2008 13 May 2008	24 < 4	1.3	59 5.3	36 8.6	15 2.5	92 25	250 38	< 0.1
ABH273	0.05-0.15	130508-292-KW 130508-293-KW	13 May 2008 13 May 2008	< 4	< 1	2.8	3.7	< 1	13	17	< 0.1
ABH274	0.5-0.6	130508-290-KW	13 May 2008	< 4	< 1	1.9	2.3	< 1	5.5	6.5	< 0.1
ABH275	0.8-1.2	130508-286-KW	13 May 2008	< 4	< 1	<1	< 1	< 1	< 1	3.5	< 0.1
ABH275	0.8-1.2	130508-287-KW Field Blind Replicate Sample of 130508-286-KW	13 May 2008	< 4	< 1	< 1	< 1	< 1	< 1	1.3	< 0.1
ABH275	0.8-1.2	130508-288-KW Split Field Duplicate of 130508-286-KW	13 May 2008	< 5	< 1	< 2	< 5	< 2	< 5	< 5	< 0.1
ABH276	0.05-0.25	130508-282-KW	13 May 2008	4.5	< 1	16	45	11	110	150	0.16
ABH276	0.8-1	130508-283-KW	13 May 2008	4	< 1	19	66	18	120	110	0.16
SP4 Enterprise	1										
ABH277	1.1-1.2	130508-280-KW	13 May 2008	12	< 1	7.3	15	3.9	45	14	0.15
ABH277	2.1-2.2	130508-281-KW	13 May 2008	< 4	< 1	8.4	2	1.1	4.3	3.6	< 0.1
RE1 Public Recreation ABH283	0-0.2	150500 201 VW	15 M 2009	26	< 1	50	40	6.4	7.5	77	0.37
ABH284	1.3-1.6	150508-381-KW 150508-385-KW	15 May 2008 15 May 2008	< 4	< 1	58	48 1.7	1.3	75 2.7	25	< 0.1
ABH284	1.3-1.6	150508-386-KW Field Blind Replicate Sample of 150508-385-KW	15 May 2008	< 4	< 1	1.1	1.4	1.3	1.2	16	< 0.1
ABH284	1.3-1.6	150508-387-KW Split Field Duplicate of 150508-385-KW	15 May 2008	< 5	< 1	4	6	8	9	26	< 0.1
SP4 Enterprise		•	•		•				•	•	•
ABH285	0-0.2	150508-389-KW	15 May 2008	11	< 1	21	30	7.5	160	150	0.53
ABH286	0.1-0.3	150508-391-KW	15 May 2008	< 4	< 1	2.2	3.5	1.4	11	14	< 0.1
ABH286	2.3-2.5	150508-393-KW	15 May 2008	< 4	< 1	4.2	< 1	< 1	2.1	1.9	< 0.1
ABH286	2.3-2.5	150508-394-KW Field Blind Replicate Sample of 150508-393-KW	15 May 2008	< 4	< 1	4.1	< 1	1	1.8	1.2	< 0.1
RE1 Public Recreati		150500 270 KW	1534 2000	4.5	- 1	7.4	5.4	2.2	1.4	21	T + 0.1
ABH287 ABH287	0-0.4 0-0.4	150508-378-KW 150508-379-KW Field Blind Replicate Sample of 150508-378-KW	15 May 2008 15 May 2008	4.5 < 4	< 1	7.4 5.9	5.4	2.3	14 18	31 26	< 0.1
ABH288	0.7-0.8	150508-374-KW	15 May 2008	7.6	< 1	8.9	4.5	2.8	5.6	11	< 0.1
ABH289	0-0.3	150508-370-KW	15 May 2008	22	< 1	42	28	8.5	65	88	0.3
ABH289	0-0.3	150508-371-KW Field Blind Replicate Sample of 150508-370-KW	15 May 2008	25	< 1	53	40	9.5	77	100	0.44
ABH290	1.3-1.4	150508-359-KW	15 May 2008	7.7	< 1	22	19	5.2	48	67	0.3
SP4 Enterprise											
ABH291	0.1-0.5	150508-352-KW	15 May 2008	< 4	< 1	2	2.2	1.9	64	14	< 0.1
ABH291	0.1-0.5	150508-353-KW Field Blind Replicate Sample of 150508-352-KW	15 May 2008	< 4	< 1	1.6	2.7	1.4	140	20	< 0.1
ABH291	0.1-0.5	150508-354-KW Split Field Duplicate of 150508-352-KW	15 May 2008	< 5	< 1	< 2	< 5	< 2	46	13	< 0.1
ABH291 ABH291	2.7-2.8 4-4.2	150508-356-KW 150508-357-KW	15 May 2008 15 May 2008	< 4	< 1	4.9 5.4	1.1	2.1	2.8	4	< 0.1
RE1 Public Recreati		150500-5577-IXW	15 May 2000	. 7	- 1	J.T	1.1	2.1	2.0		- 0.1
ABH293	0.4-0.5	130508-328-KW	13 May 2008	< 4	< 1	6.5	9.4	3.6	56	42	< 0.1
ABH293	2.1-2.2	130508-330-KW	13 May 2008	19	2.4	50	40	15	120	260	0.65
ABH294	0.5-0.6	150508-368-KW	15 May 2008	18	1	34	26	11	61	110	0.27
ALG204	1.6-1.7	150508-377-KW	15 May 2008	< 4	< 1	< 1	< 1	< 1	< 1	< 1	< 0.1
ALG205	1.1-1.2	150508-364-KW	15 May 2008	< 4	< 1	3.5	3.1	2.3	5.3	30	< 0.1
ALG205	2.6-2.8	150508-365-KW	15 May 2008	< 4	< 1	3.7	3.9	< 1	8.9	33	< 0.1
AMW204	0.9-1	080508-119-KW	08 May 2008	19	< 1	27	8.1	9.8	20	29	< 0.1
AMW204 AMW205	2.6-2.8 0.1-0.2	080508-120-KW 080508-155-KW	08 May 2008 08 May 2008	22 < 4	< 1	6.7 1.5	< 1	5.1 < 1	2.6 5.8	3.2 16	< 0.1
AMW205	2-2.2	080508-157-KW	08 May 2008	< 4	< 1	2.4	< 1	1.3	1.1	10	< 0.1
AMW207	0.5-0.7	120508-219-KW	12 May 2008	9.9	< 1	20	7500	59	350	540	< 0.1
AMW207	1.4-1.5	120508-220-KW	12 May 2008	< 4	< 1	3.8	12	3.7	7.2	13	< 0.1
					< 1	6.1	1.6	2.9			< 0.1

		Table 11: Soil Analytical Resul	lts - Metals <sup>1</sup>								
Location	Sample Depth (m)	Sample ID	Date Sampled Units	Arsenic	Cadmium	Chromium	Copper	Nickel	Lead	Zinc	Mercury
BBH403	1.1-1.4	280408-13-KW Field Blind Replicate Sample of 280408-12-KW	28 Apr 2008	mg/kg 5.8	mg/kg < 1	mg/kg 5.2	mg/kg 3.4	mg/kg 1.9	mg/kg 11	mg/kg 7.5	mg/kg < 0.1
BBH403	1.1-1.4	280408-14-KW Split Field Duplicate of 280408-12-KW	28 Apr 2008	11	< 1	4	< 5	< 2	< 5	< 5	< 0.1
BBH404	0-0.1	280408-15-KW	28 Apr 2008	< 4	< 1	14	24	42	12	40	< 0.1
BBH405	0-0.2	290408-48-KW	28 Apr 2008	< 4	< 1	4.2	3.6	2.3	68	25	< 0.1
BBH405	0.4-0.5	290408-49-KW	28 Apr 2008	< 4	< 1	4	9.9	6.2	140	62	0.15
BBH407 BBH411	0.05-0.15 0.2-0.4	290408-43-KW 290408-36-KW	29 Apr 2008 29 Apr 2008	7.3	< 1	7	6.1	6.1 7.1	43 16	29 13	< 0.1
BBH411	0.8-0.9	290408-37-KW	29 Apr 2008	9.7	< 1	70	90	49	230	180	< 0.1
BBH415	0.1-0.3	300408-78-KW	30 Apr 2008	9.6	< 1	13	19	1.6	13	9.1	< 0.1
SP4 Enterprise											
BBH421	0-0.1	300408-105-KW	30 Apr 2008	< 4	< 1	3.1	5.2	1.2	16	22	< 0.1
BBH422	2-2.2	300408-113-KW	30 Apr 2008	29	1.9	38	15	16	40	110	0.33
RE1 Public Recreatio		200400 04 17W	20.4. 2000	1.1	- 1	2.7	_	2.2	20	61	-01
BBH423 BBH423	0.1-0.3 0.7-0.8	300408-81-KW 300408-82-KW	30 Apr 2008 30 Apr 2008	4.7	< 1	3.7 5	5 6.7	2.3 3.2	20 10	51 7.4	< 0.1
BBH423 BBH460	0-0.15	010508-114-KW	01 May 2008	5.2	< 1	7.5	7	1.7	18	22	2.5
BMW401	0.15-0.35	020508-187-KW	02 May 2008	< 4	< 1	2.8	4.1	1.1	75	27	0.11
BMW401	1.3-1.4	020508-188-KW	02 May 2008	< 4	1	35	110	12	360	200	3.7
BBH454	0-0.1	010508-126-KW	01 May 2008	6.5	< 1	8.4	6	3.8	12	24	< 0.1
BBH454	2.2-2.3	010508-128-KW	01 May 2008	< 4	< 1	5.9	44	1.1	36	57	0.36
BBH406	0.1-0.2	290408-46-KW	29 Apr 2008	15	< 1	26	79	4.2	130	120	0.34
BBH406	0.6-0.8	290408-47-KW	29 Apr 2008	38	< 1	7.3	12	2.1	62	43	0.27
BBH409	0.2-0.5	290408-39-KW	29 Apr 2008	82	< 1	73	160	3.8	290	140	0.49
BBH409	0.2-0.5	290408-40-KW Field Blind Replicate Sample of 290408-39-KW	29 Apr 2008	40	< 1	97	150	4.3	360	150	0.58
BBH409 BBH417	0.2-0.5 0.2-0.4	290408-41-KW Split Field Duplicate of 290408-39-KW 290408-29-KW	29 Apr 2008 29 Apr 2008	56 8.7	< 1	72 16	133 60	9.2	268 69	111 160	0.3
BBH429	0-0.1	010508-152-KW	01 May 2008	< 4	< 1	8.4	36	9.2	160	100	0.15
BBH429 BBH429	2.4-2.5	010508-152-KW 010508-155-KW	01 May 2008 01 May 2008	14	< 1	15	90	30	450	420	2.1
SP4 Enterprise											
BBH430 RE1 Public Recreatio	2.4-2.6	300408-107-KW	30 Apr 2008	44	3	65	260	59	2100	1100	0.65
BBH431	0.1-0.2	300408-84-KW	30 Apr 2008	< 4	< 1	3.1	5.1	1.1	13	25	< 0.1
BBH431	0.5-0.6	300408-85-KW	30 Apr 2008	< 4	< 1	7.4	12	2.8	9.3	23	< 0.1
BBH432	0-0.1	010508-160-KW	01 May 2008	10	< 1	20	24	6.8	59	120	0.26
SP4 Enterprise											
BBH433	0.1-0.3	010508-156-KW	01 May 2008	16	< 1	19	66	12	110	190	0.4
BBH433	0.1-0.3	010508-157-KW Field Blind Replicate Sample of 010508-156-KW	01 May 2008	7.9	< 1	14	41	6.6	160	180	0.35
BBH433	2.4-2.5	010508-159-KW	01 May 2008	28	7.7	87	180	18	4400	7800	0.93
BBH434	0-0.2	300408-108-KW	30 Apr 2008	< 4	< 1	2.5	5.9	< 1	30	36	< 0.1
BBH434 BBH435	0.5-0.6 0.1-0.3	300408-109-KW 300408-110-KW	30 Apr 2008 30 Apr 2008	< 4 4.8	< 1	1.9 7.3	3.3	< 1 2.2	42 55	75 42	< 0.1
RE1 Public Recreatio		300408-110-KW	30 Apr 2008	4.8	< 1	7.3	13	2.2	33	42	0.12
BBH436	0.1-0.3	300408-87-KW	30 Apr 2008	< 4	< 1	7.1	6.4	1.8	26	40	< 0.1
BBH436	0.5-0.6	300408-87-KW 300408-88-KW	30 Apr 2008	4.5	< 1	3.7	4.8	1.0	3.9	17	< 0.1
BBH439	0.1-0.2	010508-133-KW	01 May 2008	8.2	< 1	21	34	12	75	110	0.22
BBH439	0.2-0.4	010508-134-KW	01 May 2008	11	1.1	20	71	17	140	260	0.54
BBH440	0.2-0.4	010508-148-KW	01 May 2008	< 4	< 1	2	2.4	< 1	4	6.5	< 0.1
BBH440	1-1.1	010508-149-KW	01 May 2008	< 4	< 1	1	3.8	< 1	2.7	9.5	< 0.1
SP4 Enterprise											
BBH441	0-0.2	010508-150-KW	01 May 2008	< 4	< 1	2.5	6.1	1.3	110	39	< 0.1
BBH442	0.1-0.4	300408-101-KW	30 Apr 2008	5	< 1	7.8	86	2.4	48	86	0.22
BBH442	0.1-0.4	300408-102-KW Field Blind Replicate Sample of 300408-101-KW	30 Apr 2008	< 4	< 1	5.8	40	1.8	30	61	0.12
RE1 Public Recreation BBH443	0.4-0.5	300408-89-KW	30 Apr 2008	5.2	Z 1	00	I 11	< 1	0.1	2.1	< 0.1
BBH443	0.4-0.5	300408-89-KW 300408-90-KW Field Blind Replicate Sample of 300408-89-KW	30 Apr 2008 30 Apr 2008	5.3	< 1	8.8 4.6	6.3	1.2	9.1 8.6	2.1 8.4	< 0.1
BBH443	2.2-2.4	300408-91-KW	30 Apr 2008	11	< 1	10	2.2	2.7	4.4	2.7	< 0.1
BBH445	0.1-0.4	010508-136-KW	01 May 2008	< 4	< 1	1.4	1.9	< 1	3	6.9	< 0.1
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	< 4	< 1	1.4	2.3	< 1	5	8.7	< 0.1
BBH445	0.1-0.4	010508-138-KW Split Field Duplicate Sample of 010508-136-KW	01 May 2008	<5	<1	3	6	<2	18	18	< 0.1
BBH445	1.8-1.9	010508-139-KW	01 May 2008	23	< 1	38	17	12	40	89	0.48
SP4 Enterprise	0100	010500 ****	0134 2005	1.			1 00	2.5		6.	0.00
BBH446	0.1-0.2	010508-146-KW	01 May 2008	11	< 1	11	26	3.5	66	84	0.27
BBH447 BBH448	0.1-0.2 0.1-0.2	010508-144-KW 300408-98-KW	01 May 2008 30 Apr 2008	< 4 7.4	< 1	1.6	3.8	< 1 4.5	51 22	25 30	< 0.1
RE1 Public Recreatio		300+00-70-RW	30 Apr 2000	7.4	- 1	13	10	7.5	22	50	. 0.1
BBH450	0.4-0.5	010508-140-KW	01 May 2008	< 4	< 1	< 1	< 1	< 1	1.9	3	< 0.1
BBH450	0.8-1	010508-141-KW	01 May 2008	< 4	< 1	< 1	< 1	1.5	1.1	2.2	< 0.1
BBH451	0-0.2	010508-142-KW	01 May 2008	4.7	< 1	9.7	19	3.4	58	52	< 0.1
SP4 Enterprise BBH452	0.1-0.2	300408-96-KW	30 Apr 2008	8.5	> 1	14	21	5.5	48	۷0	0.25
RE1 Public Recreatio		3UU4U8-70-KW	30 Apr 2008	6.5	< 1	14	21	3.3	48	68	0.25
BBH453	0.2-0.3	300408-92-KW	30 Apr 2008	< 4	< 1	8.3	12	2.7	25	18	< 0.1
BBH455	0.1-0.2	010508-120-KW	01 May 2008	< 4	< 1	1.8	1.3	1.2	4.9	17	< 0.1
BBH455	0.5-0.6	010508-121-KW	01 May 2008	22	< 1	44	30	7.5	54	56	0.3
BBH456	0.2-0.4	010508-118-KW	01 May 2008	< 4	< 1	7.5	5.3	1.3	120	78	< 0.1
BBH456	1-1.2	010508-119-KW	01 May 2008	< 4	< 1	< 1	< 1	< 1	1.7	2.3	< 0.1
BBH457	0.45-0.6	300408-94-KW	30 Apr 2008	< 4	< 1	5.1	12	11	3.3	9.9	< 0.1
BBH457	1.1-1.2	300408-95-KW	30 Apr 2008	12	< 1	20	3.5	6.6	8.3	13	< 0.1
HIL-C Recreationa				300	90	-	17000	1200	600	30000	80
HIL-D Commercial				3000	900	200	240000	6000	1500	400000	730
EIL - Urban reside EIL - Commercial/	ntial / public open sp	acc		100 160	-	200 320	103 148	35 60	1131	275 405	-
	tion level are shown in <b>bold</b> tex			100		520	140	00	1001	703	

<sup>&</sup>lt;### Represents results below the laboratory Practical Quantitation Limit.</p>
nt = Not Tested
-- = Action Level not established

|  | Sample   |  | e 12: Soil Analytics  Date Sampled   | (O-9)  
   | C10 - C14  | C15.C28   | C29 - C36  
  | Benzene  
   
   
   | Foluene   | Ethy Benzene  | ta-& para-<br>Xylene                                       | ortho-Xylene                             | Fotal Xylenes   |
|--|--|--|--
--	--
--
--
--
--|---|---|--|--|---|
| Location   | Depth (m)  | Sample ID  |  | HALL   
   | TPH  | TPH   | HALL   
  |  
   
   
   |   |   | ě  |  |   |
| SP4 Enter  | prise<br>0.45-0.55   | 090508-192-KW  | Units<br>09 May 2008   | mg/kg<br>< 25  
   | mg/kg<br>< 50  | mg/kg<br>< 100  | mg/kg<br>< 100   
  | mg/kg<br>< 0.5   
   
   
   | mg/kg<br>< 0.5  | mg/kg   | mg/kg  | mg/kg                                    | mg/kg<br>< 1  |
| ABH202<br>ABH202<br>ABH204   | 1.9-2.2<br>3.8-4<br>0.1-0.4  | 090508-202-KW<br>150508-601-KW<br>070508-55-KW   | 09 May 2008<br>15 May 2008<br>07 May 2008  | < 25<br>< 25<br>< 25   
   | < 50<br>< 50<br>< 50   | < 100<br>< 100<br>< 100   | < 100<br>< 100<br>< 100  
  | < 0.5<br>< 0.5<br>< 0.5  
   
   
   | < 0.5<br>< 0.5<br>< 0.5   | <1<br><1<br><1  | < 2<br>< 2<br>< 2  | <1<br><1<br><1                           | <1<br><1<br><1  |
| ABH204<br>ABH204   | 0.1-0.4<br>0.1-0.4   | 070508-56-KW Field Blind Replicate Sample of 070508-55-KW<br>070508-57-KW Split Field Duplicate of 070508-55-KW  | 07 May 2008<br>07 May 2008   | < 25<br>< 10   
   | < 50<br>< 50   | < 100<br>< 100  | < 100<br>< 100   
  | < 0.5<br>< 0.2   
   
   
   | < 0.5   | < 1<br>< 0.5  | < 2 < 0.5  | < 1<br>< 0.5                             | < 1<br>< 0.5  |
| ABH210<br>ABH210   | 0.1-0.2<br>0.1-0.2<br>0.3-0.5  | 060508-49-KW<br>060508-46-KW<br>060508-47-KW   | 06 May 2008<br>06 May 2008<br>06 May 2008  | < 25<br>< 25<br>< 25   
   | < 50<br>50<br>< 50   | < 100<br>< 100<br>< 100   | < 100<br>< 100<br>< 100  
  | < 0.5<br>< 0.5<br>< 0.5  
   
   
   | < 0.5<br>< 0.5<br>< 0.5   | <1<br><1<br><1  | < 2<br>< 2<br>< 2  | <1<br><1<br><1                           | <1<br><1<br><1  |
| ABH2103<br>ABH2103   | 0.9-1<br>1.3-1.4   | 090508-197-KW<br>090508-199-KW   | 09 May 2008<br>09 May 2008   | < 25<br>< 25   
   | < 50<br>< 50   | < 100<br>< 100  | < 100<br>< 100   
  | < 0.5<br>< 0.5   
   
   
   | < 0.5   | <1  | < 2<br>< 2   | <1                                       | <1  |
| ABH2104<br>ABH2105<br>ABH2105  | 0.3-0.5<br>1.4-1.5<br>2.8-3  | 090508-198-KW<br>150508-333-KW<br>150508-346-KW  | 09 May 2008<br>15 May 2008<br>15 May 2008  | < 25<br>200<br>< 25  
   | < 50<br>720<br>< 50  | < 100<br>130<br>< 100   | < 100<br>< 100<br>< 100  
  | < 0.5<br>8.9<br>< 0.5  
   
   
   | < 0.5<br>2.1<br>< 0.5   | < 1<br>22<br>< 1  | < 2<br>53<br>< 2   | < 1<br>3.4<br>< 1                        | < 1<br>56.4<br>< 1  |
| ABH2105<br>ABH2106   | 3.8-4<br>1.1-1.2   | 150508-600-KW<br>090508-205-KW   | 15 May 2008<br>09 May 2008   | < 25<br>< 25   
   | < 50<br>< 50   | < 100<br>< 100  | < 100<br>< 100   
  | < 0.5<br>< 0.5   
   
   
   | < 0.5   | <1  | < 2<br>< 2   | <1                                       | <1  |
| ABH2107<br>ABH2107   | 0.5-0.6<br>1-1.1<br>1.5-1.6  | 150508-340-KW<br>150508-341-KW<br>150508-342-KW  | 15 May 2008<br>15 May 2008<br>15 May 2008  | < 25<br>1400<br>1900   
   | < 50<br>2400<br>4300   | < 100<br>190<br>590   | < 100<br>< 100<br>< 100  
  | < 0.5<br>51<br>96  
   
   
   | < 0.5<br>390<br>470   | < 1<br>120<br>88  | < 2<br>470<br>340  | < 1<br>160<br>130                        | < 1<br>630<br>470   |
| ABH2108<br>ABH2108   | 0.1-0.2<br>1.1-1.2   | 150508-343-KW<br>150508-345-KW   | 15 May 2008<br>15 May 2008   | < 25<br>860  
   | < 50<br>2900   | < 100<br>270  | < 100<br>< 100   
  | < 0.5<br>28  
   
   
   | < 0.5<br>150  | < 1<br>59   | < 2<br>250   | < 1<br>88                                | <1<br>338   |
| ABH2108<br>ABH2108<br>ABH212   | 3-3.1<br>4.2-4.5<br>0.35-0.45  | 150508-347-KW<br>150508-348-KW<br>080508-161-KW  | 15 May 2008<br>15 May 2008<br>08 May 2008  | < 25<br>< 25<br>< 25   
   | < 50<br>< 50<br>< 50   | < 100<br>< 100<br>< 100   | < 100<br>< 100<br>< 100  
  | < 0.5<br>< 0.5<br>< 0.5  
   
   
   | < 0.5<br>< 0.5<br>< 0.5   | <1<br><1<br><1  | < 2<br>< 2<br>< 2  | <1<br><1<br><1                           | <1<br><1<br><1  |
| ABH217<br>ABH219   | 0.2-0.5<br>0-0.2<br>0.2-0.3  | 060508-44-KW<br>060508-08-KW<br>060508-04-KW   | 06 May 2008<br>06 May 2008   | < 25<br>< 25<br>< 25   
   | < 50<br>< 50<br>< 50   | < 100<br>< 100  | < 100<br>< 100   
  | < 0.5<br>< 0.5   
   
   
   | < 0.5<br>< 0.5  | <1<br><1  | < 2<br>< 2<br>< 2  | <1                                       | <1  |
| ABH220<br>ABH221<br>REI Publi  | 0.75-0.85<br>c Recreation  | 080508-05-KW   | 06 May 2008<br>08 May 2008   | < 25   
   | < 50   | 130<br>< 100  | < 100<br>< 100   
  | < 0.5<br>< 0.5   
   
   
   | < 0.5<br>< 0.5  | <1  | < 2  | <1                                       | <1<br><1  |
| BBH401<br>BBH402   | 0.5-0.6<br>0.8-0.9   | 280408-02-KW<br>280408-07-KW   | 28 Apr 2008<br>28 Apr 2008   | < 25<br>nt   
   | < 50<br>nt   | < 100<br>nt   | < 100<br>nt  
  | < 0.5<br>< 0.5   
   
   
   | < 0.5   | <1<br><1  | < 2<br>< 2   | <1                                       | <1  |
| BBH426<br>BBH438<br>SP4 Enter  | 1.7-1.8<br>1.9-2<br>prise  | 290408-71-KW<br>290408-73-KW   | 29 Apr 2008<br>30 Apr 2008   | < 25<br>< 25   
   | < 50<br>< 50   | < 100<br>< 100  | < 100<br>200   
  | < 0.5<br>< 0.5   
   
   
   | < 0.5<br>< 0.5  | <1  | < 2<br>< 2   | <1                                       | <1  |
| ABH225<br>ABH226   | 0.2-0.6<br>0.1-0.2   | 060508-34-KW<br>060508-20-KW   | 06 May 2008<br>06 May 2008   | < 25<br>< 25   
   | < 50<br>< 50   | < 100<br>< 100  | < 100<br>< 100   
  | < 0.5<br>< 0.5   
   
   
   | < 0.5<br>< 0.5  | < 1<br>< 1  | < 2<br>< 2   | <1                                       | <1<br><1  |
| ABH227<br>ABH227<br>ABH229   | 0.2-0.6<br>0.2-0.6<br>0.5-0.8  | 060508-17-KW<br>060508-18-KW Field Blind Replicate Sample of 060508-17-KW<br>060508-14-KW  | 06 May 2008<br>06 May 2008<br>06 May 2008  | < 25<br>< 25<br>< 25   
   | < 50<br>< 50<br>< 50   | < 100<br>< 100<br>< 100   | < 100<br>< 100<br>< 100  
  | < 0.5<br>< 0.5<br>< 0.5  
   
   
   | < 0.5<br>< 0.5<br>< 0.5   | <1<br><1<br><1  | < 2<br>< 2<br>< 2  | <1<br><1<br><1                           | <1<br><1<br><1  |
| ABH229<br>ABH229   | 0.5-0.8<br>0.5-0.8   | 060508-15-KW Field Blind Replicate Sample of 060508-14-KW<br>060508-16-KW Split Field Duplicate of 060508-14-KW  | 06 May 2008<br>06 May 2008   | < 25<br><10  
   | < 50<br><50  | < 100<br><100   | < 100<br><100  
  | < 0.5<br>< 0.2   
   
   
   | < 0.5<br>< 0.5  | < 1<br><0.5   | < 2<br><0.5  | < 1<br><0.5                              | < 1<br><0.5   |
| ABH231<br>ABH231   | 0.5-0.6<br>0.6-0.7<br>0.6-0.7  | 080508-149-KW<br>080508-152-KW<br>080508-153-KW Field Blind Replicate Sample of 080508-152-KW  | 08 May 2008<br>08 May 2008<br>08 May 2008  | < 25<br>< 25<br>< 25   
   | < 50<br>< 50<br>< 50   | < 100<br>< 100<br>< 100   | < 100<br>< 100<br>< 100  
  | < 0.5<br>< 0.5<br>< 0.5  
   
   
   | < 0.5<br>< 0.5<br>< 0.5   | <1<br><1<br><1  | < 2<br>< 2<br>< 2  | <1<br><1<br><1                           | <1<br><1<br><1  |
| ABH238<br>ABH240   | 1.5-1.6<br>0.1-0.4   | 060508-26-KW<br>080508-123-KW  | 06 May 2008<br>08 May 2008   | < 25<br>< 25   
   | < 50<br>< 50   | < 100<br>< 100  | < 100<br>< 100   
  | < 0.5<br>< 0.5   
   
   
   | < 0.5<br>< 0.5  | < 1   | < 2<br>< 2   | <1                                       | < 1<br>< 1  |
| ABH240<br>ABH240<br>ABH240   | 0.1-0.4<br>0.1-0.4<br>0.8-1  | 080508-124-KW Field Blind Replicate Sample of 080508-123-KW<br>080508-125-KW Split Field Duplicate of 080508-123-KW<br>080508-126-KW   | 08 May 2008<br>08 May 2008<br>08 May 2008  | < 25<br>< 10<br>nt   
   | < 50<br>< 50<br>nt   | < 100<br>< 100<br>nt  | < 100<br>< 100<br>nt   
  | < 0.5<br>< 0.2<br>< 0.5  
   
   
   | < 0.5<br>< 0.5<br>< 0.5   | < 1<br>< 0.5<br>< 1   | < 2<br>< 0.5<br>< 2  | < 1<br>< 0.5<br>< 1                      | < 1<br>< 0.5<br>< 1   |
| ABH241<br>ABH243   | 0.5-0.6<br>0.2-0.3   | 080508-128-KW<br>080508-142-KW   | 08 May 2008<br>08 May 2008   | < 25<br>< 25   
   | < 50<br>< 50   | < 100<br>< 100  | < 100<br>< 100   
  | < 0.5  
   
   
   | < 0.5   | <1  | < 2  | <1                                       | <1  |
| ABH247<br>ABH247   | 0.1-0.4<br>0.1-0.4   | 070508-98-KW<br>070508-99-KW Field Blind Replicate Sample of 070508-98-KW  | 07 May 2008<br>07 May 2008   | < 25<br>< 25   
   | < 50<br>< 50   | < 100<br>< 100  | < 100<br>< 100   
  | < 0.5<br>< 0.5   
   
   
   | < 0.5<br>< 0.5  | <1  | < 2  | <1                                       | <1  |
| ABH248<br>SP4 Enter  | 2.6-2.8<br>prise   | 080508-108-KW  | 08 May 2008  | < 25   
   | < 50   | < 100   | < 100  
  | < 0.5  
   
   
   | < 0.5   | < 1   | < 2  | <1                                       | < 1   |
| ABH249<br>ABH250<br>ABH252   | 1-1.1<br>0.7-0.9<br>0.6-0.8  | 080508-110-KW<br>080508-114-KW<br>080508-131-KW  | 08 May 2008<br>08 May 2008<br>08 May 2008  | < 25<br>< 25<br>< 25   
   | < 50<br>< 50<br>< 50   | < 100<br>< 100<br>< 100   | < 100<br>< 100<br>< 100  
  | < 0.5<br>< 0.5<br>< 0.5  
   
   
   | < 0.5<br>< 0.5<br>< 0.5   | <1<br><1<br><1  | < 2<br>< 2<br>< 2  | <1<br><1<br><1                           | <1<br><1<br><1  |
| ABH253<br>ABH254   | 2-2.1<br>0-0.1   | 080508-135-KW<br>080508-136-KW   | 08 May 2008<br>08 May 2008   | < 25<br>< 25   
   | < 50<br>< 50   | < 100<br>< 100  | < 100<br>< 100   
  | < 0.5<br>< 0.5   
   
   
   | < 0.5<br>< 0.5  | <1<br><1  | < 2<br>< 2   | <1                                       | < 1<br>< 1  |
| ABH255<br>REI Publi<br>ABH259  | 0.9-1<br>c Recreation<br>0.6-0.7   | 080508-140-KW<br>120508-249-KW   | 08 May 2008<br>12 May 2008   | < 25   
   | < 50   | < 100   | < 100  
  | < 0.5  
   
   
   | < 0.5   | <1  | < 2  | <1                                       | <1  |
| ABH260<br>ABH260   | 0.6-0.8<br>0.6-0.8   | 120508-245-KW<br>120508-246-KW Field Blind Replicate Sample of 120508-245-KW   | 12 May 2008<br>12 May 2008   | < 25<br>< 25   
   | < 50<br>< 50   | < 100<br>< 100  | < 100<br>< 100   
  | < 0.5<br>< 0.5   
   
   
   | < 0.5   | <1  | < 2<br>< 2   | <1                                       | <1  |
| ABH261<br>ABH263   | 0-0.2<br>1-1.2   | 120508-244-KW<br>120508-236-KW   | 12 May 2008<br>12 May 2008   | < 25   
   | < 50<br>< 50   | < 100<br>< 100  | < 100<br>< 100   
  | < 0.5<br>< 0.5   
   
   
   | < 0.5   | <1  | < 2  | <1                                       | <1  |
| ABH265<br>ABH266   | 0-0.1<br>1.2-1.3   | 120508-228-KW<br>120508-227-KW   | 12 May 2008<br>12 May 2008   | < 25<br>< 25   
   | < 50<br>< 50   | < 100<br>< 100  | < 100<br>< 100   
  | < 0.5<br>< 0.5   
   
   
   | < 0.5   | <1  | < 2<br>< 2   | <1                                       | <1<br><1  |
| ABH275<br>ABH275<br>ABH275   | 0.8-1.2<br>0.8-1.2<br>0.8-1.2  | 130508-286-KW<br>130508-287-KW Field Blind Replicate Sample of 130508-286-KW<br>130508-288-KW Split Field Duplicate of 130508-286-KW   | 13 May 2008<br>13 May 2008<br>13 May 2008  | nt<br>nt   
   | nt<br>nt   | nt<br>nt  | nt<br>nt   
  | < 0.5<br>< 0.5<br>< 0.2  
   
   
   | < 0.5<br>< 0.5<br>< 0.5   | < 1<br>< 1<br>< 0.5   | < 2<br>< 2<br>< 0.5  | < 1<br>< 1<br>< 0.5                      | < 1<br>< 1<br>< 0.5   |
|  | c Recreation   |  |  |  
   |  |   |  
  |  
   
   
   |   |   |  |  |   |
| ABH276   | 0.8-1  | 130508-283-KW  | 13 May 2008  | nt   
   | nt   | nt  | nt   
  | < 0.5  
   
   
   | < 0.5   | < 1   | < 2  | < 1                                      | < 1   |
| ABH276<br>SP4 Enter<br>ABH277  | 0.8-1<br>prise<br>2.1-2.2  | 130508-283-KW<br>130508-281-KW   | 13 May 2008<br>13 May 2008   | nt < 25  
   | nt < 50  | nt < 100  | nt < 100   
  | < 0.5  
   
   
   | < 0.5   | <1  | < 2  | <1                                       | <1  |
| ABH276<br>SP4 Enter<br>ABH277<br>RE1 Publi<br>ABH281<br>ABH287   | 0.8-1<br>prise<br>2.1-2.2<br>c Recreation<br>0-0.2<br>0-0.4  | 130508-281-KW<br>130508-302-KW<br>150508-378-KW  | 13 May 2008<br>13 May 2008<br>15 May 2008  | < 25<br>< 25<br>< 25   
   | < 50<br>< 50<br>< 50   | < 100<br>< 100<br>< 100   | < 100<br>< 100<br>< 100  
  | < 0.5<br>< 0.5<br>< 0.5  
   
   
   | < 0.5<br>< 0.5<br>< 0.5   | <1<br><1<br><1  | <2<br><2<br><2   | <1<br><1<br><1<br><1                     | <1<br><1<br><1<br><1  |
| ABH276<br>SP4 Enter<br>ABH277<br>RE1 Publi<br>ABH281   | 0.8-1 prise 2.1-2.2 c Recreation 0-0.2 0-0.4 0-0.4 0.7-0.8 0-0.3   | 130508-281-KW<br>130508-302-KW   | 13 May 2008<br>13 May 2008<br>15 May 2008<br>15 May 2008<br>15 May 2008<br>15 May 2008   | < 25<br>< 25<br>< 25<br>< 25<br>nt   
   | < 50<br>< 50<br>< 50<br>< 50<br>e 50<br>nt<br>< 50   | < 100<br>< 100<br>< 100<br>< 100<br>nt<br>< 100   | < 100<br>< 100<br>< 100<br>< 100<br>nt<br>< 100  
  | < 0.5<br>< 0.5<br>< 0.5<br>< 0.5<br>< 0.5<br>< 0.5   
   
   
   | < 0.5<br>< 0.5<br>< 0.5<br>< 0.5<br>< 0.5<br>< 0.5  | <1  | <2<br><2<br><2<br><2<br><2<br><2                           | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 < | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <  |
| ABH276<br>SP4 Enter<br>ABH277<br>RE1 Publi<br>ABH281<br>ABH287<br>ABH287<br>ABH288<br>ABH289<br>ABH289<br>ABH289   | 0.8-1 prise 2.1-2.2 c Recreation 0-0.2 0-0.4 0-0.4 0.7-0.8 0-0.3 0-0.3 prise   | 130506.21 A.W<br>130506.30 A.W<br>150508.37 A.W<br>150508.37 A.W<br>150508.37 A.W<br>150508.37 A.W<br>150508.37 A.W<br>150508.37 A.W<br>150508.37 A.W<br>150508.37 A.W   | 13 May 2008<br>13 May 2008<br>15 May 2008<br>15 May 2008<br>15 May 2008<br>15 May 2008<br>15 May 2008  | < 25<br>< 25<br>< 25<br>< 25   
   | < 50<br>< 50<br>< 50<br>< 50<br>int<br>< 50<br>otherwise of the second | < 100 < 100 < 100 < 100 < 100 nt < 100 < 100  | < 100 < 100 < 100 < 100 < 100 nt < 100 < 100  | < 0.5<br>< 0.5<br>< 0.5<br>< 0.5<br>< 0.5<br>< 0.5<br>< 0.5<br>< 0.5   
   
   
   
   | < 0.5<br>< 0.5<br>< 0.5<br>< 0.5<br>< 0.5<br>< 0.5<br>< 0.5   | <1<br><1<br><1<br><1<br><1  | <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <                   | <1                                       | <1<br><1<br><1<br><1  |
| ABH276<br>SP4 Enter<br>ABH277<br>RE1 Publi<br>ABH281<br>ABH287<br>ABH288<br>ABH288<br>ABH289<br>ABH289<br>ABH289<br>ABH289<br>ABH291<br>ABH291   | 0.8-1 prise 2.1-2.2 c Recreation 0-0.2 0-0.4 0-0.4 0.7-0.8 0-0.3 0-0.3   | 130108-321-XW  130108-302-XW  130108-302-XW  150108-372-XW  150108-372-XW  150108-372-XW  150108-372-XW  150108-372-XW  150108-372-XW  150108-372-XW  150108-372-XW  150108-372-XW   | 13 May 2008<br>13 May 2008<br>15 May 2008<br>15 May 2008<br>15 May 2008<br>15 May 2008   | < 25<br>< 25<br>< 25<br>< 25<br>nt<br>< 25   
   | < 50<br>< 50<br>< 50<br>< 50<br>e 50<br>nt<br>< 50   | < 100<br>< 100<br>< 100<br>< 100<br>nt<br>< 100   | < 100<br>< 100<br>< 100<br>< 100<br>nt<br>< 100  
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| ABH276<br>SP4 Enter<br>ABH277<br>RE1 Publi<br>ABH281<br>ABH287<br>ABH288<br>ABH289<br>ABH289<br>SP4 Enter<br>ABH291<br>ABH291<br>ABH291<br>ABH291<br>ABH291<br>ABH291<br>ABH291<br>ABH291<br>ABH293  | 0.8-1 prise 2.1-2.2 c Recreation 0-0.2 0-0.4 0.7-0.8 0-0.3 0-0.3 prise 0.1-0.5 0.1-0.5 c Recreation  | 130506.21 A.W<br>130506.30 A.W<br>150508.37 A.W<br>150508.37 A.W<br>150508.37 A.W<br>150508.37 A.W<br>150508.37 A.W<br>150508.37 A.W<br>150508.37 A.W<br>150508.37 A.W   | 13 May 2008<br>13 May 2008<br>15 May 2008  | < 25 < 25 < 25 < 25 < 25 nt < 25 < 25 < 25 < 25 < 25 < 25 < 25 < 25  
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   | < 0.5<br>< 0.5   | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <  | <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <                   | <1<br><1<br><1<br><1<br><1               | <1<br><1<br><1<br><1<br><1<br><1  |
| ABH276<br>SP4 Enter<br>ABH277<br>REI Publi<br>ABH281<br>ABH287<br>ABH288<br>ABH289<br>ABH289<br>ABH289<br>SP4 Enter<br>ABH291<br>ABH291<br>REI Publi   | 0.8-1 prise 2.1-2.2 c Recreation 0-0.2 0-0.4 0.7-0.8 0-0.3 0-0.3 prise 0.1-0.5 0.1-0.5 c Recreation  | 136/08-251-KW  136/08-391-KW  156/08-375-KW  156/08-355-KW   | 13 May 2008<br>13 May 2008<br>15 May 2008  | < 25 < 25 < 25 < 25 nt < 25 < 25 e 25 nt < 25 < 25 < 210   
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   | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5   | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <  | <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <2 <                   | <1<br><1<br><1<br><1<br><1               | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <  |
| ABH276 SP4 Enter ABH277 RE1 Publi ABH281 ABH287 ABH288 ABH289 ABH289 SP4 Enter ABH291 ABH291 ABH291 ABH293 RE1 Publi ABH293 ABH293 ABH293 ABH293 ABH297 ABH297 ABH297 ABH2999 ABH2999  | 0.8-1  | 13006.251.4.W  13006.251.4.W  15006.373.W  | 13 May 2008 13 May 2008 15 May 2008  | <25 <25 <25 <25 <25 nt <25 <25 <25 <10 <25 <25 <25 <25 <25 <25 <25 <25 <25 <25   
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| ABH276 SP4 Enter ABH277 RE1 Publi ABH281 ABH287 ABH288 ABH289 ABH289 SP4 Enter ABH291 ABH291 ABH291 ABH293 RE1 Publi ABH293 ABH293 ABH293 ABH293 ABH297 ABH297 ABH297 ABH2999 ABH2999  | 0.8-1 prise 21.2.2 c Recreation 0.0.2 0.04 0.04 0.04 0.04 0.03 0.03 0.03 0.10.5 0.14.5 0.14.5 0.14.5 0.14.5 0.14.5 0.14.5 0.10.5 c Recreation 1.3-1.4 prise 0.9-1.0 0.9-1.0 0.9-1.0 0.9-1.0 0.9-1.0 0.9-1.0 0.9-1.0 0.9-1.0  | 138/08.251.4CW 12909.251.4CW 12909.251.4CW 15090.251.4CW   | 13 May 2008 13 May 2008 15 May 2008 09 May 2008 09 May 2008 09 May 2008 09 May 2008  | <25 <25 <25 <25 <25 <25 <10 <25 <25 <25 <25 <25 <25 <25 <25 <25 <25  
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   | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5   | <1   <1   <1   <1   <1   <1   <1   <1   | <2   <2   <2   <2   <2   <2   <2   <2                      | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 < | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <  |
| ABH276 SP4 Enter ABH277 RE1 Publi ABH281 ABH287 ABH288 ABH289 ABH289 SP4 Enter ABH291 RE1 Publi ABH291 RE1 Publi ABH293 SP4 Enter ABH299 ABH29 | 0.8.1   0.8.1   0.8.1   0.8.1   0.9.1   0.9.2   0.9.2   0.9.2   0.9.2   0.9.2   0.9.2   0.9.2   0.9.2   0.9.2   0.9.2   0.9.2   0.9.2   0.9.3  | 13006-351-KW  13006-371-KW  13006-372-KW  13006-378-KW  15006-378-KW   | 13 May 2008  13 May 2008  15 May 2008  16 May 2008  17 May 2008  18 May 2008  18 May 2008  19 May 2008  10 May 2008  12 May 2008  12 May 2008  | <25 <25 <25 <25 nt <25 <25 10 <25 <25 <25 <25 <25 <25 <25 <25 <25 <25  
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   | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5   | <1   <1   <1   <1   <1   <1   <1   <1   | <2   <2   <2   <2   <2   <2   <2   <2                      | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 < | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <  |
| ABH276 SP4 Enter ABH277 RE1 Publi ABH281 ABH287 ABH287 ABH289 ABH289 ABH289 ABH289 ABH289 ABH291 ABH291 ABH291 ABH291 ABH293 SP4 Enter ABH293 ABH293 ABH299 ABH299 RE1 Publi ABH297 ABH299 RE1 Publi AMW204 AMW2055 AMW2055  | 0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.8.2  | 130008-251-KW  130008-251-KW  130008-375-KW  150008-375-KW  150008-355-KW  | 13 May 2008  15 May 2008  16 May 2008  17 May 2008  18 May 2008  18 May 2008  18 May 2008  12 May 2008  22 May 2008  23 May 2008  24 May 2008  25 May 2008  25 May 2008  25 May 2008  | <25 <25 <25 <25 nt <25 <25 <26 nt <25 <25 <25 <25 <25 <25 <25 <25 <25 <25   
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   | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5   
   
   
  | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5   | <1   <1   <1   <1   <1   <1   <1   <1   | <2   <2   <2   <2   <2   <2   <2   <2                      | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 < | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <  |
| ABHI276 ABHI276 ABHI277 ABHI287 ABHI28 | 0.8.1 prire 2.1.2.2 c Kecreation 0.0.2 0.0.4 0.0.4 0.0.4 0.0.3 0.0.3 0.0.3 c 1.0.5 0.1.0.5 Kecreation 0.1.0.5 C Kecreation 0.1.0.5 0.1 | 130508-321-KW  130508-321-KW  130508-375-KW  150508-375-KW   | 13 May 2008  15 May 2008  16 May 2008  16 May 2008  16 May 2008  16 May 2008  17 May 2008  18 May 2008  28 May 2008  28 May 2008  29 May 2008   | <25 <25 <25 <25 <25 <25 <25 <25 <25 <25   
  | < 50  < 50  < 50  < 50  < 50  1 50  1 50  1 50  1 50  4 50               | <100 <100 <100 <100 <100 <100 <100 <100   | <100 <100 <100 <100 <100 <100 <100 <100   | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5   
   
   
   
  | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5   | <1   <1   <1   <1   <1   <1   <1   <1   | <2   <2   <2   <2   <2   <2   <2   <2                      | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 < | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <  |
| ABILIZA ABILIZ | 0.8.1 prire 2.1.22 c Recreation 0.0.2 (0.0.2 c) 0.0.4 (0.0.4 c) 0.0.4 (0.0.3 c) 0.0.3 (0.1.0.5 c) 0.1.0.5  | 130008-251-KW  119008-351-KW  119008-35-KW  15008-35-KW  | 13 May 2008  14 May 2008  15 May 2008  15 May 2008  16 May 2008  17 May 2008  18 May 2008  18 May 2008  18 May 2008  28 May 2008   | <25 <25 <25 <25 <25 <25 <25 <25 <25 <25  | < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50  | <100 <100 <100 <100 <100 <100 <100 <100   | <100 <100 <100 <100 <100 <100 <100 <100   | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5  | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5   | <1   <1   <1   <1   <1   <1   <1   <1   | <2   <2   <2   <2   <2   <2   <2   <2                      | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 < | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <  |
| ABILIZO ABILIZ | 0.8.1 pririe 2.1.22 c Recreation 0.02 c 0.02 c 0.04 c 0.04 c 0.04 c 0.05 | 15006.31.4.W  15006.39.4.W  15006.39.4.W  15006.37.4.W   | 13 May 2008  15 May 2008  16 May 2008  17 May 2008  18 May 2008  18 May 2008  19 May 2008  19 May 2008  10 May 2008  20 May 2008  22 May 2008  23 May 2008  24 May 2008  25 May 2008  25 May 2008  26 May 2008  27 May 2008  27 May 2008  28 May 2008  29 May 2008  29 May 2008  30 May 2008   | <25 < 25 < 25 < 25 < 25 < 25 < 25 < 25   | < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50
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   | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5   
   | 41  | 42   42   42   42   42   42   42   42                      | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 < | <pre>&lt;1 &lt;1 &lt;</pre> |
| ABILIZA ABILIZ | 0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.1.2   0.1.2   0.0.2   0.0.2   0.0.2   0.0.4   0.0.4   0.0.4   0.0.4   0.0.4   0.0.4   0.0.4   0.0.4   0.0.3  | 15008-351-KW   | 13 May 2008  14 May 2008  15 May 2008  15 May 2008  25 May 2008  26 May 2008  27 May 2008  27 May 2008  28 May 2008  39 May 2008  30 May 2008  | <25 <25 <25 <25 <25 <27 <28 <28 <28 <28 <28 <28 <28 <29 <28 <28 <28 <28 <28 <28 <28 <28 <28 <28  
   | < 50 < 50 < 50 < 50 int < 50 < 50 int < 50 < 50 < 50 int < 50 < 50 < 50 < 50 < 50 < 50 < 50 < 50   | < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 | < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5  
   
   
   
   | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5   | d    d    d    d    d    d    d    d  | 42   42   42   42   42   42   42   42                      | <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 < | <pre><!-- <!</td--></pre>   | | | | | | | | | |
| ABILITA ABILIT | 0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.1.2  | 130008-351-KW   130008-351-K   | 13 May 2008  14 May 2008  15 May 2008  16 May 2008  16 May 2008  27 May 2008  28 May 2008  29 May 2008  29 May 2008  29 May 2008  20 May 2008  20 May 2008  20 May 2008  21 May 2008  22 May 2008  23 May 2008  24 May 2008  25 May 2008  26 May 2008  27 May 2008  28 May 2008  29 May 2008  29 May 2008  20 May 2008  | <ul> <li>&lt;25</li> <li>&lt;25</li> <li>&lt;25</li> <li>&lt;25</li> <li>&lt;26</li> <li>&lt;27</li> <li>&lt;28</li> <li>&lt;29</li> <li>&lt;29</li></ul>  | < 50     < 50     < 50     < 50     < 50     < 50     mt     mt     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     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50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50                | <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 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  < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5     < 0.5      | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5   | 41  | 42   42   42   42   42   42   42   42                      | d    d    d    d    d    d    d    d     | <pre><!-- <!</td--></pre>   |
| ABILIZA REI PABILIZA REI PABILI | 0.5.1 prise 2.1.2.2 Recreation 0.0.2 0.0.2 0.0.2 0.0.2 0.0.2 0.0.2 0.0.3 | 130008-251-KW  110008-251-KW  110008-375-KW  150008-375-KW   | 13 May 2008  14 May 2008  15 May 2008  15 May 2008  16 May 2008  17 May 2008  18 May 2008  19 May 2008  19 May 2008  19 May 2008  19 May 2008  10 May 2008  12 May 2008  13 May 2008  14 May 2008  15 May 2008  15 May 2008  15 May 2008  15 May 2008  16 May 2008  17 May 2008  18 May 2008  19 May 2008  19 May 2008  20 May 2008  21 May 2008  22 May 2008  23 May 2008  24 May 2008  25 May 2008  26 May 2008  27 May 2008  28 May 2008  29 May 2008  20 Ma | <ul> <li>&lt;25</li> <li>&lt;25</li> <li>&lt;25</li> <li>&lt;25</li> <li>&lt;25</li> <li>&lt;25</li> <li>&lt;25</li> <li>&lt;27</li> <li>&lt;28</li> <li>&lt;29</li> <li>&lt;22</li> <li>&lt;25</li> <li>&lt;20</li> <li>&lt;21</li> <li>&lt;22</li> <li>&lt;22</li> <li>&lt;22</li> <li>&lt;22</li> <li>&lt;22</li> <li>&lt;25</li> <li>&lt;26</li> <li>&lt;27</li> <li>&lt;28</li> <li>&lt;29</li> <li>&lt;29</li> <li>&lt;20</li> <li>&lt;20</li></ul>  | < 50   | < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   < 100   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| ABILIZA SP4 Esterior ABILIZA A | 0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.1.2  | 15006-351-KW 15006-375-KW   | 13 May 2008  15 May 2008  16 May 2008  16 May 2008  17 May 2008  18 May 2008  18 May 2008  18 May 2008  19 May 2008  19 May 2008  19 May 2008  20 May 2008  | <ul> <li>&lt;25</li> <li>&lt;26</li> <li>&lt;27</li> <li>&lt;28</li> <li>&lt;28</li> <li>&lt;29</li> <li>&lt;29</li> <li>&lt;20</li> <li>&lt;21</li> <li>&lt;22</li> <li>&lt;23</li> <li>&lt;25</li> <li>&lt;26</li> <li>&lt;27</li> <li>&lt;28</li> <li>&lt;28</li> <li>&lt;29</li> <li>&lt;29</li> <li>&lt;20</li> <li>&lt;21</li> <li>&lt;22</li> <li>&lt;22</li> <li>&lt;23</li> </ul>   
   | < 50   | <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <10   | <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <100 <10   | <05 <05 <06 <07 <08 <08 <08 <08 <08 <08 <08 <08 <08 <08  
   
   
   | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5   
   | 41  | 42   42   42   42   42   42   42   42                      | d    d    d    d    d    d    d    d     |   |
| ABILIZA SPA EATER ABILIZA ABIL | 0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.1.2  | 15008-321-KW  15008-371-KW  15 | 13 May 2008  14 May 2008  15 May 2008  15 May 2008  15 May 2008  20 May 2008  20 May 2008  22 May 2008  23 May 2008  24 May 2008  25 May 2008  25 May 2008  26 May 2008  27 May 2008  27 May 2008  28 May 2008  29 May 2008  29 May 2008  20 May 2008   | < 25 < 25 < 25 < 25 < 25 # < 25 < 27 < 28 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 < 29 </td <td>  &lt; 50     &lt; 50     &lt; 50     &lt; 50     &lt; 50     m</td> <td>&lt; 100 &lt; 100 &lt;</td> <td>&lt; 100 &lt; 100 &lt;</td> <td>&lt;0.5 &lt;0.5 &lt;0.5 &lt;0.5 &lt;0.5 &lt;0.5 &lt;0.5 &lt;0.5</td> <td>&lt;0.53 &lt;0.53 &lt;0.53</td> <td>  c  c  c  c  c  c  c  c  c  c  c  c  c </td> <td>  42   42   42   42   42   42   42   42</td> <td>  d    d    d    d    d    d    d    d</td> <td>                                     </td> | < 50     < 50     < 50     < 50     < 50     m   | < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 <   | < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 <   | <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5  | <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53 <0.53                         | c  c  c  c  c  c  c  c  c  c  c  c  c   | 42   42   42   42   42   42   42   42                      | d    d    d    d    d    d    d    d     |   |
| ABILIZA SPI ESTATION AND AND AND AND AND AND AND AND AND AN  | 0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.7.2   0.1.2  | 150008-201-EW  110008-301-EW  110008-301-EW  150008-371-EW  15008-371-EW  150008-371-EW  15008-371-EW  15008-371-EW  15008-371-EW  15008-371-EW  15008-371-EW  15008-371-EW  15008-371-EW  | 13 May 2008  14 May 2008  15 May 2008  16 May 2008  16 May 2008  16 May 2008  27 May 2008  28 May 2008  28 May 2008  28 May 2008  29 May 2008  29 May 2008  20 May 2008  30 May 2008   | <ul> <li>&lt;23</li> <li>&lt;25</li> <li>&lt;25</li> <li>&lt;25</li> <li>&lt;25</li> <li>&lt;26</li> <li>&lt;27</li> <li>&lt;28</li> <li>&lt;29</li> <li>&lt;29</li> <li>&lt;29</li> <li>&lt;29</li> <li>&lt;20</li> <li>&lt;20</li></ul>  
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ABILIZA SPI E E E E E E E E E E E E E E E E E E E	0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.1.2	15008-321-KW 15008-371-KW	13 May 2008  14 May 2008  15 May 2008  16 May 2008  16 May 2008  27 May 2008  28 May 2008  29 May 2008  29 May 2008  29 May 2008  20 May 2008  21 May 2008  22 May 2008  23 May 2008  24 May 2008  25 May 2008  26 May 2008  27 May 2008  27 May 2008  28 May 2008  29 May 2008  29 May 2008  20 May 2008  20 May 2008  30 May 2008  31 May 2008  32 May 2008  33 May 2008  34 May 2008  35 May 2008  36 May 2008  37 May 2008  38 May 2008  39 May 2008  30 May 2008  30 May 2008  30 May 2008  31 May 2008  31 May 2008  31 May 2008  32 May 2008  33 May 2008  34 May 2008  35 May 2008  36 May 2008	<ul> <li>&lt; 25</li> <li>&lt; 25</li> <li>&lt; 25</li> <li>&lt; 26</li> <li>&lt; 27</li> <li>&lt; 28</li> <li>&lt; 29</li> <li>&lt; 29</li> <li>&lt; 20</li> <li>&lt; 20</li> <li>&lt; 21</li> <li>&lt; 22</li> <li>&lt; 22</li> <li>&lt; 23</li> <li>&lt; 24</li> <li>&lt; 25</li> <li>&lt; 26</li> <li>&lt; 27</li> <li>&lt; 28</li> <li>&lt; 29</li> <li>&lt; 29</li> <li>&lt; 20</li> <li< td=""><td>  &lt; 50</td><td>&lt; 100 &lt; 100 &lt;</td><td>&lt; 100 &lt; 100 &lt;</td><td>&lt;0.5 &lt;0.5 &lt;0.</td><td>&lt;0.5 &lt;0.5 &lt;0.5 &lt;0.5 &lt;0.5 &lt;0.5 &lt;0.5 &lt;0.5</td><td>  41</td><td>  42   42   42   42   42   42   42   42</td><td>  41</td><td>                                     </td></li<></ul>	< 50	< 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 <	< 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 <	<0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.	<0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	41	42   42   42   42   42   42   42   42	41	
ABILIZE  SPAY Enter ABILIZE  BBILIZE  B	0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.1.2	135008-251-KW 12008-251-KW 12008-25-KW 12008-25-KW 15008-25-KW 150	13 May 2008  14 May 2008  15 May 2008  16 May 2008  16 May 2008  17 May 2008  18 May 2008  18 May 2008  18 May 2008  19 May 2008  19 May 2008  19 May 2008  10 May 2008  21 May 2008  22 May 2008  23 May 2008  24 May 2008  25 May 2008  26 May 2008  27 May 2008  27 May 2008  28 May 2008  29 May 2008  29 May 2008  20 May 2008  30 Ma	<ul> <li>&lt; 23</li> <li>&lt; 25</li> <li>&lt; 27</li> <li>&lt; 28</li> <li>&lt; 29</li> <li>&lt; 29&lt;</li></ul>	< 50	< 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 <	< 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 < 100 <	<ul> <li><a #"="" href="https://doi.org/10.1007/j.jc/j.jc/j.jc/j.jc/j.jc/j.jc/j.jc/j.j&lt;/td&gt;&lt;td&gt;&lt;055 &lt;056 &lt;056 &lt;056 &lt;056 &lt;056 &lt;056 &lt;056&lt;/td&gt;&lt;td&gt;  41&lt;/td&gt;&lt;td&gt;  42&lt;/td&gt;&lt;td&gt;  41&lt;/td&gt;&lt;td&gt;  C    C    C    C    C    C    C    C&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;ABILIZE SPI ESTATE ABILIZE ABI&lt;/td&gt;&lt;td&gt;0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.7.2   0.1.2&lt;/td&gt;&lt;td&gt;130008-251-KW 120008-251-KW 120008-25-KW 120008-25-KW 150008-25-KW 150008-25-KW&lt;/td&gt;&lt;td&gt;13 May 2008  13 May 2008  14 May 2008  15 May 2008  16 May 2008  16 May 2008  17 May 2008  18 May 2008  19 May 2008  19 May 2008  10 May 2008&lt;/td&gt;&lt;td&gt;&lt;ul&gt;     &lt;li&gt;&lt;23&lt;/li&gt;     &lt;li&gt;&lt;25&lt;/li&gt;     &lt;li&gt;&lt;25&lt;/li&gt;     &lt;li&gt;&lt;25&lt;/li&gt;     &lt;li&gt;&lt;26&lt;/li&gt;     &lt;li&gt;&lt;27&lt;/li&gt;     &lt;li&gt;&lt;28&lt;/li&gt;     &lt;li&gt;&lt;29&lt;/li&gt;     &lt;li&gt;&lt;28&lt;/li&gt;     &lt;li&gt;&lt;29&lt;/li&gt;     &lt;li&gt;&lt;20&lt;/li&gt;     &lt;li&gt;&lt;20&lt;/li&gt;&lt;/td&gt;&lt;td&gt;  &lt; 50&lt;/td&gt;&lt;td&gt;&lt; 100&lt;/p&gt; 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 425   426   427&lt;/td&gt;&lt;td&gt;  &lt; 50    &lt;/td&gt;&lt;td&gt;  &lt; 100&lt;/td&gt;&lt;td&gt;  &lt; 100&lt;/td&gt;&lt;td&gt;&lt;ul&gt;     &lt;li&gt;&lt;a href=">605</a></li> <li><a href="#">605</a></li> <li><a href="#">605</a></li></ul>	<0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	41	42	41   41   41   41   41   41   41   41	c    c    c    c    c    c    c    c
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<li>&lt;0.5</li> <li< td=""><td>  41</td><td>  42</td><td>  c  c  c  c  c  c  c  c  c  c  c  c  c </td><td>                                     </td></li<></ul>	41	42	c  c  c  c  c  c  c  c  c  c  c  c  c	
ABILIZE  SERI   Full    ABILIZE   ABILIZE    ABILIZE    ABILIZE   ABILIZE    ABILIZE	0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.7.2   0.1.2	15008-351-KW 11008-301-KW 11008-301-KW 11008-301-KW 11008-301-KW 11008-301-KW 11008-301-KW 11008-301-KW 11008-301-KW 11008-301-KW 11008-311-KW 1108-311-KW 1108-311	13 May 2008  13 May 2008  14 May 2008  15 May 2008  16 May 2008  16 May 2008  17 May 2008  18 May 2008  18 May 2008  18 May 2008  19 May 2008  20 May 2008  22 May 2008  23 May 2008  24 May 2008  25 May 2008  26 May 2008  27 May 2008  27 May 2008  28 May 2008  29 May 2008  30 Ma	<225	< 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     < 50     <	4 100 4 100 4 100 4 100 4 100 5 100 6 100 8	4 100 4 100 4 100 4 100 4 100 5 100 6 100 8	<ul> <li><a href="#"></a></li> <li><a href="#"></a></li> <li><a href="#"></a></li> <li><a href="#"></a></li> <li><a href="#"><a hr<="" td=""><td><ul> <li>&lt;0.5</li> <l></l></ul></td><td>41 41 41 41 41 41 41 41 41 41 41 41 41 4</td><td>  42</td><td>  c  c  c  c  c  c  c  c  c  c  c  c  c </td><td>  c    c    c    c    c    c    c    c</td></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></li></ul>	<ul> <li>&lt;0.5</li> <l></l></ul>	41 41 41 41 41 41 41 41 41 41 41 41 41 4	42	c  c  c  c  c  c  c  c  c  c  c  c  c	c    c    c    c    c    c    c    c
ABILIZE  SERVICE ABILIZE  BBILIZE  ABILIZE  BBILIZE  BBIL	0.8.1   0.8.1   0.8.1   0.8.1   0.8.1   0.7.2   0.1.2	12008-251-KW 12008	13 May 2008  13 May 2008  13 May 2008  13 May 2008  14 May 2008  15 May 2008  16 May 2008  16 May 2008  16 May 2008  17 May 2008  18 May 2008  18 May 2008  18 May 2008  18 May 2008  19 May 2008  19 May 2008  19 May 2008  10 May 2008	<25	< 50	< 100	<   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <     <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <     <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <   100   <	<ul> <li><a href="#"></a></li> <li><a href="#"></a></li> <li><a href="#"></a></li> <li><a href="#"></a></li> <li><a href="#"><a hr<="" td=""><td>&lt;0.5 &lt;0.5 &lt;0.</td><td>  41</td><td>  42</td><td>41 41 41 41 41 41 41 41 41 41 41 41 41 4</td><td>  c    c    c    c    c    c    c    c</td></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></li></ul>	<0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.	41	42	41 41 41 41 41 41 41 41 41 41 41 41 41 4	c    c    c    c    c    c    c    c
ABILIZE  SERI   Fability   ABILIZE  ABI	0.8.1	15008-321-KW 15008-371-KW 15008	13 May 2008  14 May 2008  15 May 2008  15 May 2008  15 May 2008  16 May 2008  17 May 2008  18 May 2008  18 May 2008  18 May 2008  19 May 2008  10 May 2008  21 May 2008  22 May 2008  23 May 2008  24 May 2008  25 May 2008  26 May 2008  36 May 2008  37 May 2008  38 May 2008  39 May 2008  30 May 2008  31 May 2008  32 May 2008  33 May 2008  34 May 2008  35 May 2008  36 May 2008  37 May 2008  38 May 2008  39 May 2008  30 May 2008  30 May 2008  30 May 2008  31 May 2008  31 May 2008  31 May 2008  32 May 2008  34 May 2008  35 May 2008  36 May 2008  37 May 2008  38 May 2008  39 May 2008  39 May 2008  30 May 2008  30 May 2008  30 May 2008  31 May 2008  32 May 2008  33 May 2008  34 May 2008  35 May 2008  36 May 2008  37 May 2008  38 May 2008  38 May 2008  39 May 2008  30 Ma	425     426     427     428     429	< 50	< 100	< 100	<ul> <li><a href="#"></a></li> <li><a href="#"></a></li> <li><a href="#"></a></li> <li><a href="#"></a></li> <li><a href="#"><a hr<="" td=""><td>&lt;05 &lt;05 &lt;05</td><td>  41</td><td>  42   42   42   42   42   42   42   42</td><td>  41</td><td>  c    c    c    c    c    c    c    c</td></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></li></ul>	<05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05 <05	41	42   42   42   42   42   42   42   42	41	c    c    c    c    c    c    c    c

					2		Soil Analyt	tical Result	s - PAH <sup>1</sup>			ene		anthere	2	yrene	ıcme	lene	TEQ	
Location	Sample Depth (m)	Sample ID	Date Sampled Units	Naphthalene Naphthalene	ayigm Acenaphthylene	Maga Acenaphthene	Fluorene	by Phenanthrene	Anthracene	Eluoranthene Fluoranthene	Lyrene Pyrene	Benzo(a)anthracene	Chrysene Salgan	ganzo(b)&(k)fluora	Benza(a)pyrene	Indeno(1,2,3-ed)py	Dibenz(a, h)anthracene	Benzo(g,h,i)perylen	Benzo(a)pyrene T	gg/gm Data Pah
SP4 Enter BBH437 ABH202	2.6-2.8 1.9-2.2	290408-77-KW 090508-202-KW	30 Apr 2008 09 May 2008	0.1 0.1	0.1	0.1	0.1 0.1	0.1 0.1	0.1	0.1 0.1	0.1	0.1	0.1	0.22	0.07 0.05	0.1 0.1	0.1 0.1	0.1 0.1	0.244 0.242	1.59 1.55
ABH204 ABH204 ABH204	0.1-0.4 0.1-0.4 0.1-0.4	070508-55-KW 070508-56-KW Field Blind Replicate Sample of 070508-55-KW 070508-57-KW Split Field Duplicate of 070508-55-KW	07 May 2008 07 May 2008 07 May 2008	0.1 0.1 0.25	0.1 0.1 0.25	0.1 0.1 0.25	0.1 0.1 0.25	0.1 0.1 0.25	0.1 0.1 0.25	0.1 0.3 0.25	0.1 0.3 0.25	0.1 0.1 0.25	0.1 0.2 0.25	0.22 0.4 nt	0.205 0.2 0.25	0.1 0.1 0.25	0.1 0.1 0.25	0.1 0.1 0.25	0.244 0.463 nt	1.725 2.4 3.5
ABH206 ABH207 ABH208	1-1.2 0.2-0.4 1.2-1.4	090508-209-KW 090508-207-KW 070508-68-KW	09 May 2008 09 May 2008 07 May 2008	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.22 0.22 0.22	0.205 0.205 0.205	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.244 0.244 0.244	1.725 1.725 1.725
ABH209 ABH210 ABH2100	0.15-0.25 0.1-0.2 0.1-0.2	070508-62-KW 060508-46-KW 090508-171-KW	07 May 2008 06 May 2008 09 May 2008	0.1 0.2 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.3 0.1	0.1 0.3 0.1	0.1 0.1 0.1	0.1 0.2 0.1	0.22 0.3 0.22	0.205 0.1 0.205	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.244 0.453 0.244	1.725 2.3 1.725
ABH2101 ABH2102	0.4-0.5 0.7-0.8	090508-175-KW 090508-186-KW	09 May 2008 09 May 2008	0.1 0.1	0.1 0.1	0.1 0.1	0.1 0.1	0.1	0.1 0.1	0.1	0.1 0.2	0.1	0.1 0.1	0.22 0.22	0.06 0.07	0.1 0.1	0.1 0.1	0.1 0.1	0.244 0.344	1.58 1.79
ABH2104 ABH2106 ABH2108	0.3-0.5 1.1-1.2 1.1-1.2	090508-198-KW 090508-205-KW 150508-345-KW	09 May 2008 09 May 2008 15 May 2008	0.1 0.1 30	0.1 0.1 0.1	0.1 0.1 0.6	0.1 0.1 1.2	0.1 0.1 5.1	0.1 0.1 1.5	0.1 0.1 4.8	0.1 0.1 4	0.1 0.1 1.4	0.1 0.1 1.3	0.22 0.22 1.4	0.1 0.205 0.8	0.1 0.1 0.5	0.1 0.1 0.1	0.1 0.1 0.3	0.244 0.244 4.446	1.62 1.725 53.1
ABH212 ABH213 ABH214	0.35-0.45 0.5-0.6	080508-161-KW 120508-212-KW 070508-71-KW	08 May 2008 12 May 2008 07 May 2008	0.1 0.1	0.1 0.1 0.1	0.1 0.1	0.1	0.1 0.1	0.1 0.1	0.1 0.1	0.1	0.1 0.1 0.1	0.1	0.22 0.22	0.205 0.205 0.205	0.1 0.1 0.1	0.1 0.1	0.1 0.1	0.244	1.725 1.725 1.725
ABH218 ABH220	0.4-0.5 0.4-0.5 0.2-0.3	060508-07-KW 060508-04-KW	06 May 2008 06 May 2008	0.1 0.1 0.1	0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1	0.1 0.1 0.1	0.22 0.22 0.22	0.07 0.205	0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.244 0.244 0.244	1.59 1.725
ABH221 ABH297 AMW203	0.75-0.85 0.9-1.0 0.25-0.35	080508-159-KW 090508-166-KW 090508-188-KW	08 May 2008 09 May 2008 09 May 2008	0.1 0.1 0.1	0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.3	0.1 0.1 0.1	0.1 0.1 0.8	0.1 0.1	0.1 0.1 0.5	0.1 0.1 0.5	0.22 0.22 0.8	0.205 0.205 0.5	0.1 0.1 0.3	0.1 0.1 0.1	0.1 0.1 0.3	0.244 0.244 1.268	1.725 1.725 5.6
AMW203 RE1 Public AMW203	0.7-0.8 Recreation 1.9-2	090508-189-KW 090508-190-KW	09 May 2008 09 May 2008	0.1	0.1	0.1	0.1	0.7	0.1	0.4	0.4	0.2	0.4	0.3	0.1	0.1	0.1	0.1	0.565	3.3 1.725
BBH402 BBH402	0.5-0.6 0.8-0.9	280408-06-KW 280408-07-KW	28 Apr 2008 28 Apr 2008	0.1	0.2	0.4	0.5 0.1	7.1 0.1	1.7 0.1	9.3 0.2	8.3 0.2	3.4 0.1	3.6 0.1	5.5 0.2	2.7 0.2	0.2 0.1	2.6 0.1	2.2 0.1	11.868 0.342	47.8 1.9
SP4 Enter ABH225	0.5-0.6 prise 0.2-0.6	290408-70-KW 060508-34-KW	29 Apr 2008 06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH226 ABH226 ABH227	0.1-0.2 0.4-0.5 0.2-0.6	060508-20-KW 060508-21-KW 060508-17-KW	06 May 2008 06 May 2008 06 May 2008	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.4	0.1 0.1 0.4	0.1 0.1 0.1	0.1 0.1 0.2	0.22 0.22 0.4	0.205 0.205 0.2	0.1 0.1 0.2	0.1 0.1 0.1	0.1 0.1 0.2	0.244 0.244 0.574	1.725 1.725 2.8
ABH227 ABH227	0.2-0.6 0.2-0.6	060508-18-KW Field Blind Replicate Sample of 060508-17-KW 060508-19-KW	06 May 2008 06 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.22 0.22	0.1 0.205	0.1	0.1 0.1	0.1 0.1	0.344	1.82 1.725
ABH228 ABH229 ABH229	0.2-0.3 0.1-0.3 0.5-0.8	060508-10-KW 060508-13-KW 060508-14-KW	06 May 2008 06 May 2008 06 May 2008	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.3 0.1	0.2 0.3 0.1	0.1 0.1 0.1	0.1 0.2 0.1	0.22 0.3 0.22	0.07 0.2 0.205	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.344 0.453 0.244	1.69 2.3 1.725
ABH229 ABH229 ABH231	0.5-0.8 0.5-0.8 0.6-0.7	060508-15-KW Field Blind Replicate Sample of 060508-14-KW 060508-16-KW Split Field Duplicate of 060508-14-KW 080508-152-KW	06 May 2008 06 May 2008 08 May 2008	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.22 nt 0.22	0.205 0.25 0.205	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.244 nt 0.244	1.725 3.5 1.725
ABH231 ABH232	0.6-0.7 1.9-2.1	080508-153-KW Field Blind Replicate Sample of 080508-152-KW 060508-54-KW	08 May 2008 06 May 2008	0.1	0.1	0.1	0.1 0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205 0.205	0.1	0.1 0.1	0.1	0.244	1.725 1.725
ABH238 ABH239 ABH240	1.5-1.6 0.4-0.5 0.1-0.4	060508-26-KW 080508-122-KW 080508-123-KW	06 May 2008 08 May 2008 08 May 2008	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.22 0.22 0.22	0.205 0.205 0.205	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.244 0.244 0.244	1.725 1.725 1.725
ABH240 ABH240 ABH243	0.1-0.4 0.1-0.4 0.2-0.3	080508-124-KW Field Blind Replicate Sample of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW 080508-142-KW	08 May 2008 08 May 2008 08 May 2008	0.1 0.25 0.1	0.1 0.25	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.2	0.1 0.25 0.1	0.1 0.25 0.6	0.1 0.25 0.6	0.1 0.25 0.3	0.1 0.25 0.4	0.22 nt 0.9	0.205 0.25 0.5	0.1 0.25 0.4	0.1 0.25 0.1	0.1 0.25 0.4	0.244 nt 0.868	1.725 3.5 4.9
REI Publi ABH247	0.1-0.4	070508-98-KW	07 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH247 ABH248 SP4 Enter	0.1-0.4 2.6-2.8 prise	070508-99-KW Field Blind Replicate Sample of 070508-98-KW 080508-108-KW	07 May 2008 08 May 2008	0.1 0.1	0.1 0.1	0.1	0.1 0.1	0.1 0.1	0.1	0.1 0.1	0.1	0.1 0.1	0.1 0.1	0.22 0.22	0.205 0.205	0.1 0.1	0.1 0.1	0.1 0.1	0.244 0.244	1.725 1.725
ABH249 ABH249 ABH250	1-1.1 1.2-1.4 0.7-0.9	080508-110-KW 080508-111-KW 080508-114-KW	08 May 2008 08 May 2008 08 May 2008	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.22 0.22 0.22	0.205 0.205 0.205	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.244 0.244 0.244	1.725 1.725 1.725
ABH250 ABH254	1.5-1.6 0.6-0.7	080508-115-KW 080508-137-KW	08 May 2008 08 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1 0.1	0.1	0.244 0.244 1.257	1.725
ABH260 ABH260	0.6-0.8 0.6-0.8	120508-245-KW 120508-246-KW Field Blind Replicate Sample of 120508-245-KW	12 May 2008 12 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
SP4 Enter ABH261 REI Publi	0-0.2 c Recreation	120508-244-KW	12 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.22	0.09	0.1	0.1	0.1	0.344	1.71
ABH271 ABH276	0.4-0.5 0.8-1	130508-309-KW 130508-283-KW	13 May 2008 13 May 2008	0.1	0.1	0.1	0.1	0.1 1.7	0.1	0.1 3.4	0.1	0.1	0.1 2.1	0.22	0.205 2.5	0.1	0.1 0.2	0.1 1.6	0.244 5.017	1.725 24.8
SP4 Enter ABH277 REI Publi	2.1-2.2 ic Recreation	130508-281-KW	13 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH281 ABH283	0-0.2 0-0.2	130508-302-KW 150508-381-KW	13 May 2008 15 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.2	0.1	0.2	0.255	1.925
ABH283 SP4 Enter ABH286	0.1-0.3	150508-382-KW 150508-391-KW	15 May 2008 15 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH289	0-0.3 0-0.3	150508-370-KW 150508-371-KW Field Blind Replicate Sample of 150508-370-KW	15 May 2008 15 May 2008	0.1	0.1	0.1	0.1	0.3	0.1	0.8	0.8	0.5	0.6	1	0.5	0.4	0.1	0.4	1.1	5.9 5.4
SP4 Enter ABH291	prise 0.1-0.5	150508-352-KW	15 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH291 ABH291 ABH291	0.1-0.5 0.1-0.5 2.7-2.8	150508-353-KW Field Blind Replicate Sample of 150508-352-KW 150508-354-KW Split Field Duplicate of 150508-352-KW 150508-356-KW	15 May 2008 15 May 2008 15 May 2008	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.2	0.1 0.25 0.1	0.1 0.25 0.7	0.1 0.25 0.6	0.1 0.25 0.3	0.1 0.25 0.4	0.22 nt 0.7	0.205 0.25 0.3	0.1 0.25 0.3	0.1 0.25 0.1	0.1 0.25 0.2	0.244 nt 0.836	1.725 3.5 4.3
ABH291 REI Publi ABH293	4-4.2 c Recreation 0.4-0.5	150508-357-KW 130508-378-KW	15 May 2008 13 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
ABH293 ABH293	1.3-1.4 2.1-2.2	130508-329-KW 130508-330-KW	13 May 2008 13 May 2008	0.1	0.1	0.1	0.1 0.1	0.1 0.6	0.1	0.2 1.2	0.2 1.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.342 1.588	1.8 6.8
BBH404 BBH405 BBH407	0-0.1 0.4-0.5 0.4-0.5	280408-15-KW 290408-49-KW 290408-44-KW	28 Apr 2008 28 Apr 2008 29 Apr 2008	0.1 0.1 0.1	0.1 0.6 0.1	0.1 0.1 0.1	0.1 0.2 0.1	0.1 2.7 0.1	0.1 0.6 0.1	0.2 4.7 0.1	0.2 4.9 0.1	0.1 2.3 0.1	0.1 2.2 0.1	0.2 3.7 0.22	0.1 2.3 0.205	0.1 1.2 0.1	0.1 0.1 0.1	0.1 1.3 0.1	0.342 5.755 0.244	1.8 27 1.725
BBH411 SP4 Enter BBH421		290408-37-KW 300408-104-KW	29 Apr 2008 30 Apr 2008	0.1	0.1	0.1	0.1	0.3	0.1	0.8	0.1	0.7	0.8	0.22	0.9	0.5	0.1	0.6	0.244	7.7
REI Publi BBH423	0.7-0.8	300408-82-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.22	0.06	0.1	0.1	0.1	0.244	1.68
BMW401 BMW401 BBH409	0.15-0.35 1.3-1.4 0.2-0.5	020508-187-KW 020508-188-KW 290408-39-KW	02 May 2008 39570 39567	0.1 0.1 0.1	0.2 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.6 1.2 0.1	0.1 0.2 0.1	1.4 2 0.3	1.6 2.4 0.4	0.9 1.2 0.2	0.8 1.3 0.2	1.4 1.9 0.5	1 1.3 0.3	0.7 0.9 0.2	0.1 0.2 0.1	0.6 0.9 0.2	2.014 3.022 0.594	9.7 13.9 3
BBH409 BBH409 BBH417	0.2-0.5 0.2-0.5 0.2-0.4	290408-40-KW Field Blind Replicate Sample of 290408-39-KW 290408-41-KW Split Field Duplicate of 290408-39-KW 290408-29-KW	39567 39567 29 Apr 2008	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.1 0.25 0.1	0.3 0.25 0.1	0.1 0.25 0.1	0.7 0.6 0.1	0.7 0.6 0.1	0.3 0.25 0.1	0.4 0.25 0.1	0.6 nt 0.22	0.3 0.25 0.205	0.2 0.25 0.1	0.1 0.25 0.1	0.2 0.25 0.1	0.916 nt 0.244	4.3 4.2 1.725
BBH417 BBH429	1.1-1.2 0-0.1	290408-30-KW 010508-152-KW	29 Apr 2008 01 May 2008	0.1	0.1	0.1	0.1 0.1	0.1 1.1	0.1	0.3	0.3 3.2	0.2 1.4	0.2 1.5	0.3 2.6	0.2 1.4	0.1 1.2	0.1 0.1	0.1 1.1	0.463 3.846	2.4 17.2
BBH429 SP4 Enter BBH430	2.4-2.6	010508-155-KW 300408-107-KW	01 May 2008 30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.09	0.1	0.1	0.1	0.342	1.79
	0.5-0.6 prise	300408-85-KW	30 Apr 2008						0.1	0.1	0.1			0.22				0.1	0.244	1.725
BBH433 BBH434	2.4-2.5 0.5-0.6	010508-159-KW 300408-109-KW	01 May 2008 30 Apr 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.352	1.9
BBH439	1-1.1 c Recreation 0.2-0.4	300408-111-KW 010508-134-KW	30 Apr 2008 01 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
BBH440 SP4 Enter BBH441	1-1.1 prise 0-0.2	010508-149-KW 010508-150-KW	01 May 2008 01 May 2008	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244	1.725
BBH443 BBH443	0.4-0.5 0.4-0.5	010508-150-KW 300408-89-KW 300408-90-KW Field Blind Replicate Sample of 300408-89-KW	01 May 2008 30 Apr 2008 30 Apr 2008	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.22 0.22 0.22	0.205 0.205 0.205	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.244 0.244 0.244	1.725 1.725 1.725
BBH445 BBH445	0.1-0.4 0.1-0.4	010508-136-KW 010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008 01 May 2008	0.1 0.1	0.1	0.1	0.1 0.1	0.1 0.1	0.1	0.1	0.1	0.1	0.1	0.22 0.22	0.205 0.205	0.1	0.1 0.1	0.1 0.1	0.244 0.244	1.725 1.725
BBH445 SP4 Enter BBH447	0.1-0.4 prise 0.1-0.2	010508-138-KW Split Field Duplicate Sample of 010508-136-KW 010508-144-KW	01 May 2008 01 May 2008	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.244	1.725
BBH448 REI Publi	0.4-0.5 c Recreation	300408-99-KW	30 Apr 2008	0.1	0.1	0.1	0.1	0.3	0.1	0.4	0.3	0.2	0.2	0.4	0.3	0.2	0.1	0.2	0.484	3.1
BBH450 BBH451 SP4 Enter		010508-140-KW 010508-143-KW	01 May 2008 01 May 2008	0.1	0.1	0.1	0.1	0.1 0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.1	0.1	0.1 0.1	0.1 0.1	0.244 0.342	1.725 1.8
BBH452 REI Publi	0.1-0.2 c Recreation	300408-96-KW 300408-97-KW	30 Apr 2008			0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	•	0.2	0.1	0.1	0.1	0.352	2
BBH453 BBH453 ALG205	0.2-0.3 0.55-0.65 1.1-1.2	300408-93-KW 150508-364-KW	30 Apr 2008 30 Apr 2008 15 May 2008	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	9.6 0.1 0.3	2.1 0.1 0.1	0.1 0.3	25 0.1 0.3	16 0.1 0.1	19 0.1 0.2	0.22 0.22	8.8 0.205 0.1	3.4 0.1 0.1	1.1 0.1 0.1	0.1 0.1	29.47 0.244 0.445	115.4 1.725 2.32
ALG205 AMW204 AMW205	2.6-2.8 2.6-2.8 2-2.2	150508-365-KW 080508-120-KW 080508-157-KW	15 May 2008 08 May 2008 08 May 2008	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.22 0.22 0.22	0.205 0.205 0.205	0.1 0.1 0.1	0.1 0.1 0.1	0.1 0.1 0.1	0.244 0.244 0.244	1.725 1.725 1.725
AMW207 AMW207	0.2-0.4 0.5-0.7	120508-218-KW 120508-219-KW	12 May 2008 12 May 2008	0.1 0.1	0.1	0.1 0.1	0.1 0.1	0.1 0.1	0.1	0.1	0.1 0.1	0.1 0.1	0.1	0.22 0.22	0.205 0.08	0.1 0.1	0.1 0.1	0.1 0.1	0.244 0.244	1.725
AMW207 AMW207	1.4-1.5 1.9-2	120508-220-KW 120508-221-KW HIL-	12 May 2008 12 May 2008 C Recreational	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.22	0.205	0.1	0.1	0.1	0.244 0.474 <b>3</b>	1.725 2.6 300
		HI ESL Urban Residential and Pub ESL Commercial	L-D Commercial dic Open Space and Industrial			-	-		-	-	-				0.7 0.7				40	4000
		EIL - Urban residential / pu EIL - Commes	and industrial blic open space cial/ Industrial	170 370			-		-		-	-		-	-	-		-		
		are shown in <b>bold</b> text.  contory Practical Quantitation Limit.																		

							Table 1	4: Soil Ana	lytical Resu	ılts - OCP														П
Sample Location Depth (m)	Sample I D	Date Sampled	BCH sipps-	Hexachlo robenzen e	Р-ВНС	Samma- BHC (Lindane)	9-внс	Heptachi	ninblA	Neptachl or cpoxide	Сърогаяв е - бъявя	Chlordan e - cis	Endosulf an alpha	Dieldrin	t't-DDE	ddd-4,4	Endorin Endorum	H ns H ns	Endrin aldehyde Endosulf	Endosulf an sulphate	Methoxye	Methoxyc hlor	E+DDD	ChainblA ainbləi
SP4 Enterprise	NAVO BOJOVO	UBIES	Sh (Sim	mgwg	mgwg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/Kg	Mg/Kg	Mg/Kg	mg/kg	S KS	E S	S KS	m sake	SN KE INS	N Kg	Kg mg	M .	25
ABH206 0.1-0.2	090508-20-0-WW 090508-20-0-WW	09 May 2008	700	10 0	100	10 0	10 0	× 0.1	00.0	100	V 00.1	00.0	00.1	00.1	00.1	100	100	100	100	001	0.0		3 2 2	
ABR2102 0.2-0.3	090508-18.5VW	09 May 2008	10 >	× 01	10 >	< 0.1	10 >	< 0.1	100	1.00	< 0.1	100	< 0.1	< 0.1	< 0.1	100	100	100	100	001	0.1	17	10	1.0
ABID103 0.1-0.2	090508-195-KW Field Blind Replants Sample of 090508-194-KW	09May 2008	0 0	10 >	10 0	10 >	×0.1	< 0.1	00.0	100	100	00.0	< 0.1	< 0.1	<0.1	100	100	100	100	001	10			10 0
ABR211 0-0.1	120508-214-KW	12May 2008	70 0	0 >	10 >	10 >	0 >	1.0	10>	100	1.0	1.0	× 0.1	× 0.1	< 0.1	100	1.0	100	100	0.1	10			1.0
ABRZ18 0-0.1 ABRZ18 0-0.1	WA-01-02000 WA-01-02000 WA-01-02000	06 May 2008 08 May 2008	000	100	100	100	100	00.1	000	100	200	0 0 0	000	000	000	100	100	100	100	000	3 3 3	700		3 3 3
RE1 Public Recreation	MAGNAGO U	occur) wood																						П
BBH401 0.2-0.4 BBH404 0.0.1	280408-01-KW 280408-15-KW	28 Apr 2008	0 0	0 0	0 0 0	× 01	, 0.1 0.0	100	× 0.1	× 0.1	0.0	, 0.1 0.0	×0.1	×0.1	0.0	1.00	100	1.00	1.00	v v	0.1 0.1	2 2	170	0.1
BBH425 0.2-0.4 BBH426 0.1-0.2	290408-57-KW 290408-60-KW	29 Apr 2008 29 Apr 2008	10 ×	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	101	101	101	0.01	× 1.00	0.1 0.1	2 2	170	1.0
SB1H38 0.2-0.3	290408-72-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.00	1.00	1.00	× 0.1	> 1.0	> 1.0	) × (		1.0
ABH225 0.0.2	060508-33-KW	06 May 2008	10 ×	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	- 170	. 1.0	- 170	< 0.1	> 1.0	> 170	> 17	- 1.0	1.0
ABH229 0.5-0.8 ABH229 0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060908-14-KW	06 May 2008 06 May 2008	70 v 07	0 0	0 0 0	× 01	× 01	< 0.1	< 0.1	< 0.1	0°10 0°10 0°10	< 0.1	< 0.1	< 0.1	(0.1 (0.1	.0.1	1001	.0.1	(0.1	v v v	0.1	13.0	===	5 5
ABH229 0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 0.05	< 0.05	> 000	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	> 50.0	> 50.0	> 50.0	> 50.0	> 0.05	0.2	22 < 0	10	1.0
REI Public Recreation	080300-140-KW	00 May 2000	187	10/	18/	18	10/	100	187	160	100	167	100	107	100	100	100	100	100	100	-	7		-
ABH235 0-0.1	070508-79-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	- 170	. 1.0	- 170	< 0.1	> 1.0	> 1.0	> 17	. 1.0	0.1
ABR37 0-0.2	060508-27-KW	06 May 2008	F0 >	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.0 >	< 0.1	< 0.1	< 0.1	< 0.1	1.00	1.00	1.00	1.00	> 1700	> 1.0	> 17	1.0	1.0
ABR239 0-0.1	080508-121-KW	08 May 2008	10 ×	0 >	10 >	< 0.1	10 >	< 0.1	< 0.1	< 0.1	1.0 >	< 0.1	< 0.1	< 0.1	< 0.1	101	101	101	10.1	× 1.0	> 1.0	200		17.0
ABH240 0.1-0.4	080508-124KW Field Blind Replicate Sample of 080908-123-KW	08 May 2008	0 >	0 >	10 >	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.0>	< 0.1	1.00	1.00	1.00	1.0	0.1	0.1	170		0.1
ABH240 0.1-0.4 ABH243 0.0.1	080508-125-KW Split Field Duplicate of 080908-123-KW	08 May 2008	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	<0.05	< 0.05	> 50.00	> 0.05	> 50.00	> 0.05	> 0.05	0.2 <	0.2 < 0	. 10	1.0
RE1 Public Recreati	UO UO																						1	П
ABR247 0.1-0.4 ABR247 0.1-0.4	070508-98-KW 070908-90-KW Field Bind R pelisate Samule of 070908-99-KW	07 May 2008 07 May 2008	10 >	10 >	0 > 01	0 > 01	< 0.1	100	< 0.1	< 0.1	1.0>	< 0.1	10>	< 0.1	100	100	.01	100	0.01	> 100	> 10	170	170	1.0
SP4 Enterprise																							H	П
ABR251 0-0.1 ABR253 0-0.1	080508.116.KW 080508.133.KW	08 May 2008 08 May 2008	0 0	0 0	0 0 0	× 01	10 × 01	0 0 0	× 0.1	× 0.1	0.0	, 0.1 0.0	×0.1	×0.1	0.0	1.00	100	1.00	1.00	v v	0.1 0.1	2 2	170	0.1
ABH255 0-0.2	080508-139-KW	08 May 2008	> 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.03	: 0.1	1.03	< 0.1	< 0.1	> 1.0	> 17		0.1
ABH259 0-0.1	on 12050&248.KW	ay 2	× 0.1	r0 >	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	100	1.00	100	1.0>	> 100	> 1.0	> 17	1.0	1.0
ABH260 0-0.2	12050	12May 2008	> 01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.00	1.00	1.00	1.00	> 1.0	> 1.0	> 17		0.1
ABR263 0-0.1	120508-235-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.00	. 1.00	1.00	1.00	> 1.0	> 1.0	> 17	1.0	0.1
ABH264 0.0.1	120508-232-KW	12 May 2008	10 × 01	10 0	10 >	10 >	10 >	00.1	< 0.1	< 0.1	100	< 0.1	100	100	1.00	100	100	100	100	v v	0.1	2 2	10 10	170
ABH267 0-0.2	120508-223-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	:0.1	:0.1	:0.1	< 0.1	< 0.1	> 1.0	> 17		0.1
REI Public Recreati. ABHD68 0-0-2	120508-275-KW	12 May 2008	V 0.1	V 01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	<0.1	10:1	10:	10:1	100	> 100	> 10	>	10	10
ABH271 0-0.2	130508-308-KW	13 May 2008	> 01	> 01	10>	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	- 1.0	- 1.0	- 1.0	× 1.0 ×	> 1.0:	> 1.0	> 17	10	0.1
ABR272 0.1-0.5	130508-305-KW Field Blind Replans Sunnle of 130908-304-KW	13 May 2008	0 0	0 0	0 0	0 0	0 0	00.0	×0.1	<0.1	00.0	<0.1	00.1	00.0	×0.1	10.1	10.1	10.1	001	v v	0.1	200		0.0
ABH274 0.1-0.3	130508-239-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	100	1.00	100	< 0.1	> 1.0	> 1.0	> 17	1.0	0.1
ABH282 0-0.2	130508-254-KW	13 May 2008 13 May 2008	10 ×	× 0.1	0 > 01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	.0.1	1.0	.0.1	0.1	0.1	0.1	7 7	0.1	0.1
S B4 Entermedia	150508-331-KW	15 May 2008	× 0.1	× 0.1	× 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	. 170	100	. 170	0.1	v 1.00	> 1.0	). V		0.1
ABH285 0-0.2	150508-389-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.1	: 0.1	:0.1	< 0.1	:0.1	> 17	0.1	3	0.1
ABDST OOA	UNIX.ELE	15May 2008	107	107	107	107	107	107	107	107	107	107	102	102	107	10.	10.	10.	100	100	10	10		-
ABR287 0-0.4	150508-379-KW Field Blind Replicate Sample of 150508-378-KW	15 May 2008	0 >	0 >	10>	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	<0.1	1.0	1.0	1.0	1.0	0.1	0.1	7 > 17		0.1
ABH288 0-0.2 ABH790 0-0.7	150508-373-KW 150508-358-KW	15 May 2008	× 0.1	10 >	10 >	< 0.1	× 01	< 0.1	< 0.1	< 0.1	100	< 0.1	100	100	100	100	100	100	001	× 0.10	o.1	100		1.0
ALC205 0-015	150508-303-WW	15May 2008	10 >	10 >	0 >	10 >	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	10>	< 0.1	10>	100	100	100	100	> 10	170			10
BBH415 0.1-0.3	300408-78-KW	30 Apr 2008	70 7	× 0.1	0 > 01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.0	1.0	1.0	00.1	0.1	0.10	200		0 0
SP4 Enterprise BBH21 0-0.1	300408-105KW	30 Apr 2008	> 01	10 >	< 0.1	< 0.1	- 0 I	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	<0.1	10>	10:	100	10:	100	> 100	V 10	12	10	1.0
RE1 Public Recreation	UI A PET SOCIOTO	000V1000	3	107	107	10.7	107	107	107	107	107	107	107	107	107		100		100	-				
BB1406 0.1-0.2	010308-126-KW 290408-46-KW	29 Apr 2008	70 0	0 > 01	10 >	× 01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.0	:01	1.0	0.01	0.1	0.10	17 17		0.0
BBH07 0.05-0.15 BBH09 0.2-0.5	290408-43-KW 290408-39-KW	29 Apr 2008	70 0	10 > 01	10 >	10 >	100	1.0 >	< 0.1	< 0.1	100	< 0.1	100	100	1.00	100	100	100	1.00	× 0.1	V V	2 2	100	1.0
BB1409 02-0.5	290486-40-KW Field Blind Replicate Sample of 290488-39-KW nortice at a Viv Sada Blad Panelsons of 200498-39-VV	29 Apr 2008	000	× 01	< 0.0	< 0.0	< 0.1	< 0.1	× 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	1.0	100	100	. 0.00	100	× 100	> 100	0 < 0	170	10 0
BB1H29 0-0.1	010508-152-KW	01 May 2008	> 0.1	> 01	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	101	:01	101	0.1	< 1.0	> 1.0	> 10	. 1.0	0.1
SP4 Enterprise	010308-180-KW	01 May 2008	70 >	V 0.1	70 >	10 ×	0.0	1.0 >	× 0.1	- O.1	100	1.0 >	< 0.1	< 0.1	× 0.1		170		00.1	0.1	v 10	) 		3
BB H433 0.1-0.3 BB H433 0.1-0.3	010508-155-KW Field Blind Replicate Sample of 010508-156-KW	01 May 2008 01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	00.1	< 0.1	<0.1	< 0.1	<0.1	<0.1	. 0.1	100	. 0.1	100	> 100	> 10	2 2	17.17	0.1
RE1 Public Recreati-	W.X.T.8-3014001	30 Apre 2008	10 >	10 >	< 0.1	< 0.1	10>	10>	<0.1	10>	10>	102	10>	10>	102	10:	10:	10:	100	> 100	> 10	> 10		-
BB1439 0.1-0.2	010508-133-KW	01 May 2008	0 >	× 01	10 >	10 >	× 0.1	< 0.1	< 0.1	< 0.1	1.0 >	< 0.1	< 0.1	< 0.1	< 0.1	1.0	1.0	1.0	0.01	× 1.0	0.1	17	170	0.1
SP4 Enterprise	WASHISTON	01 May 2008	3	100	10/		10/		1000	1007	100	100								100	3			П
BBH441 0.0.2 BBH442 0.1-0.4	010508-150-KW 300408-101-KW	01 May 2008 30 Apr 2008	10 v	< 0.1	× 01	× 01	< 0.1	< 0.1	<0.1	00.	< 0.1	1.0 >	< 0.1	< 0.1	<0.1	. 1.0	1.00	. 1.0	1.00	v v	V V	2 2	17 17	0.1
RF1 Public Recreation	300408-102-KW Field Blind Replicate Sample of 300408-101-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	. 1.0	. 1.0	. 1.0	< 0.1	> 1.0	> 1.0	> 17	. 1.0	0.1
BBB445 0.1-0.4	010308.136.KW	01 May 2008	10 >	10>	< 0.1	10 >	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	100	100	100	100	0.1	0.1	0 100	10	1.0
BBB445 0.10.4	010508-138-KW Spite Field Daplicate Simple of 010508-136-KW	01 May 2008	< 0.05	< 0.05	< 0.005	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	< 0.05	<0.05	< 0.05	170	> 500	> 900	> 50.0	> 900	> 500	0.2	0 0		10
ВВ1446 0.1-0.2	010508.146.KW	01 May 2008	F0 >	< 0.1	< 0.1	10 >	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	1.0	1.0.1	1.0	1.0	> 1.0	> 1.0	N ×	170	1.0
BBH447 0.1-0.2 BBH448 0.1-0.2	010505-144.KW 300408-98-K.W	01 May 2008 30 Apr 2008	0 0	× 01	0 0 0	× 01	< 0.1	< 0.1	0.0	0 0	< 0.1	0°0°	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0	0.1	0.1	2 2		0 0
RE1 Public Recreati. BBH451 0-0.2	010508-142-KW	01 May 2008	F0 >	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	10:	10:	10:	100	> 100	v 1.0	17	1.0	0.1
BB1463 0.2-0.3 BR1465 0.1-0.2	300408-92-KW 010508-170-KW	30 Apr 2008 01 May 2008	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	.02	0.02	.02	002	0.2	0.2 <	20 < 0	1.0	1.0
BB1H56 0.2-0.4	010508-118-KW	01 May 2008	70 >	0 >	0 >	< 0.1	× 0.1	< 0.1	< 0.1	< 0.1	× 0.1	< 0.1	< 0.1	< 0.1	< 0.1	101	101	101	0.1	0.1	0.1			0.1
BB1437 0.43-0.6	300408-34-K W	30 Apr 2008 HL-C Recreational		10 >				10			<0.1	70	340	100			20		20.1	0.1	0.1	400	. 00	01
	EIL - Urban residential	/ HIL-D Commercia		8				95	ŀ			530	2000				001				. 80	96 .	00 .	ş.
	EIL - Cor	ımercial/Industria.																		9 -	40			

		Table 15: Soil A	Analytical Resul	ts - OPP						
	Sample		Date Sampled	Dimeth	Diazin	Chlorp yrifos- methyl	Ronnel	Fenitro	Chlorp yrifos	Ethion
Location	Depth (m)	Sample ID	Units	mg/kg	mg/kg	mg/kg	⊮ mg/kg	ੁੰ ∉ mg/kg	등 등 mg/kg	⊞ mg/kg
SP4 Enter										
ABH205 ABH206	0.1-0.2 0.1-0.2	060508-49-KW 090508-208-KW	06 May 2008 09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH207	0.2-0.4	090508-207-KW	09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH2102 ABH2103	0.2-0.3 0.1-0.2	090508-185-KW 090508-194-KW	09 May 2008 09 May 2008	< 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH2103 ABH2106	0.1-0.2 0.1-0.2	090508-195-KW Field Blind Replicate Sample of 090508-194-KW 090508-204-KW	09 May 2008 09 May 2008	< 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1	< 0.1 < 0.1
ABH211	0-0.1	120508-214-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH216 ABH218	0-0.2 0-0.1	060508-40-KW 060508-06-KW	06 May 2008 06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH221	0.1-0.25	080508-158-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH401	0.2-0.4	n 280408-01-KW	28 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH454	0-0.1	010508-126-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH425 BBH426	0.2-0.4 0.1-0.2	290408-57-KW 290408-69-KW	29 Apr 2008 29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH438 SP4 Enter	0.2-0.3	290408-72-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH225	0-0.2	060508-33-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229 ABH229	0.5-0.8 0.5-0.8	060508-14-KW 060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008 06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 0.05	< 0.05	< 0.05	nt	nt	< 0.05	< 0.05
ABH230 RE1 Publi	0.1-0.2 ic Recreation	080508-148-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH235	0-0.1	070508-79-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter ABH237	prise 0-0.2	060508-27-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH239	0-0.1	080508-121-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH240 ABH240	0.1-0.4 0.1-0.4	080508-123-KW 080508-124-KW Field Blind Replicate Sample of 080508-123-KW	08 May 2008 08 May 2008	< 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH240	0.1-0.4	080508-125-KW Split Field Duplicate of 080508-123-KW	08 May 2008	< 0.05	< 0.05	< 0.05	nt	nt	< 0.05	< 0.05
	0-0.1 ic Recreation	080508-141-KW n	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH247 ABH247	0.1-0.4	070508-98-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter	0.1-0.4 prise	070508-99-KW Field Blind Replicate Sample of 070508-98-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH251 ABH253	0-0.1 0-0.1	080508-116-KW	08 May 2008	< 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1
ABH255	0-0.1	080508-133-KW 080508-139-KW	08 May 2008 08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH259	0-0.1	n 120508-248-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH260	0-0.2	120508-243-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter ABH263	prise 0-0.1	120508-235-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH264	0-0.1	120508-232-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH266 ABH267	0.1-0.2 0-0.2	120508-226-KW 120508-223-KW	12 May 2008 12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Publi	ic Recreation	n								
ABH268 ABH271	0-0.2 0-0.2	120508-275-KW 130508-308-KW	12 May 2008 13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH272	0.1-0.5	130508-304-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH272 ABH274	0.1-0.5 0.1-0.3	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-289-KW	13 May 2008 13 May 2008	< 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH276 ABH282	0.05-0.25 0-0.2	130508-282-KW 130508-296-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH283	0-0.2	150508-290-KW 150508-381-KW	13 May 2008 15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter ABH285	prise 0-0.2	150508-389-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Publi	ic Recreation		13 Way 2008	× 0.1	× 0.1	V 0.1	V 0.1	V 0.1	V 0.1	< 0.1
ABH287 ABH287	0-0.4 0-0.4	150508-378-KW 150508-379-KW Field Blind Replicate Sample of 150508-378-KW	15 May 2008 15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH288	0-0.2	150508-373-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH290 ALG205	0-0.2 0-0.15	150508-358-KW 150508-363-KW	15 May 2008 15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
AMW205	0.1-0.2	080508-155-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH404 BBH415	0-0.1 0.1-0.3	280408-15-KW 300408-78-KW	28 Apr 2008 30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter BBH421		300408-105-KW	20.42008	< 0.1	< 0.1	<0.1	<0.1	< 0.1	< 0.1	< 0.1
	0-0.1 ic Recreation		30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH406 BBH407	0.1-0.2 0.05-0.15	290408-46-KW 290408-43-KW	29 Apr 2008	< 0.1 < 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1 < 0.1	< 0.1
BBH409	0.03-0.13	290408-43-KW 290408-39-KW	29 Apr 2008 29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH409 BBH409	0.2-0.5 0.2-0.5	290408-40-KW Field Blind Replicate Sample of 290408-39-KW 290408-41-KW Split Field Duplicate of 290408-39-KW	29 Apr 2008 29 Apr 2008	< 0.1 < 0.05	< 0.1 < 0.05	< 0.1 < 0.05	< 0.1 nt	< 0.1 nt	< 0.1 < 0.05	< 0.1 < 0.05
BBH429	0-0.1	010508-152-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter	0-0.1	010508-160-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH433	0.1-0.3	010508-156-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH433 RE1 Publi	0.1-0.3 ic Recreation	010508-157-KW Field Blind Replicate Sample of 010508-156-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH436	0.1-0.3	300408-87-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH439 BBH440	0.1-0.2 0.2-0.4	010508-133-KW 010508-148-KW	01 May 2008 01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter	prise									
BBH441 BBH442	0-0.2 0.1-0.4	010508-150-KW 300408-101-KW	01 May 2008 30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH442	0.1-0.4	300408-102-KW Field Blind Replicate Sample of 300408-101-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Publi BBH445	0.1-0.4	n 010508-136-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter	0.1-0.4 prise	010508-138-KW Split Field Duplicate Sample of 010508-136-KW	01 May 2008	< 0.05	< 0.05	< 0.05	nt	nt	< 0.05	< 0.05
BBH446	0.1-0.2	010508-146-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH447 BBH448	0.1-0.2 0.1-0.2	010508-144-KW 300408-98-KW	01 May 2008 30 Apr 2008	< 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1 < 0.1	< 0.1
	ic Recreation									
BBH451 BBH453	0-0.2	010508-142-KW 300408-92-KW	01 May 2008 30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1 < 0.2	< 0.1 < 0.2	< 0.1
BBH455	0.1-0.2	010508-120-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH456 BBH457	0.2-0.4 0.45-0.6	010508-118-KW 300408-94-KW	01 May 2008 30 Apr 2008	< 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1 < 0.1	< 0.1
		HI	L-C Recreational IL-D Commercial	-	-	-	-	-	250 2000	-
Concentrations		a level are shown in <b>bold</b> text.	& Commercial						2000	

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

- 4888 Represents results below the laboratory Practical Quantitation Limit.

nt = Nox Tested

- Action Level not established

Location	Sample Depth (m)	Sample ID	Date Sampled Units	Aroclor 1016	gy/gm Aroclor 1232	gg/gm Aroclor 1242	Bay/Bu Aroclor 1248	bay/8m Aroctor 1254	ga/gm Bay/gm	Mg/kgm Lotal PCBs
P4 Enter ABH205	0.1-0.2	060508-49-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
ABH206 ABH207	0.1-0.2 0.2-0.4	090508-208-KW 090508-207-KW	09 May 2008 09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH211	0-0.1	120508-214-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH216 ABH218	0-0.2 0-0.1	060508-40-KW 060508-06-KW	06 May 2008 06 May 2008	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1	-
ABH221 ABH229	0.1-0.25 0.5-0.8	080508-158-KW 060508-14-KW	08 May 2008 06 May 2008	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1	-
ABH229 ABH229	0.5-0.8 0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW 060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008 06 May 2008	< 0.1 nt	< 0.1 nt	< 0.1 nt	< 0.1 nt	< 0.1 nt	< 0.1 nt	< 0.1
ABH2102 ABH2103	0.2-0.3 0.1-0.2	090508-185-KW 090508-194-KW	09 May 2008 09 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH2103 ABH2106	0.1-0.2 0.1-0.2	090508-195-KW Field Blind Replicate Sample of 090508-194-KW 090508-204-KW	09 May 2008 09 May 2008	< 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
RE1 Publi	c Recreation	ı								
BBH401 BBH426	0.2-0.4 0.1-0.2	280408-01-KW 290408-69-KW	28 Apr 2008 29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt nt
BBH438 BBH425	0.2-0.3 0.2-0.4	290408-72-KW 290408-57-KW	30 Apr 2008 29 Apr 2008	< 0.1 < 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1 < 0.1	nt nt
ABH225 SP4 Enter	0-0.2 prise	060508-33-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH230	0.1-0.2 c Recreation	080508-148-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	_
ABH235	0-0.1	070508-79-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH237	0-0.2	060508-27-KW	06 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH239 ABH240	0-0.1 0.1-0.4	080508-121-KW 080508-123-KW	08 May 2008 08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH240 ABH240	0.1-0.4	080508-124-KW Field Blind Replicate Sample of 080508-123-KW 080508-125-KW Split Field Duplicate of 080508-123-KW	08 May 2008 08 May 2008	< 0.1	< 0.1	< 0.1 nt	< 0.1	< 0.1 nt	< 0.1	< 0.1
ABH243	0-0.1 c Recreation	080508-141-KW	08 May 2008 08 May 2008	nt < 0.1	nt < 0.1	nt < 0.1	nt < 0.1	nt < 0.1	nt < 0.1	- 0.1
ABH247	0.1-0.4	070508-98-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH247 SP4 Enter	0.1-0.4 prise	070508-99-KW Field Blind Replicate Sample of 070508-98-KW	07 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH251 ABH253	0-0.1	080508-116-KW 080508-133-KW	08 May 2008 08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH255	0-0.2	080508-139-KW	08 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH259	0-0.1	120508-248-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH260 SP4 Enter	0-0.2 prise	120508-243-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH263 ABH264	0-0.1 0-0.1	120508-235-KW 120508-232-KW	12 May 2008 12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH266	0.1-0.2	120508-226-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH267 RE1 Publi	0-0.2 c Recreation	120508-223-KW	12 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
ABH268 ABH271	0-0.2 0-0.2	120508-275-KW 130508-308-KW	12 May 2008 13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH272 ABH272	0.1-0.5 0.1-0.5	130508-304-KW 130508-305-KW Field Blind Replicate Sample of 130508-304-KW	13 May 2008 13 May 2008	< 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1 < 0.1	-
ABH274 ABH276	0.1-0.3 0.05-0.25	130508-289-KW 130508-282-KW	13 May 2008 13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH282	0-0.2	130508-296-KW	13 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH283 SP4 Enter		150508-381-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
ABH285 RE1 Public	0-0.2 c Recreation	150508-389-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ABH287 ABH287	0-0.4 0-0.4	150508-378-KW 150508-379-KW Field Blind Replicate Sample of 150508-378-KW	15 May 2008 15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1	-
ABH288 ABH290	0-0.2	150508-373-KW 150508-378-KW	15 May 2008 15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
ALG205	0-0.15	150508-363-KW	15 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
AMW205 BBH404	0.1-0.2 0-0.1	080508-155-KW 280408-15-KW	08 May 2008 28 Apr 2008	< 0.1 < 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1	nt
BBH415 SP4 Enter	0.1-0.3 prise	300408-78-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH421	0-0.1 c Recreation	300408-105-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH406	0.1-0.2	290408-46-KW	29 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH407 BBH409	0.05-0.15 0.2-0.5	290408-43-KW 290408-39-KW	29 Apr 2008 29 Apr 2008	< 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1	nt nt
BBH409 BBH409	0.2-0.5 0.2-0.5	290408-40-KW Field Blind Replicate Sample of 290408-39-KW 290408-41-KW Split Field Duplicate of 290408-39-KW	29 Apr 2008 29 Apr 2008	< 0.1 nt	< 0.1 nt	< 0.1 nt	< 0.1 nt	< 0.1 nt	< 0.1 nt	nt < 0.1
BBH429 BBH432	0-0.1 0-0.1	010508-152-KW 010508-160-KW	01 May 2008 01 May 2008	< 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1 < 0.1	nt nt
SP4 Enter		010508-156-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH433	0.1-0.3	010508-157-KW Field Blind Replicate Sample of 010508-156-KW	01 May 2008 01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt nt
BBH436	0.1-0.3	300408-87-KW	30 Apr 2008	< 1	< 1	< 1	< 1	< 1	< 1	nt
BBH439 BBH440	0.1-0.2 0.2-0.4	010508-133-KW 010508-148-KW	01 May 2008 01 May 2008	< 0.1	< 0.1 < 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1 < 0.1	nt nt
SP4 Enter		010508-150-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH442	0.1-0.4	300408-101-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
	0.1-0.4 c Recreation		30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH445 BBH445	0.1-0.4 0.1-0.4	010508-136-KW 010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008 01 May 2008	< 0.1 < 0.1	< 0.1 < 0.1	< 0.1 < 0.1	< 0.1	< 0.1 < 0.1	< 0.1 < 0.1	nt nt
BBH445 P4 Enter	0.1-0.4	010508-138-KW Split Field Duplicate Sample of 010508-136-KW	01 May 2008	nt	nt	nt	nt	nt	nt	< 0.1
BBH446	0.1-0.2	010508-146-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH447 BBH448	0.1-0.2 0.1-0.2	010508-144-KW 300408-98-KW	01 May 2008 30 Apr 2008	< 0.1 < 0.1	< 0.1 < 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1 < 0.1	nt nt
RE1 Publi BBH451	c Recreation 0-0.2	010508-142-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH453 BBH455	0.2-0.3 0.1-0.2	300408-92-KW 010508-120-KW	30 Apr 2008 01 May 2008	< 1	< 1	< 1	< 1	< 1	< 1	nt nt
BBH456	0.2-0.4	010508-118-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
BBH457	0.45-0.6 0-0.2	300408-94-KW 020508-178-KW	30 Apr 2008 02 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1 < 0.1	< 0.1	nt nt
BLG404		020508-175-KW	02 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	nt
	0.1-0.2		L-C Recreational	-	-	-	-	-	-	1

		Table 17: Soil Analytical Results - Phenols <sup>1</sup>		
Location	Sample Depth (m)	Sample ID	Date Sampled Units	mg/kg
SP4 Enter	nrise		Units	mg/kg
ABH202	1.9-2.2	090508-202-KW	09 May 2008	< 5
ABH210	0.1-0.2	060508-46-KW	06 May 2008	< 5
ABH212	0.35-0.45	080508-161-KW	08 May 2008	< 5
ABH219	0-0.2	060508-08-KW	06 May 2008	< 5
ABH220	0.2-0.3	060508-04-KW	06 May 2008	< 5
ABH299	0.1-0.2	090508-168-KW	09 May 2008	< 5
ABH2103	1.3-1.4	090508-199-KW	09 May 2008	< 5
ABH2106	1.1-1.2	090508-205-KW	09 May 2008	< 5
	c Recreation	22.000 200 12.11	22 2:2 <b>:</b> 3 <b>2</b> 000	
BBH426	1.7-1.8	290408-71-KW	29 Apr 2008	< 5
SP4 Enter		270100 71 1211	2) 11p1 2000	
ABH226	0.1-0.2	060508-20-KW	06 May 2008	< 5
ABH229	0.5-0.8	060508-14-KW	06 May 2008	< 5
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	< 5
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 0.5
ABH231	0.6-0.7	080508-152-KW	08 May 2008	< 5
ABH231	0.6-0.7	080508-153-KW Field Blind Replicate Sample of 080508-152-KW	08 May 2008	< 5
ABH239	0.4-0.5	080508-122-KW	08 May 2008	< 5
ABH240	0.8-1	080508-126-KW	08 May 2008	< 5
ABH243	0.2-0.3	080508-142-KW	08 May 2008	< 5
ABH249	1-1.1	080508-110-KW	08 May 2008	< 5
ABH265	0-0.1	120508-228-KW	12 May 2008	< 5
	c Recreation		,	
ABH289	2-2.2	150508-372-KW	15 May 2008	< 5
AMW207	1.4-1.5	120508-220-KW	12 May 2008	< 5
SP4 Enter			,	
BBH421	0-0.1	300408-105-KW	30 Apr 2008	< 5
BBH407	0.4-0.5	290408-44-KW	29 Apr 2008	< 5
BBH424	1.4-1.6	290408-55-KW	29 Apr 2008	< 5
	c Recreation		1	-
BBH429	2.4-2.5	010508-155-KW	01 May 2008	< 5
BBH437	2.6-2.8	290408-77-KW	30 Apr 2008	< 5
BBH443	0.4-0.5	300408-89-KW	30 Apr 2008	< 5
BBH443	0.4-0.5	300408-90-KW Field Blind Replicate Sample of 300408-89-KW	30 Apr 2008	< 5
BBH445	0.1-0.4	010508-136-KW	01 May 2008	< 5
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	< 5
BBH445	0.1-0.4	010508-138-KW Split Field Duplicate Sample of 010508-136-KW	01 May 2008	<5
SP4 Enter				
BBH447	0.1-0.2	010508-144-KW	01 May 2008	< 5
BBH447	0.7-0.8	010508-145-KW	01 May 2008	< 5
	c Recreation			
BBH450	0.4-0.5	010508-140-KW	01 May 2008	< 5
12.7			L-C Recreational	40000
			HIL-D Commercial	240000
				0000

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

<sup>&</sup>lt;### Represents results below the laboratory Practical Quantitation Limit.

nt = Not Tested

<sup>--</sup> = Action Level not established

				Tab	le 18: Soil	Analytica	l Results -	Nutrient	s and Sali	nity									
Location	Sample Depth (m)	Sample ID	Date Sampled	Ammonia as N	Total Nitrogen	Nitrite as N	Nitrate as N	Total Phosphorous	Hq	Texture	Electrical Conductivity	ECE	Salinty as NACL	Resistivity	Sulphate as SO <sub>4</sub>	Sulphite as SO <sub>3</sub>	Sulphate as SO <sub>3</sub>	Choride	Choride
nn. n	L		Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pН	-	us/cm	dS/m	mg/kg	ohm m	mg/kg	mg/kg	%	mg/kg	%
RE1 Recr ALG205	0.0-0.15	150508-363-KW	15 May 2008	nt	nt	nt	nt	nt	7.3	nt	180	nt	120	56	<25	nt	nt	<100	nt
SP4 Enter	prise																		
ABH201	0-0.2	050508-01-KW 070508-59-KW	05 May 2008	7.3	1100	0.1	5.1	230 630	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH203 ABH206	0-0.1	070508-59-KW 090508-208-KW	07 May 2008 09 May 2008	< 0.5	2100 2300	< 0.1	1.7	220	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt
ABH217	0-0.2	060508-43-KW	06 May 2008	11	3300	< 0.1	< 0.5	350	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH221	0.1-0.25	080508-158-KW	08 May 2008	3.5	1500	< 0.1	0.8	160	7.8	nt	61	nt	39	160	29	nt	nt	<100	nt
ABH222 ABH224	0.0-0.1	070508-76-KW 060508-30-KW	07 May 2008 06 May 2008	nt nt	nt nt	nt nt	nt nt	nt nt	6.2 5.6	nt nt	580 94	nt nt	370 60	17 110	63 48	nt nt	nt nt	820 <100	nt nt
ABH229	0.5-0.8	060508-50-KW	06 May 2008	1.2	240	< 0.1	0.6	20	7.5	nt	88	nt	56	110	31	nt	nt	<100	nt
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	1.4	200	< 0.1	0.7	19	7.3	nt	95	nt	61	110	30	nt	nt	130	nt
ABH229 ABH233	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW 070508-93-KW	06 May 2008 07 May 2008	< 20 19	140 2900	0.199	0.1 5.9	24 440	6.7 nt	nt nt	105 nt	nt nt	nt nt	nt nt	50 nt	nt nt	nt nt	100 nt	nt nt
RE1 Recr		070308-93-KW	07 May 2008	19	2900	1.0	3.9	440	nı	nı	nt	nı	nı	nı	nt	nt	nı	nt	nı
ABH235	0-0.1	070508-79-KW	07 May 2008	14	4600	0.2	2.9	250	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
SP4 Enter									,										
ABH237 ABH241	0-0.2 0-0.1	060508-27-KW 080508-127-KW	06 May 2008 08 May 2008	4.5 14	2700 2000	0.3	2.9	150 550	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt
ABH241 ABH242	0.5-0.7	080508-127-KW 080508-145-KW	08 May 2008 08 May 2008	2.5	320	< 0.1	0.8	120	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt	nt nt
ABH242	0.5-0.7	080508-146-KW Field Blind Replicate Sample of 080508-145-KW	08 May 2008	2.5	220	< 0.1	0.7	72	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH243	0-0.1	080508-141-KW	08 May 2008	5.2	4100	< 0.1	2.5	430	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH247		070508-98-KW	07 May 2008	1.5	840	< 0.1	2.1	400	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
SP4 Enter		070308-78-KW	07 May 2008	1.3	840	~ 0.1	2.1	400	III.	III.	III.	III.	III.	III.	III.	111	III.	III.	III.
ABH252	0.0-0.1	080508-130-KW	08 May 2008	nt	nt	nt	nt	nt	8.1	nt	290	nt	190	35	31	nt	nt	380	nt
ABH256	0-0.1	120508-264-KW	12 May 2008	0.9	710	< 0.1	0.7	1500	7.1	nt	90	nt	58	110	<25	nt	nt	<100	nt
ABH260	0-0.2	120508-243-KW	12 May 2008	2.5	2000	< 0.1	0.8	210	6.8	nt	130	nt	83	77	<25	nt	nt	<100	nt
ABH262	0.3-0.5	120508-238-KW	12 May 2008	0.7	240	< 0.1	< 0.5	77	8.6	nt	70	nt	45	140	<25	nt	nt	<100	nt
SP4 Enter				•															
ABH267 RE1 Recr	0-0.2	120508-223-KW	12 May 2008	1.3	1700	< 0.1	< 0.5	84	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH272	0.1-0.5	130508-304-KW	13 May 2008	< 0.5	480	< 0.1	< 0.5	340	7.7	nt	110	nt	70	91	<25	nt	nt	<100	nt
		130508-304-KW 130508-305-KW Field Blind Replicate Sample of 130508-304-KW	13 May 2008 13 May 2008	< 0.5	480 560	< 0.1	< 0.5 < 0.5	340 340	7.7	nt nt	110 110	nt nt	70 70	91 91	<25 <25	nt nt	nt nt	<100 <100	nt nt
ABH272 ABH272 ABH275	0.1-0.5 0.1-0.5 0.0-0.2	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-285-KW	13 May 2008 13 May 2008	0.6 nt	560 nt	< 0.1 nt	< 0.5 nt	340 nt	7.7 7.3	nt nt	110 110	nt nt	70 70	91 91	<25 <25	nt nt	nt nt	<100 <100	nt nt
ABH272 ABH272 ABH275 ABH276	0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-285-KW 130508-282-KW	13 May 2008 13 May 2008 13 May 2008	0.6 nt 1.6	560 nt 610	< 0.1 nt < 0.1	< 0.5 nt < 0.5	340 nt 380	7.7 7.3 nt	nt nt nt	110 110 nt	nt nt nt	70 70 nt	91 91 nt	<25 <25 nt	nt nt nt	nt nt nt	<100 <100 nt	nt nt nt
ABH272 ABH272 ABH275 ABH276 ABH280 ABH282	0.1-0.5 0.1-0.5 0.0-0.2	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-285-KW	13 May 2008 13 May 2008	0.6 nt	560 nt 610 nt 530	< 0.1 nt	< 0.5 nt	340 nt	7.7 7.3	nt nt	110 110	nt nt	70 70	91 91	<25 <25	nt nt	nt nt	<100 <100	nt nt
ABH272 ABH272 ABH275 ABH276 ABH280 ABH282 ABH284	0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.2 0-0.15	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-285-KW 130508-228-KW 130508-290-KW 130508-296-KW 150508-340-KW	13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 15 May 2008	0.6 nt 1.6 nt 5.1 2.8	560 nt 610 nt 530 2400	<0.1 nt <0.1 nt <0.1 <0.1	< 0.5 nt < 0.5 nt 2.3 6.2	340 nt 380 nt 200 420	7.7 7.3 nt 8.4 nt	nt nt nt nt nt	110 110 nt 90	nt nt nt	70 70 nt 58	91 91 nt 110 nt	<25 <tr>         &lt;25</tr>	nt nt nt nt nt	nt nt nt nt nt	<100 <100 nt <100 nt nt	nt nt nt nt nt
ABH272 ABH272 ABH275 ABH276 ABH280 ABH282 ABH284 ABH288	0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.2 0-0.15 0-0.2	130508-305-KW Field Bind Replicate Sample of 130508-304-KW 130508-225-KW 130508-225-KW 130508-225-KW 130508-296-KW 150508-394-KW 150508-384-KW 150508-334-KW 150508-508-KW 150508-334-KW 150508-508-KW 150508-508-KW 150508-508-KW 150508-508-KW 150508-508-KW 150508-508-K	13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 15 May 2008 15 May 2008	0.6 nt 1.6 nt 5.1 2.8 8.3	560 nt 610 nt 530 2400 1500	<0.1 nt <0.1 nt <0.1 <0.1 <0.1 <0.1	< 0.5 nt < 0.5 nt 2.3 6.2 3.2	340 nt 380 nt 200 420 430	7.7 7.3 nt 8.4 nt nt	nt n	110 110 nt 90 nt nt	nt nt nt nt nt nt nt nt	70 70 nt 58 nt nt	91 91 nt 110 nt nt	<25 <tr>         &lt;25</tr>	nt nt nt nt nt nt nt nt	nt nt nt nt nt nt nt nt	<100 <100 nt <100 nt nt nt	nt
ABH272 ABH272 ABH275 ABH276 ABH280 ABH282 ABH284	0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.2 0-0.15	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-285-KW 130508-228-KW 130508-290-KW 130508-296-KW 150508-340-KW	13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 15 May 2008 15 May 2008 15 May 2008	0.6 nt 1.6 nt 5.1 2.8	560 nt 610 nt 530 2400	<0.1 nt <0.1 nt <0.1 <0.1	< 0.5 nt < 0.5 nt 2.3 6.2	340 nt 380 nt 200 420	7.7 7.3 nt 8.4 nt	nt nt nt nt nt	110 110 nt 90 nt	nt nt nt nt	70 70 nt 58 nt	91 91 nt 110 nt nt nt	<25 <tr>         &lt;25</tr>	nt nt nt nt nt nt nt nt	nt	<100 <100 nt <100 nt 100 nt nt nt nt	nt n
ABH272 ABH275 ABH276 ABH280 ABH282 ABH284 ABH288 ABH294 ABH295 ABH296	0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.2 0-0.15 0-0.2 0-0.2 0-0.2 0-0.2	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-228-KW 130508-228-KW 130508-298-KW 130508-298-KW 150508-334-KW 150508-334-KW 150508-334-KW 150508-334-KW 150508-334-KW 150508-334-KW 150508-326-KW 130508-326-KW 150508-326-KW 150508-4-KW 150508-326-KW 150508-526-KW 150508-326-KW 150508-526-KW 150508-526-KW 150508-526-KW	13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 12 May 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2	560 nt 610 nt 530 2400 1500 3000 300 17000	<0.1 nt <0.1 nt <0.1 0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1	<0.5 nt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5	340 nt 380 nt 200 420 430 540 64	7.7 7.3 nt 8.4 nt nt nt 4.8	nt n	110 110 nt 90 nt nt nt nt nt nt pt nt nt nt nt nt nt	nt	70 70 nt 58 nt nt nt 63	91 91 nt 110 nt nt nt nt nt	<25 <25 nt <25 nt nt <25 nt nt <25 nt nt <25  nt  nt  calcalate  c	nt	nt n	<100 <100 nt <100 nt <100 nt	nt n
ABH272 ABH272 ABH275 ABH276 ABH280 ABH282 ABH284 ABH288 ABH298 ABH298 ABH296 ALG202	0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.2 0-0.15 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-325-KW 130508-325-KW 130508-325-KW 130508-325-KW 130508-325-KW 130508-335-KW 130508-335-KW 130508-335-KW 130508-335-KW 130508-335-KW 130508-335-KW 120508-365-KW	13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 12 May 2008 12 May 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9	560 nt 610 nt 530 2400 1500 3000 300 17000 520	<0.1 nt <0.1 nt <0.1 color of the second of	<0.5 nt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5	340 nt 380 nt 200 420 430 540 64 1000 200	7.7 7.3 nt 8.4 nt nt nt nt 4.8 6.3	nt n	110 110 nt 90 nt nt nt nt nt nt st	nt n	70 70 nt 58 nt nt nt nt nt 53 54	91 91 nt 110 nt nt nt nt nt nt 100 120	<pre>&lt;25 &lt;25 nt &lt;25 nt nt  &lt;25 nt nt nt nt  nt </pre>	nt n	nt n	<100 <100 nt <100 nt <100 nt nt nt nt nt  nt <100 <100 <100 <100	nt n
ABH272 ABH275 ABH276 ABH280 ABH282 ABH284 ABH288 ABH294 ABH295 ABH296	0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.2 0-0.15 0-0.2 0-0.2 0-0.2 0-0.2	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-228-KW 130508-228-KW 130508-298-KW 130508-298-KW 150508-334-KW 150508-334-KW 150508-334-KW 150508-334-KW 150508-334-KW 150508-334-KW 150508-326-KW 130508-326-KW 150508-326-KW 150508-4-KW 150508-326-KW 150508-526-KW 150508-326-KW 150508-526-KW 150508-526-KW 150508-526-KW	13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 12 May 2008 12 May 2008 12 May 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2	560 nt 610 nt 530 2400 1500 3000 300 17000	<0.1 nt <0.1 nt <0.1 0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1	<0.5 nt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5	340 nt 380 nt 200 420 430 540 64	7.7 7.3 nt 8.4 nt nt nt 4.8	nt n	110 110 nt 90 nt nt nt nt nt nt pt nt nt nt nt nt nt	nt n	70 70 nt 58 nt nt nt 63	91 91 nt 110 nt nt nt nt nt	<25 <25 nt <25 nt nt <25 nt nt <25 nt nt <25  nt  nt  calcalate  c	nt	nt n	<100 <100 nt <100 nt <100 nt	nt n
ABH272 ABH272 ABH273 ABH276 ABH280 ABH280 ABH284 ABH288 ABH294 ABH295 ABH296 ALG202 AMW201 BBH401 BBH401	0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.2 0-0.15 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-228-KW 130508-228-KW 130508-228-KW 130508-228-KW 130508-228-KW 130508-238-KW 150508-374-KW 150508-374-KW 150508-374-KW 150508-374-KW 120508-367-KW 120508-367-KW 120508-375-KW 120508-375-KW 120508-376-KW 120508-576-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-576-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-576-KW 120508-576-KW 120508-576-KW 120508-576-KW 120508-576	13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 12 May 2008 12 May 2008 12 May 2008 12 May 2008 12 May 2008 12 May 2008 28 Apr 2008 28 Apr 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.4 0.8 0.6 nt	560 nt 610 nt 530 2400 1500 3000 3000 17000 520 5100 440 nt	<0.1 nt <0.1 nt <0.1 0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1	<0.5 nt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5 <0.5 nt 0.5 nt	340 nt 380 nt 200 420 430 540 64 1000 200 1700 74 nt	7.7 7.3 nt 8.4 nt	nt n	110 110 nt 90 nt	nt n	70 70 nt 58 nt nt nt nt nt nt nt nt 1 28	91 91 nt 110 nt nt nt nt nt 100 120 nt	<25 <25 nt <25 nt <25 nt nt <25 <25 nt nt <25 <25 nt <25	nt n	nt n	<100 <100 nt <100 nt <100 nt nt nt nt nt nt nt nt  nt <100 <100 nt  100 <100 nt  100 100 100 100 100 100 100 100 100 1	nt n
ABH272 ABH275 ABH275 ABH275 ABH276 ABH280 ABH280 ABH284 ABH284 ABH295 ABH296 ALG202 AMW201 BBH401 BBH402 BBH405	0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0-0.2 0-0.2 0-0.15 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.3 0-0.2 0-0.3 0-0.0	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-325-KW 130508-325-KW 130508-325-KW 130508-325-KW 130508-325-KW 130508-335-KW 130508-335-KW 130508-335-KW 130508-335-KW 130508-335-KW 130508-357-KW 120508-367-KW 120508-257-KW	13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 12 May 2008 12 May 2008 12 May 2008 12 May 2008 28 Apr 2008 28 Apr 2008 29 Apr 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.4 0.8 0.6 nt nt	560 nt 610 nt 530 2400 1500 3000 3000 17000 520 5100 440 nt nt	<0.1 nt <0.1 nt <0.1 st <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1	<0.5 nt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5 <0.5 <0.5 nt nt nt	340 nt 380 nt 200 420 430 540 64 1000 200 1700 74 nt nt	7.7 7.3 nt 8.4 nt nt nt nt nt nt nt end 6.3 nt nt end 9.1	nt n	110 110 nt 90 nt nt nt nt nt nt nt 43 75	nt n	70 70 nt 58 nt nt nt nt nt nt 28 48	91 91 nt 110 nt nt nt nt nt 100 120 nt	<25 <25 nt <25 nt <25 <25 <25 <25 <25	nt n	nt n	<100 <100 nt <100 nt <100 nt nt nt nt nt nt nt  100 <100 <100 <100  ctil nt nt <100 <100 ctil nt nt nt nt nt <100 <100 nt nt nt nt nt nt <100	nt n
ABH272 ABH272 ABH273 ABH276 ABH280 ABH280 ABH284 ABH288 ABH294 ABH295 ABH296 ALG202 AMW201 BBH401 BBH401	0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.2 0-0.15 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-228-KW 130508-228-KW 130508-228-KW 130508-228-KW 130508-228-KW 130508-238-KW 150508-374-KW 150508-374-KW 150508-374-KW 150508-374-KW 120508-367-KW 120508-367-KW 120508-375-KW 120508-375-KW 120508-376-KW 120508-576-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-576-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-376-KW 120508-576-KW 120508-576-KW 120508-576-KW 120508-576-KW 120508-576	13 May 2008 13 May 2008 13 May 2008 13 May 2008 13 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 12 May 2008 12 May 2008 12 May 2008 12 May 2008 12 May 2008 12 May 2008 28 Apr 2008 28 Apr 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.4 0.8 0.6 nt	560 nt 610 nt 530 2400 1500 3000 3000 17000 520 5100 440 nt	<0.1 nt <0.1 nt <0.1 0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1	<0.5 nt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5 <0.5 nt 0.5 nt	340 nt 380 nt 200 420 430 540 64 1000 200 1700 74 nt	7.7 7.3 nt 8.4 nt	nt n	110 110 nt 90 nt	nt n	70 70 nt 58 nt nt nt nt nt nt nt nt 1 2 8	91 91 nt 110 nt nt nt nt nt 100 120 nt	<25 <25 nt <25 nt <25 nt nt <25 <25 nt nt <25 <25 nt <25	nt n	nt n	<100 <100 nt <100 nt <100 nt nt nt nt nt nt nt nt <100 <100 nt nt <100 <100 nt <100 nt nt <100 nt nt <100	nt n
ABH272 ABH272 ABH273 ABH275 ABH280 ABH280 ABH282 ABH284 ABH294 ABH296 ALG202 AMW201 BBH401 BBH402 BBH405 BBH405 BBH401	0.1-0.5 0.1-0.5 0.0-0.2 0.0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0.2-0.4 0.1-0.2 0.2-0.4 0.1-0.3 0.0-0.2 0.1-0.3	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-282-KW 130508-296-KW 130508-296-KW 130508-396-KW 130508-396-KW 130508-378-KW 130508-378-KW 130508-378-KW 130508-378-KW 120508-367-KW 120508-367-KW 120508-378-KW 120508-378-KW 120508-378-KW 120508-378-KW 120508-378-KW 120508-378-KW 120508-378-KW 120508-378-KW 120508-378-KW 120508-388-KW 120508-388-KW 120508-388-KW 120508-388-KW 120508-388-KW 120508-388-KW	13 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 12 May 2008 12 May 2008 12 May 2008 28 Apr 2008 28 Apr 2008 29 Apr 2008 29 Apr 2008 29 Apr 2008 29 Apr 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.4 0.8 nt nt nt 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3	560 nt 610 nt 530 2400 1500 3000 17000 520 5100 440 nt nt 460 380 250	<0.1 nt <0.1 nt <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1	<0.5 nt <0.5 nt 2.3 6.2 3.2 6 6 <0.5 <0.5 <0.5 <0.5 nt nt 4.2 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	340 nt 380 nt 200 420 430 540 1000 200 1700 74 nt nt 2800 75 120	7.7 7.3 nt 8.4 nt nt nt nt nt nt nt nt nt 1 4.8 6.3 nt nt rt rt rt nt	nt n	110 110 nt 90 nt nt nt nt nt 143 75 nt 192 nt	nt n	70 70 nt 58 nt nt nt nt nt nt 1 28 48 nt nt 1 7 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8	91 91 nt 110 nt nt nt nt 120 nt 110 nt 100 120 nt nt nt nt nt	<25 <25 nt e25 <25 nt nt <25 <25 nt 62 nt 62 nt	nt n	nt n	<100 <100 nt 100 nt nt nt nt nt nt 100 <100 <100 <100 <100 nt nt nt 100 <100 nt	nt n
ABH272 ABH273 ABH275 ABH276 ABH280 ABH280 ABH280 ABH284 ABH284 ABH294 ABH296 ALG202 ABH296 ALG202 BBH401 BBH401 BBH402 BBH401 BBH402 BBH404 BBH401 BBH404 BBH401 BBH402 BBH405 BBH406	0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-325-KW 1 130508-335-KW 1 130508-335-KW 1 130508-335-KW 1 130508-357-KW 1 130508-357-KW 1 130508-357-KW 1 130508-357-KW 1 120508-357-KW 1 120508-35-KW 1 120508-36-KW 1 120508-36-K	13 May 2008 15 May 2008 12 May 2008 12 May 2008 12 May 2008 28 Apr 2008 28 Apr 2008 29 Apr 2008 29 Apr 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.4 0.8 0.6 nt nt nt nt nt 1.9 1.4	560 nt 610 nt 530 2400 1500 3000 3000 3000 520 5100 440 nt nt 460 380	<0.1 nt <0.1 nt <0.1 st <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1	<0.5 nt <0.5 nt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5 <0.5 4.2 4.2 <0.5	340 nt 380 nt 200 420 430 540 64 1000 200 1700 74 nt nt 2800 75	7.7 7.3 nt 8.4 nt 1.8 6.3 nt nt 1.7 7.7	nt n	110 110 nt 90 nt	nt n	70 70 nt 58 nt nt nt nt nt nt nt nt 1 28 48 nt 59	91 91 nt 110 nt nt nt nt nt nt 120 nt 1100 121 nt 1100 121 130 130 131	<25   <25   mt   <25   mt   mt   mt   mt   mt   mt   mt   m	nt n	nt n	<100 <100 nt nt nt nt nt nt  100 <100 nt nt nt nt  100 <100 <100 nt nt  11 <100 <100 <100 <100 <100 <100 <100	nt n
ABH272 ABH273 ABH275 ABH276 ABH280 ABH280 ABH284 ABH288 ABH294 ABH296 ALG202 ABW201 BBH401 BBH402 BBH401 BBH402 BBH402 BBH402 BBH405 BBH404 BBH411 BBH423 BBH423 SP4 Enter	0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.15 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0.2-0.4 0.1-0.3 0.0-0.2 0.2-0.4 0.1-0.3	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-225-KW 130508-225-KW 130508-296-KW 130508-396-KW 150508-334-KW 150508-333-KW 150508-333-KW 150508-337-KW 150508-373-KW 120508-367-KW 120508-367-KW 120508-257-KW 120508-257-KW 120508-257-KW 120508-257-KW 120508-257-KW 120508-357-KW	13 May 2008 15 May 2008 12 May 2008 12 May 2008 12 May 2008 12 May 2008 28 Apr 2008 28 Apr 2008 29 Apr 2008 29 Apr 2008 29 Apr 2008 29 Apr 2008	0.6 mt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.9 1.4 0.8 0.6 nt nt 0.9 1.4 1.3 0.7	560 mt 610 nt 530 2400 1500 3000 3000 3000 17000 520 5100 440 nt nt 460 380 250 690	<0.1 nt <0.1 nt <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1	<0.5 nt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	340 nt 380 nt 200 420 420 420 430 540 64 1000 1700 74 nt nt 2800 75 120 260	7.7 7.3 nt 8.4 nt nt nt nt nt nt nt nt 1.3 nt nt nt nt 1.4 0.8 6.9 9.1 nt nt 1.7 nt nt nt	nt n	110 110 nt 90 nt	nt n	70 70 nt 58 nt nt nt nt nt nt nt 1 28 nt	91 91 nt nt nt nt nt nt 100 120 nt	<25 <25 <25 nt <25 <25 nt <25 <25 <25 <25 <25 <25 <25 <25 <25 <25 <25 <25 <25 <25 <25 <25 <25 <25 <25 <26 <27 <27 <28 <27 <27 <27 <28 <27 <27 <27 <28 <27 <27 <27 <28 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 <27 </td <td>nt nt n</td> <td>nt nt n</td> <td>&lt;100 &lt;100 nt &lt;100 nt &lt;100 nt nt ot  100 nt nt nt nt nt  100 &lt;100 &lt;100 nt nt</td> <td>nt nt n</td>	nt n	nt n	<100 <100 nt <100 nt <100 nt nt ot  100 nt nt nt nt nt  100 <100 <100 nt	nt n
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ABH272 ABH275 ABH276 ABH276 ABH280 ABH280 ABH284 ABH284 ABH284 ABH295 ABH295 ABH296 ABH296 BBH402 BBH402 BBH402 BBH402 BBH405 BBH405 BBH405 BBH407 SP4 Enter BBH430 REI Recr BBH430	0.1-0.5 0.1-0.5 0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.2 0-0.15 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0.1-0.2 0.1-0.3 0.0-0.2 0.1-0.3 prise 0.1-0.3 eational	130598-305-KW Field Blind Replicate Sample of 130598-304-KW 130598-225-KW 130598-225-KW 130598-225-KW 130598-225-KW 130598-235-KW 130598-325-KW 130598-375-KW 130598-375-KW 130598-375-KW 120598-375-KW	13 May 2008 15 May 2008 12 May 2008 28 Apr 2008 28 Apr 2008 29 Apr 2008 29 Apr 2008 29 Apr 2008 20 Apr 2008 20 Apr 2008 30 Apr 2008 20 Apr 2008 30 Apr 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.4 0.8 nt nt 1.3 0.6 1.4 1.3 0.7	560 nt 610 nt 530 2400 1500 3000 3000 520 5100 440 nt nt nt 640 380 250 690	<0.1 nt <0.1 nt <0.1 co.1 co.1 co.1 co.1 co.1 co.1 co.1 co	<0.5 mt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	340 nt 380 nt 200 420 430 540 64 1000 200 1700 74 nt nt 2800 75 120 68	7.7 7.3 nt 8.4 nt	nt n	110 110 110 110 111 90 11 11 11 11 11 11 11 11 11 11 11 11 11	nt n	70 70 70 nt 58 nt nt nt nt nt 63 54 nt nt nt 28 48 nt	91 91 nt 110 nt nt nt nt nt 100 120 nt 110 nt	<25 <25 <25 nt <25 <25 nt nt <25 <25 nt nt <62 nt <td>nt nt n</td> <td>nt nt n</td> <td>&lt;100 &lt;100 nt 10 10 11 &lt;100 nt 11 nt nt nt 11 11 11 11 11 11 11 11 11 11 11 11 11</td> <td>nt nt n</td>	nt n	nt n	<100 <100 nt 10 10 11 <100 nt 11 nt nt nt 11 11 11 11 11 11 11 11 11 11 11 11 11	nt n
ABH272 ABH272 ABH275 ABH276 ABH280 ABH280 ABH284 ABH294 ABH295 ABH295 ABH295 ABH295 ABH295 ABH295 ABH296 ALG202 AMW201 BBH402 BBH402 BBH402 BBH403 BBH403 REI Recr BBH403 REI Recr BBH432	0.1-0.5 0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.3 0.1-0.3 0.1-0.3 0.1-0.3 prise actional 0-0.1	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-225-KW 130508-225-KW 130508-295-KW 130508-295-KW 130508-395-KW 130508-375-KW 130508-375-KW 130508-375-KW 130508-375-KW 120508-375-KW 120508-375-K	13 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 12 May 2008 13 May 2008 14 May 2008 15 May 2008 16 May 2008 17 May 2008 18 May 2008 19 May 2008 19 May 2008 19 May 2008 19 May 2008 10 May 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.4 0.8 0.6 nt nt 1.3 0.7	560 nt 610 nt 530 2400 1500 3000 17000 520 5100 440 nt nt 460 380 250 690	<0.1  nt <0.1  c0.1  nt  nt  c0.1	<0.5 nt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5  <0.5 <0.5	340 nt same state of the same	7.7 7.3 nt 8.4 nt	nt n	110 110 nt 90 nt	nt n	70 70 nt 58 nt	91 91 110 nt 110 nt nt nt nt nt 100 1220 nt 110 nt	<25 <25 <25 nt <25 nt <25 <25 nt	nt n	nt n	<100 <100 nt older from the control of the control	nt n
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ABH272 ABH272 ABH275 ABH276 ABH280 ABH280 ABH284 ABH294 ABH295 ABH295 ABH295 ABH295 ABH295 ABH295 ABH296 ALG202 AMW201 BBH402 BBH402 BBH402 BBH403 BBH403 REI Recr BBH403 REI Recr BBH432	0.1-0.5 0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.3 0.1-0.3 0.1-0.3 0.1-0.3 prise actional 0-0.1	130598-305-KW Field Blind Replicate Sample of 130598-304-KW 130598-225-KW 130598-225-KW 130598-225-KW 130598-225-KW 130598-235-KW 130598-325-KW 130598-375-KW 130598-375-KW 130598-375-KW 120598-375-KW	13 May 2008 15 May 2008 12 May 2008 28 Apr 2008 28 Apr 2008 29 Apr 2008 29 Apr 2008 29 Apr 2008 20 Apr 2008 20 Apr 2008 30 Apr 2008 20 Apr 2008 30 Apr 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.4 0.8 nt nt 1.3 0.6 1.4 1.3 0.7	560 nt 610 nt 530 2400 1500 3000 3000 520 5100 440 nt nt nt 640 380 250 690	<0.1 nt <0.1 nt <0.1 co.1 co.1 co.1 co.1 co.1 co.1 co.1 co	<0.5 mt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	340 nt 380 nt 200 420 430 540 64 1000 200 1700 74 nt nt 2800 75 120 68	7.7 7.3 nt 8.4 nt	nt n	110 110 110 110 111 90 11 11 11 11 11 11 11 11 11 11 11 11 11	nt n	70 70 70 nt 58 nt nt nt nt nt 63 54 nt nt nt 28 48 nt	91 91 nt 110 nt nt nt nt nt 100 120 nt 110 nt	<25 <25 <25 nt <25 <25 nt nt <25 <25 nt nt <62 nt <td>nt nt n</td> <td>nt nt n</td> <td>&lt;100 &lt;100 nt 10 10 11 &lt;100 nt 11 nt nt nt 11 11 11 11 11 11 11 11 11 11 11 11 11</td> <td>nt nt n</td>	nt n	nt n	<100 <100 nt 10 10 11 <100 nt 11 nt nt nt 11 11 11 11 11 11 11 11 11 11 11 11 11	nt n
ABH272 ABH273 ABH273 ABH274 ABH280 ABH280 ABH284 ABH284 ABH284 ABH294 ABH294 ABH296 ALG202 AMW201 BBH402 BBH402 BBH405 BBH406 BBH411 BBH402 BBH406 BBH410 BBH402 BBH406 BBH410 BBH402 BBH406 BBH410 BBH406 BBH410 BBH406 BBH410 BBH406 BBH410 BBH406 BBH410 BB	0.1-0.5 0.1-0.5 0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.3 0.1-0.2 0.1-0.2 0.1-0.3 0.1-0.3 prise 0.1-0.3 prise 0.1-0.3 0-0.1 0.2-0.4 0.1-0.3 0.1-0.3 prise 0.1-0.3 0-0.1 0.2-0.4 0.1-0.3	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-325-KW 130508-325-KW 130508-325-KW 130508-326-KW 130508-326-KW 130508-326-KW 130508-337-KW 130508-337-KW 130508-337-KW 130508-337-KW 130508-325-KW 120508-367-KW 120508-367-KW 120508-367-KW 120508-367-KW 120508-37-KW 120508-38-KW	13 May 2008 14 May 2008 15 May 2008 15 May 2008 15 May 2008 16 May 2008 12 May 2008 13 May 2008 14 May 2008 15 May 2008 16 May 2008 17 May 2008 18 May 2008 19 May 2008 10 May 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.4 0.8 0.6 nt nt 0.9 1.4 1.3 0.7 <	560 nt 610 nt 530 2400 1500 3000 3000 17000 520 5100 440 nt nt nt 60 460 250 690  280	<0.1 nt <0.1 nt <0.1 c0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <	<0.5 mt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	340 mt 380 nt 200 420 430 540 64 1000 1700 74 mt st 2800 75 120 68 700 100	7.7 7.3 nt 8.4 nt nt nt nt nt 4.8 6.3 nt nt nt 4.8 nt	nt n	110 110 110 110 110 110 110 110 110 111 11	nt n	70 70 70 70 nt s8 nt	91 91 91 nt 110 nt		nt n	nt n	<100 <100 100 100 100 100 100 100 100 10	nt n
ABH272 ABH272 ABH275 ABH276 ABH278 ABH282 ABH288 ABH288 ABH289 ABH295 ALG202 AMW201 BBH402 BBH402 BBH402 BBH405 BBH406 BBH406 BBH406 BBH407 SP4 Enter BBH430 REI Recr BBH432 BBH442 BBH442 BBH442 BBH442 BBH442 BBH442 BBH442	0.1-0.5 0.1-0.5 0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0.2-0.4 0.1-0.2 0.2-0.4 0.1-0.3 0.0-0.2 0.1-0.3 0.1-0.3 0.1-0.3 0.1-0.3 eational 0-0.1 0.2-0.4 0.1-0.4 0.1-0.4	130598-305-KW Field Blind Replicate Sample of 130598-304-KW 130598-225-KW 130598-225-KW 130598-225-KW 130598-225-KW 130598-225-KW 130598-225-KW 150598-33-KW 150598-33-KW 150598-33-KW 150598-33-KW 150598-33-KW 120598-325-KW 120	13 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 12 May 2008 13 May 2008 14 May 2008 15 May 2008 16 May 2008 17 May 2008 18 May 2008 19 May 2008 19 May 2008 10 May 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.4 0.8 0.6 nt 0.9 1.4 1.3 0.7	560 nt 610 nt 530 2400 1500 3000 520 5100 440 nt 460 380 690 680 2500 280	<0.1 nt <0.1 nt <0.1 c0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <	<0.5 nt <0.5 nt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5 <0.5 <0.5  <0.5  <0.5  1.5  <0.5 <0.5  nt nt  4.2  <0.5 <0.5  <0.6  1.5  1.5  1.5  1.5  1.5	340 nt nt 380 nt 200 420 420 430 540 64 1000 200 1700 74 nt 2800 75 120 260  68  700 100	7.7 7.3 nt 8.4 nt	nt n	110 1110 1110 1110 1110 111 111 111 111	nt n	70 70 70 70 nt 70 nt 58 nt	91 91 110 nt 110 nt		nt n	nt n	<100 <100 nt 100 nt 100 nt 100 nt	nt n
ABH272 ABH272 ABH273 ABH275 ABH276 ABH280 ABH282 ABH284 ABH295 ABH296 ALG202 AMW201 BBH402 BBH405 BBH405 BBH406 BBH41 BBH402 BBH407 BBH407 BBH407 BBH408 BBH408 BBH408 BBH408 BBH408 BBH408 BBH408 BBH409 BBH400 BBH	0.1-0.5 0.1-0.5 0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.1 0-0.1 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0.1-0.2 0.2-0.4 0.1-0.3 0.1-0.3 0.1-0.3 0.1-0.3 0.1-0.3 0.1-0.3 0.1-0.3 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4	130508-305-KW Field Blind Replicate Sample of 130508-304-KW 130508-325-KW 130508-325-KW 130508-325-KW 130508-326-KW 130508-326-KW 130508-326-KW 130508-337-KW 130508-337-KW 130508-337-KW 130508-337-KW 130508-325-KW 120508-367-KW 120508-367-KW 120508-367-KW 120508-367-KW 120508-37-KW 120508-38-KW	13 May 2008 14 May 2008 15 May 2008 15 May 2008 15 May 2008 16 May 2008 12 May 2008 13 May 2008 14 May 2008 15 May 2008 16 May 2008 17 May 2008 18 May 2008 19 May 2008 10 May 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.4 0.8 0.6 nt nt 0.9 1.4 1.3 0.7 <	560 nt 610 nt 530 2400 1500 3000 3000 17000 520 5100 440 nt nt nt 60 460 250 690  280	<0.1 nt <0.1 nt <0.1 c0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <	<0.5 mt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5	340 mt 380 nt 200 420 430 540 64 1000 1700 74 mt st 2800 75 120 68 700 100	7.7 7.3 nt 8.4 nt nt nt nt nt 4.8 6.3 nt nt nt 4.8 nt	nt n	110 110 110 110 110 110 110 110 110 111 11	nt n	70 70 70 70 nt s8 nt	91 91 91 nt 110 nt		nt n	nt n	<100 <100 100 100 100 100 100 100 100 10	nt n
ABH272 ABH272 ABH275 ABH276 ABH278 ABH282 ABH288 ABH288 ABH289 ABH295 ALG202 AMW201 BBH402 BBH402 BBH402 BBH405 BBH406 BBH406 BBH406 BBH407 SP4 Enter BBH430 REI Recr BBH432 BBH442 BBH442 BBH442 BBH442 BBH442 BBH442 BBH442	0.1-0.5 0.1-0.5 0.1-0.5 0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0-0.1 0-0.1 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0-0.2 0.1-0.2 0.2-0.4 0.1-0.3 0.1-0.3 0.1-0.3 0.1-0.3 0.1-0.3 0.1-0.3 0.1-0.3 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4 0.1-0.4	130598-305-KW Field Blind Replicate Sample of 130598-304-KW 130598-225-KW 130598-225-KW 130598-225-KW 130598-225-KW 130598-225-KW 130598-225-KW 150598-33-KW 150598-33-KW 150598-33-KW 150598-33-KW 150598-33-KW 120598-325-KW 120	13 May 2008 15 May 2008 15 May 2008 15 May 2008 15 May 2008 12 May 2008 13 May 2008 14 May 2008 15 May 2008 16 May 2008 17 May 2008 18 May 2008 19 May 2008 19 May 2008 10 May 2008	0.6 nt 1.6 nt 5.1 2.8 8.3 4.5 2.2 2.9 2.4 0.8 0.6 nt 0.9 1.4 1.3 0.7	560 nt 610 nt 530 2400 1500 3000 520 5100 440 nt 460 380 690 680 2500 280	<0.1 nt <0.1 nt <0.1 c0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <	<0.5 nt <0.5 nt <0.5 nt 2.3 6.2 3.2 6 <0.5 <0.5 <0.5 <0.5 <0.5  <0.5  <0.5  1.5  <0.5 <0.5  nt nt  4.2  <0.5 <0.5  <0.6  1.5  1.5  1.5  1.5  1.5	340 nt nt 380 nt 200 420 420 430 540 64 1000 200 1700 74 nt 2800 75 120 260  68  700 100	7.7 7.3 nt 8.4 nt	nt n	110 1110 1110 1110 1110 111 111 111 111	nt n	70 70 70 70 nt 70 nt 58 nt	91 91 110 nt 110 nt		nt n	nt n	<100 <100 nt 100 nt 100 nt 100 nt	nt n
ABIF272 ABIF27	0.1-0.5   0.0-0.2   0.0-	130598-305-KW Field Blind Replicate Sample of 303098-304-KW Field Blind Replicate Sample of 303098-304-KW 130098-285-KW 130098-285-KW 130098-285-KW 130098-285-KW 130098-285-KW 130098-375-KW 130098-375-KW 130098-375-KW 130098-375-KW 130098-375-KW 120098-375-KW 28009-375-KW 28009-375-KW 28009-375-KW 28009-375-KW 28009-375-KW 28009-385-KW 28009-385-KW 28009-385-KW 28009-385-KW 300408-385-KW 300	13 May 2008 15 May 2008 12 May 2008 13 May 2008 14 May 2008 16 May 2008 17 May 2008 18 Apr 2008 18 Apr 2008 19 Apr 2008 10 May 2008	0.6 et al. 6	560 store 1 st	<0,1   nt   nt     <0,1   nt     nt     <0,1   nt     <0,1   nt     <0,1     <0,1     <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1   <0,1	<0.5   mt     <0.5   mt     <0.5   mt     <0.5   mt     <0.5   mt     <0.5   mt     <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5	340 at 34	7.7. 7.3 nt 8.4 nt nt nt nt nt 4.8 nt nt nt nt nt nt nt nt st 4.8 nt n	nt n	110 110 110 110 111 110 111 110 111 111	nt n	70 70 70 70 81 81 88 81 81 81 81 81 81 83 84 84 81 81 81 81 81 81 81 81 81 81 81 81 81	91 91 91 110 110 110 110 110 110 110 110	<25     rt   <25     rt   <25     rt   <25     rt   rt     rt   rt     rt   rt     rt   rt	mt   mt   mt   mt   mt   mt   mt   mt	nt n	<100 <100 nt <100 nt <100 nt <100 nt <100 nt <100 nt <100 nt <100 nt <100 nt <100 nt <100 nt	nt n
ABILY27 ABILY27 ABILY27 ABILY27 ABILY26 ABILY2	0.1-0.5 0.0-0.2 0.05-0.25 0.0-0.2 0.05-0.25 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.2 0.0-0.3 0.0-0.2 0.0-0.3 0.0-0.2 0.0-0.3 0.	130598-305-KW Field Blind Replicate Sample of 300408-101-KW 130698-225-KW 130698-225-KW 130698-225-KW 130698-225-KW 130698-325-KW 130698-325-KW 130698-325-KW 130698-325-KW 130698-325-KW 130698-325-KW 130698-325-KW 120598-375-KW 120598-375-K	13 May 2008 14 May 2008 12 May 2008 12 May 2008 12 May 2008 12 May 2008 28 Apr 2008 29 Apr 2008 29 Apr 2008 29 Apr 2008 30 Apr 2008 10 May 2008 30 Apr 2008	0.6 nt 1.6 nt 1.	560   10	<0,1	<0.5   mt   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0	340 at 1 at	7.7. 7.3 nt 8.4 nt nt nt nt nt st. 4.8 nt nt nt nt st. 4.8 nt nt nt st. 4.8 s. 6.3 nt nt nt nt st. 8.4 s. 8.2 s. 8.2 s. 8.2 s. 7.5 nt	rst	110 at 90 nt	nt n	70 nt 170 nt 180	91 91 91 110 110 1110 1110 1110 1110 11	△35   m   1   1   1   1   1   1   1   1   1	10   10   10   10   10   10   10   10	nr   nr   nr   nr   nr   nr   nr   nr	C    C    C    C    C    C    C    C	nt n
ABIF272 ABIF27	0.1-0.5 0.0-0.2 0.0-0.2 0.05-0.25 0.0-0.2 0.0-0.2 0-0.	130598-305-KW Field Blind Replicate Sample of 130598-304-KW 130508-225-KW 130508-225-KW 130508-225-KW 130508-225-KW 130508-225-KW 130508-235-KW 130508-335-KW 130508-335-KW 130508-337-KW 130508-337-KW 130508-337-KW 120508-325-KW 120508-345-KW	13 May 2008 15 May 2008 12 May 2008 13 May 2008 14 May 2008 15 May 2008 16 May 2008 16 May 2008 17 May 2008 18 May 2008 19 May 2008 10 May 2008	0.6 et al. 6	560 or 1 state of 1 st	<0,1     1	<0.5	340 340 380 set 380 set 100 200 420 420 420 420 430 540 1000 200 74 set 1000 75 100 1100 1100 1100 1100 1100 11	7.7. 7.3 nt 8.4 nt nt nt nt nt 4.8 nt nt nt nt nt nt nt nt st 4.8 nt n	nt n	110 110 110 110 111 110 111 110 111 111	nt n	70 70 70 70 81 81 88 81 81 81 81 81 81 83 84 84 81 81 81 81 81 81 81 81 81 81 81 81 81	91 91 91 110 110 110 110 110 110 110 110	<25     rt   <25     rt   <25     rt   <25     rt   rt     rt   rt     rt   rt     rt   rt	10   10   10   10   10   10   10   10	nt n	<100 <100 nt <100 nt <100 nt <100 nt <100 nt <100 nt <100 nt <100 nt <100 nt <100 nt <100 nt	mt   mt   mt   mt   mt   mt   mt   mt
ABILT2: ABILT2: ABILT2: ABILT2: ABILT3: ABILT3	10.1-0.5 10.0-0.2 10.	130598-305-KW Field Blind Replicate Sample of 300408-101-KW 130698-225-KW 130698-225-KW 130698-225-KW 130698-225-KW 130698-325-KW 130698-325-KW 130698-325-KW 130698-325-KW 130698-325-KW 130698-325-KW 130698-325-KW 120598-375-KW 120598-375-K	13 May 2008 14 May 2008 12 May 2008 12 May 2008 12 May 2008 12 May 2008 28 Apr 2008 29 Apr 2008 29 Apr 2008 29 Apr 2008 30 Apr 2008 10 May 2008 30 Apr 2008	0.6 nt 1.6 nt 1.	560   10	<0,1	<0.5   mt   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0	340 at 1 at	7.7 7.3 nt 8.4 nt nt nt nt nt 4.8 6.3 nt nt nt nt st 6.9 9.1 nt nt nt nt nt st 8.4 8.2 8.2 8.2 8.2 8.2	eff. set	110 110 110 110 110 110 110 110 110 110	nt n	70 70 70 70 81 81 88 81 81 81 81 81 81 81 81 81 81	91 nt 110 nt n	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	10   10   10   10   10   10   10   10	Int	C  C  C  C  C  C  C  C  C  C  C  C  C	nt n
ABILT2 AB	0.1-0.5 0.0-0.2 0.0-0.5 0.0-0.2 0.0-0.	130598-305-KW Field Blind Replicate Sample of 300408-104-KW 130508-325-KW 120508-375-KW	13 May 2008 14 May 2008 15 May 2008 15 May 2008 12 May 2008 12 May 2008 12 May 2008 28 Apr 2008 29 Apr 2008 29 Apr 2008 29 Apr 2008 30 Apr 2008 10 May 2008	0.6 et al. 6	560   100   110	<0,1	<0.5   mt   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5   <0.5	340 and	7.7 7.3 nt 8.4 nt nt nt nt nt nt nt st 4.8 6.9 9.1 nt nt nt st 4.8 8.2 8.2 8.2 8.2 nt	eff in the second of the secon	110 110 110 110 110 110 110 110 110 110	nt n	70 res from the from	91 91 91 110 110 111 111 111 111 111 111	△35   10   10   10   10   10   10   10   1	ref   ref	Int	Cl00	ता त

RK.1 Kecreational
BMW401 | 0.10-0.35 | 020508-187-KW
Concentrations above this action level are shown in bold text.

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

-# No Texted
- Action Level not established

Table 19: S	oil Analy	Table 19: Soil Analytical Results - VOC1																									$\vdash$
Location	Sample Depth (m)	Sample ID	Date Sampled	Styrene	Cumene (isopropylbenzene)	n-Propylbenzene	onosmodłynomiaT-2,5,1	sec-pnţλjpeuzeue	onosmodlyntomiaT-4,2,1	tert-Butylbenzene	p-isopropyltoluene	2,2-Dichloropropane	1,2-dichloropropane	eis-1,3-Dichloropropene	trans-1,3-Dichloropropene	onsdied-2,1	Dichlorodifluoromethane	Chloromethane	Vinyl chloride	Вгототейзапе	Chloroethane	Trichlorofluoromethane	1,1-Dichloroethylene	9netheorothaid-1,1	cis-1,2-Dichloroethylene	ansitration of the second of t	
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg n	mg/kg m	mg/kg mg	mg/kg mg/kg	kg mg/kg	g mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg 1	mg/kg m	mg/kg mg	mg/kg mg	mg/kg mg	mg/kg mg/kg	g mg/kg	g mg/k	mg/kg	
SP4 Enterprise	rise																										7
ABH202	1.9-2.2	090508-202-KW	09 May 2008	< 1	<1	< 1	< 1	<1	<1	<1 <	:1 <1	< 1	< 1	< 1	< 1	<1	< 10	< 10	> 10 >	< 10 <	> 01	10 <	1 <1	> 1	> 1	>	
ABH210	0.1-0.2	060508-46-KW	06 May 2008	< 1	^ 1	< 1	1.5	< 1	3.1	<1 <	.1 <1	\ \	\ \	< 1	< 1	< 1	< 10	< 10	< 10	< 10 <	< 10 <	< 10 <	1 <1	^	^	^	٦
ABH2103	0.9-1	090508-197-KW	09 May 2008	~	- V	- V	- V			v 		~	v	V	- V	- V	> 10	> 10	× 10	× 10	< 10 <	> 01		⊽	~	~	
ABH2105	1.4-1.5	150508-333-KW	15 May 2008	< 1	1.5	5.5	7.8	<1	43 <	< 1 >	1.9	<1	< 1	< 1	< 1	< 1	< 10	< 10		> 01>		. > 01	1 <1	< 1	< 1	< 1	П
ABH2105	3.84	150508-600-KW	15 May 2008	^		^ 1	^ 1	-1	-	^ ^		- -	· ·		- 1	-	< 10	< 10	v 01 >	> 01 >	> 10 >	> 01 >		~	^	^	1
ABH2106	1.1-1.2	090508-205-KW	09 May 2008	- 1	-	-1>	<1	-1		· I>		-	-	- 1	<1	-	< 10	> 10	> 10	> 01 >	> 01>	> 01 >	-	~	^	^	
ABH2107	1-1.1	150508-341-KW	15 May 2008	< 10	< 10	19	40	< 10	> 091	< 10 <	10 <10	0 < 10	< 10	<10	< 10	< 10	< 100	< 100	> 100 >	< 100 < 1	100 < 1	> 001	< 10 < 10	< 10	< 10	< 10	
ABH2108	4.2-4.5	150508-348-KW	15 May 2008	^		^ 1	^ 1	-1	-	^1 ^		- V	^ \		- 1	-	< 10	< 10	v 01 >	> 01 >	> 10 >	> 01 >		~	^	^	1
$\neg$	0.35-0.345	080508-161-KW	08 May 2008	-	~	-1	^ 1		~		1	~	^ 1	-	-1	~	< 10	< 10	× 10 ×	> 10	> 01 >	10		~	~	~	1
ABH299	0.1-0.2	090508-168-KW	09 May 2008	^1	~	<1	× 1	-1		×1 ×	.1 <1	× 1	× 1	~	-1	^1	< 10	< 10	< 10 <	< 10 <	< 10 <	10	1 <1	~	~	~	7
ė	tional																										П
BBH402	6.0-8.0	280408-07-KW	28 Apr 2008	< 1	^	<1	< 1	× 1	<1	<1 >	.1 <1	^	^	\   	< 1	-1	< 10	< 10	< 10	< 10	< 10 <	> 01	1 <1	~	×	^	Г
BBH438	1.9-2	290408-73-KW	30 Apr 2008	< 1	< 1	<1	< 1	<1	<1	<1 <1	.1 <1	< 1	< 1	< 1	< 1	< 1	< 10	< 10	> 01 >	> 01>	> 01>	< 10 < 1	1 <1	<1	< 1	< 1	П
SP4 Enterprise	rise																										П
ABH226	0.1-0.2	060508-20-KW	06 May 2008	< 1	^	< 1	< 1	<1	-	×1 ×	1 <1	^	· 1	· 1	<1	<1	< 10	< 10	> 01>	> 10 >	< 10 <	> 01	1 <1	· ·	^	^	Т
ABH229	8.0-5.0	060508-14-KW	06 May 2008	< 1	^	<1	< 1	× 1	<1	<1 >	.1 <1	^	^	\   	< 1	-1	< 10	< 10	< 10	< 10 <	< 10 <	> 01>	1 <1	~	×	^	
_	8.0-5.0	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	~	~	-	-		-	×1 ×	1	~	~	-	-	-	< 10	< 10	> 01>	> 01>	> 01>	> 01 >	-	~	~	~	Г
$\dashv$	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5 < 0	< 0.5 < 0.5	5 < 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 5	< 5	< 5 <	< 5 <	< > < >	< 0.5 < 0.5	< 0.5	< 0.5	< 0.5	
_	0.6-0.7	080508-152-KW	08 May 2008	-			-		_	_	_	~	~	-	- 1	-	< 10	< 10		+		+	_	^	^	^	П
ABHZ31	0.6-0.7	080508-153-KW Field Blind Replicate Sample of 080508-152-KW	08 May 2008	7	7	7 7	7	7	7 7	v 1	7 7	7 7	7 7	7 7	7 7	7 7	01 > 10	01 >	01 > 1	v 10 01 v 1	v 10	01 > 10	7 7	7 7	7 7	7 7	Т
ABH240	1-1-1	W.X-021-2080 W.X-011-2080	08 May 2008	7 7	7 -	7 -	7 -	7 -					7 7	7 -	7 -	7 -	01 > 10	01 > 10						7 7	7 7	7 7	Т
ABH265	0-0.1	120508-228-KW	12 May 2008	~	~	-	-	-	-	~	-	~	~	-	-	-	< 10	< 10				< 10 < 1	-	~	~	~	Г
RE1 Recreational	tional																										П
ABH275	0.8-1.2	130508-286-KW	13 May 2008	< 1	· 1	-	- 1	<1	<1	<1 >	1 <1	<	-	- 1	<1	< 1	< 10	< 10	> 01>	> 01>	> 01>	> 01>	1 <1	· 1	< 1	^	Г
-	0.8-1.2	130508-287-KW Field Blind Replicate Sample of 130508-286-KW	13 May 2008	^		^ 1	^ 1	-1	-	^ ^		- -	^ \		- 1	-	< 10	< 10	v 01 >	> 10	> 01>	> 01 >		~	^	^	_
$\dashv$	0.8-1.2	130508-288-KW Split Field Duplicate of 130508-286-KW	13 May 2008	< 0.5	< 0.5	< 0.5	< 0.5	5	.5	< 0.5 < 0.5		5 < 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 5				Ť		< 0.5	< 0.5	< 0.5	1
-	0.8-1	130508-283-KW	13 May 2008	- -	-				_				-	^	^ \	^	> 10	< 10	+				_	^	^	^	П
-	0.7-0.8	IS0S08-3/4-KW	15 May 2008	·	·	·	_	-		1	_	1	·	·	1>	-	01 >	01 >	+	+	+	+	1	·	·	·	Т
AMW207	0.5-0.7	120508-219-KW	12 May 2008	~	- ·	7	-	-		~ :	_	~	~ =	~ :	-	-	01 >	< 10		> 01 >		< 10 < 1		~	~	~	Т
+	24.25	WN-2-M-904-02-00-00-00-00-00-00-00-00-00-00-00-00-	29 Apr 2006	7 5	7 -	7 -	7 7	7 5		7 .			7 5	7 5	7 -	7 -	01 / 10	01/	01/10		2 2	01/01/	7 -	7 1	7 5	7 5	Т
+	0.5-0.6	300408-85-KW	30 Apr 2008	7 -	7 -	7 -	7 7	7 -					7 7	7 -	7 -	7 -	× 10	01 >	+					1 1	7 7	7 7	Т
- 1	rise		on why wood	:			-	-					:	:		-	-	-	27			1		1		:	Τ
BBH433	2.4-2.5	010508-159-KW	01 May 2008	~	^		-	-	-			^	^	~	^	-	< 10	< 10	> 10	> 10	> 10 >	< 10	-	nt	^	^	Т
ة ⊢	fional		and the same of th																	1	ł	ł		-			Τ
BBH447	0.7-0.8	010\$08-14\$-KW	01 May 2008	~	~	-	-	-	-			~	~	~	>		> 10	< 10	01 >	> 01 >	> 01>	> 01	_	nt	V	V	Τ
	0.4-0.5	010508-140-KW	01 May 2008					-		· ·				-	-		> 10	01 >		H	-	01		1		~	Т
-1	1								1		l	1						-	1	ł	1	ł		-	-		1

OUDOSe-concentration above this action local are shown in hold text.

Concentrations above the identical plant action of the series of the control of the c

Table 19(c	continued)	Table 19(continued): Soil Analytical Results - VOC1																											Γ
Location	Sample Depth (m)	Sample ID	Date Sampled	onoqorqoroldoi(I-1,1	Carbon tetrachloride	onedboroldbid-2,1	Trichlorocthene	Dibriomomordid	əneqorqoroldəib-£,I	Теtrасhloroethene	onethootoldoertoT-2,1,1,1	эпвићэотојизвтъТ-2,2,1,1	oneqorqoroldoirT-E,2,1	oneqorqoroldo-£-omordid-£,1	Hezachlorobutadiene Bromocholoromethane	Chlorobenzene	Втоторепхене	o-Chlorotoluene	4-chlorotoluene	ənəznədoroldəi(I-£,I	ənəznədoroldəi(I-4,I	onoxnodoroldoid-2,1	1,2,4-trichlorobenzene	onsznadoroldsirt-£,2,1	Сһіогогіп	эпватэтотоГазіротот	Chlorodibromomethane	втойото	Naphthalene N
			Units	mg/kg	mg/kg r	mg/kg m	mg/kg mg-	ng/kg mg/kg	cg mg/kg	mg/kg	mg/kg	mg/kg	mg/kg m	mg/kg mg	mg/kg mg/kg	kg mg/kg	cg mg/kg	3 mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg r	mg/kg n	mg/kg m	mg/kg n	mg/kg
SP4 Enterprise	prise								ŀ				ŀ			ŀ	ŀ									ŀ	ŀ	ŀ	Ī
ABH202	1.9-2.2	090508-202-KW	09 May 2008	~			+			~	~	- V				+		~	~	~	~	~	~	~	7			_	nt
ABH210	0.1-0.2	060508-46-KW	06 May 2008	~	7	1	+	1	1	~	√ .	v	1	1	1	1	1	~	~	~	~	√ .	~	~	√ .	1	+	- ·	nt
ABH2103	0.9-1	090508-197-KW	09 May 2008	V 7	V 7	7	~ ~	V 7	V 7	⊽ ₹	7	7	V 7	V 1	V 1	V 7	⊽ 7	V 5	\ \ \	V 7	7	7	V 1	7	7	7	7		i ii
ABH2105	204	WA-005-900001	15 May 2000	7 7	7 7		7 7			7 7	7 7	7 7						0.1	7 .	7 7	7 5	7 7	7 7	7 7	7 7	7 7		7 7	1 1
ABH2106	_	090508-205-KW	09 May 2008			H	+	H						H	ŀ	+	H	7											: 1
ABH2107	_	150508-341-KW	15 May 2008	< 10	H	t	$\vdash$	<10 <10	ŀ	< 10	< 10	< 10	0	_	<10	10 < 10	0 <10	< 10	< 10	< 10	< 10	<10	× 10	v 10	< 10	< 10	0	× 10	n
ABH2108	424.5	150508-348-KW	15 May 2008	~	· ·		^1 v	~	V	V	V	V	V	~	\ \ \	~	~	~	~	·	V	V	V	V	7	V	V	-	nt
	0.35-0.345	080508-161-KW	08 May 2008	· ·	<1	-	× I ×	-	~	· ·	\   	-1>	-1	· ·	<1 <	- 1	~	· ·	<1	· ·	· ·	· ·	-	-	-1	-1	<1	-1	nt
ABH299	0.1-0.2	090508-168-KW	09 May 2008	<1	< 1		< I >	1 <1	· ·	<1	<1>	· ·	<1	> 1>	<1 <1	1 <1	· ·	< 1	<1	< 1	· 1	<1	<1	< 1	<1	<1	<1	<1	nt
	eational																												
		280408-07-KW	28 Apr 2008	7	7	<u></u>	v 	_	V	~	~	V	~	~	V V	~		⊽	~	~	7	7	7	~	~	7		7	< 0.1
BBH438	7-6.1	290408-73-KW	30 Apr 2008	_	_	-	v	~	-	v	~	~	-	-		-	~	V	~	v	v	V	_	_	V	_	_	-	_
SP4 Enterprise	prise	/N/1 0C 802070	00 May 2000	7	7	-			1	1	,	-	-	,	\	-	7	7	7	-	-	-	-	-	-	-	-	-	Ţ,
-	0.5-0.8	060508-22-1KW	06 May 2008	7 -	7 -	+	7 7	+	7 7	7 7	7 -	7 ~				+	7 7	7 -	7	7 -	7 -	7 7	7 -	7 -	7 -	7 -		7 -	1 1
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	~					~	~	~	- - -	~	~	-1			~	~	-	~	~	~	-	~	-		-	nt
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 0.5	16	< 0.5		< 0.5 < 0.5	5 < 0.5	< 0.5	< 0.5	< 0.5	5.	<0.5	< 0.5 nt	t < 0.5	5 < 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	2	< 0.5	2	< 0.5	nt
ABH231	1.0-9.0	080508-152-KW	08 May 2008	· ·	<1	<1 >	× 1 ×	-	· ·	< 1	<1>	<1>	-1		<1 <1	1 <1	·	·	<1	<1	· ·	>	>		-1	<1	-1	<1	nt
ABH231	0.6-0.7	080508-153-KW Field Blind Replicate Sample of 080508-152-KW	08 May 2008	~	~	+	+	+		⊽ -	7			+	1	+	+		<1 <1	· .		7	-	~	- -	- -		- V	nt
ABH240 ABH249	0.8-1	080508-116-KW	08 May 2008 08 May 2008	v v	v v	· ·	V V	v v	V	V V	V V	V V	v v	v v	v v	v v	V	V	v v	v	v v	V V	v	v v	v v	V V	v v	V V	1 1
ABH265	0-0.1	120508-228-KW	12 May 2008	-	-	-	·	_	~	~	-	-	~	~	_	~	~	~	>	-	-	~	7	~	7	-	-	-	nt
RE1 Recreational	eational																												
ABH275	0.8-1.2	130508-286-KW	13 May 2008	~	^ \		v     	~	· ·	~	~	\ \ \	-	~	\ \ \	~	~	~	~		~		~	~	-	-		-	nt
ABH275	0.8-1.2	130508-287-KW Field Blind Replicate Sample of 130508-286-KW	13 May 2008		+	+	1	+	+	7		7	+	+	-		+	7	<1	^! ~!	7				+	+	+		nt Ti
ABH2/5	771-870	130308-288-KW Spiri Field Duplicate of 130308-280-KW	13 May 2008	c.u.>	5.0 >		,	0.0	000	c.0.>	< 0.5	50.5	0 .		9 .		+	co v	< 0.0	< 0.0	co >	c.0.>	50.5	c.0.5	9 -	0	0	CU.>	nt .
ABH288	0.7.0.8	150508-255-KW	15 May 2008	7 7	7 7	7 7	7 7	7 -		7 7	7 7	7 7	7 7	/   \	7 7	7 2	7 7	7 7	7 -	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	1 1
AMW207	0.5-0.7	120508-219-KW	12 May 2008				+	H		7	7		ŀ	H		+	H	7		7		7	7						i ti
BBH416	9.1-5.1	2 90408-35 -KW	29 Apr 2008	~	~	~		~	~	~	~	~	~	~	~	~	~	~	>	-	~	~	~	~	~		-		_
BBH424	1.4-1.6	2 90408-55 -KW	29 Apr 2008	~			<1 ×	-	· ·	~	<1	V	-1	× 1×	- I>		~	~	<1	· ·	~	· ·	~	· ·	7	7		-1	_
BBH409	1.9-2	2 90408-42 -KW	29 Apr 2008	<1	< 1		< I >	1 <1	· ·	<1	<1>	· ·	<1	> 1>	<1 <1	1 <1	· ·	< 1	<1	< 1	· 1	<1	<1	< 1	<1	<1	<1	<1	
BBH429	2.4-2.5	010508-155-KW	01 May 2008	~	· ·		v 	~	- V	~	~	- V			~		~	~	~	~	~	7	~	~	~	-			< 0.1
BBH431	9.0-2.0	300408-85-KW	30 Apr 2008	~	^ \		·	_	^	~	~	- - -	7	~	_	~	~	~	~	~	~	~	~	~	~	~	-	_	< 0.1
	prise			-	-	ŀ	-		-			-	ŀ	-		ŀ								-	-	-	-	-	
BBH433	2.4-2.5	010508-159-KW	01 May 2008	· ·	· ·	·	v	·	·	·	· ·	V		v 	v	·	·	V	· ·	~	· v	·	~	~	~	_	-	_	0.1
	eational	THAT ALL ADARTA	00000 34 10	ŀ		ŀ	ľ						ŀ	ŀ	ŀ	ŀ						ŀ					ļ	ŀ	Τ,
	0.7-0.8	010508-145-KW	01 May 2008	7	7	+	v :	V .		7	7	7	+	+	+	+	$\frac{1}{1}$	₹ 5		7	7	7	7	7	7	7		+	_ _ _ :
BBH450	0.4-0.5	010508-140-KW	01 May 2008	V	~	_	v v	×	~	v	~	·	V	v	· ·	·	v	v	\ \	·	·	V	·		-		V	_	< 0.1

Concentrations above this action level are shown in bold text.

<p

-### Represents results below the laboratory Pract in t = Nor Tested -- Artison Level not established

		Table 2	0: Soil Analyti	cal Result	s - PAAH	1						
Location	Sample Depth (m)	Sample ID	Date Sampled	2,4-DB	Dicamba	2-(2-Methyl-4- chlorophenoxy) propionic acid	2-Methyl-4- chlorophenoxyac etic acid	2,4-DP (Dichloroprop)	2,4D	Triclopyr	2-(2,4,5- Trichlorophenox y) propionic acid	2,4,5-T
CD4 E			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP4 Enter		0.00500 40 77W	0616 2000	.0.1	.0.1		.01	.0.1	-0.1	-0.1	-0.1	.01
ABH205 ABH206	0.1-0.2	060508-49-KW 090508-208-KW	06 May 2008 09 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH206 ABH215	0.1-0.2	090508-208-KW 060508-36-KW	06 May 2008	< 0.1	< 0.1	nt nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH221	0.1-0.25	080508-158-KW	08 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH2102	0.2-0.3	090508-185-KW	09 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-14-KW	06 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-15-KW Field Blind Replicate Sample of 060508-14-KW	06 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH229	0.5-0.8	060508-16-KW Split Field Duplicate of 060508-14-KW	06 May 2008	< 0.04	< 0.04	nt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
ABH230	0.1-0.2	080508-148-KW	08 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH237	0-0.2	060508-27-KW	06 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH242	0.5-0.7	080508-145-KW	08 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH242	0.5-0.7	080508-146-KW Field Blind Replicate Sample of 080508-145-KW	08 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH251	0-0.1	080508-116-KW	08 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH253	0-0.1	080508-133-KW	08 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Recre												
ABH259	0-0.1	120508-248-KW	12 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter												
ABH261	0-0.2	120508-244-KW	12 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH264	0-0.1	120508-232-KW	12 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Recre												
ABH268	0-0.2	120508-275-KW	12 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH272	0.1-0.5	130508-304-KW	13 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH272	0.1-0.5	130508-305-KW Field Blind Replicate Sample of 130508-304-KW	13 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH275	0-0.2	130508-285-KW	13 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter ABH285	0-0.2	150508-389-KW	15 M 2000	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
		130308-389-KW	15 May 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH288	0-0.2	150508-373-KW	15 May 2008	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
ABH290	0-0.2	150508-358-KW	15 May 2008	< 0.1	< 0.1	nt nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH423	0.1-0.3	300408-81-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH454	0-0.1	010508-126-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter		***************************************	,									
BBH407	0.05-0.15	290408-43-KW	29 Apr 2008	< 0.1	< 0.1	nt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH430	0.1-0.3	300408-106-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Recre	eational											
BBH432	0-0.1	010508-160-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter	prise		•			•	•					
BBH441	0-0.2	010508-150-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Recre	eational											
BBH445	0.1-0.4	010508-136-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH445	0.1-0.4	010508-137-KW Field Blind Replicate Sample of 010508-136-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
BBH445	0.1-0.4	010508-138-KW Split Field Duplicate Sample of 010508-136-KW	01 May 2008	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
BBH446	0.1-0.2	010508-146-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
SP4 Enter												
BBH452	0.1-0.2	300408-96-KW	30 Apr 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
RE1 Recre				1				1				
BBH455	0.1-0.2	010508-120-KW	01 May 2008	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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

<sup>&</sup>lt;### Represents results below the laboratory Practical Quantitation Limit.</p>
nt = Not Tested
... = Action Level not established

			Table	21: Asbestos F	Results	
Location	Sample Depth	Sample Id	Date Sampled	Material Type	Sample Description	Asbestos ID in material
ABH283	0-0.2	150508-381-KW	15 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH206	0.1-0.2	090508-208-KW	09 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH207	0.2-0.4	090508-207-KW	09 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH210	0.1-0.2	060508-46-KW	06 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH212	0.35-0.45	080508-161-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH214	0-0.1	070508-70-KW	07 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH217	0.0-0.2	060508-43-KW	06 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH220	0.2-0.3	060508-04-KW	06 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH221	0.1-0.25	080508-158-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH222	0-0.1	070508-76-KW	07 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH225	0.0-0.2	060508-33-KW	06 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH228	0.2-0.3	060508-10-KW	06 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH231	0-0.3	080508-151-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH232	0-0.2	060508-52-KW	06 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH236	0-0.1	080508-102-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH243	0-0.1	080508-141-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH246	0-0.2	070508-84-KW	07 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH248	0-0.1	080508-105-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH251	0-0.1	080508-116-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH254	0-0.1	080508-136-KW	08 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH257	0-0.2	120508-254-KW	12 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH265	0-0.1	120508-228-KW	12 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH271	0-0.2	130508-308-KW	13 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH274	0.1-0.3	130508-289-KW	13 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH276	0.05-0.25	130508-282-KW	13 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH281	0-0.2	130508-302-KW	13 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH286	0.1-0.3	150508-391-KW	15 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH287	0-0.4	150508-378-KW	15 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH291	0.1-0.5	150508-352-KW	15 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH293	0.4-0.5	130508-328-KW	13 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH294	0-0.2	150508-367-KW	15 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ABH296	0-0.2	120508-261-KW	12 May 2008	FILL FILL	No asbestos detected	Respirable fibres not detected
ABH296 ALG203	2.6-2.8 0-0.2	120508-263-KW	12 May 2008	FILL	No asbestos detected	Respirable fibres not detected
ALG203 Area A1-A	Surface	130508-317-KW	13 May 2008	MATERIAL	No asbestos detected	Respirable fibres not detected Chrysotile asbestos detected.
Area A1-A	Surface	130508-A1-KW 120508-A1-KW	13 May 2008 12 May 2008	MATERIAL	60x80x4mm fibre cement sheet fragm 200g fibre cement sheet fragments	Chrysotile asbestos detected.
Alca Al-D	Surface	120306-A1-KW	12 May 2006	WATERIAL	200g note cement sheet fragments	Amosite asbestos detected.
						Crocidolite asbestos detected
Area A2	Surface	120508-A2-KW	12 May 2008	MATERIAL	15g fibre cement sheet fragments	Chrysotile asbestos detected
Area A3	Surface	120508-A3-KW	12 May 2008	MATERIAL	15g fibre cement sheet fragments	Chrysotile asbestos detected
BBH407	0.05-0.15	290408-43-KW	29 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH408	0-0.2	290408-50-KW	29 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH412	0-0.2	280408-21-KW	29 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH415	0.1-0.3	300408-78-KW	30 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH428	0.1-0.2	010508-162-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH430	0.1-0.3	300408-106-KW	30 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH432	0.1-0.2	010508-160-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH435	0.1-0.3	300408-110-KW	19 Jun 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH438	0.2-0.3	290408-72-KW	30 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH439	0.1-0.2	010508-133-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH442	0.1-0.4	300408-101-KW	30 Apr 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH446	0.1-0.2	010508-146-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH451	0.0-0.1	010508-A1-KW	01 May 2008	FILL	Fibre cement sheet	Chrysotile asbestos detected
BBH452	0.1-0.2	300408-96-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH453	0.2-0.3	300408-92-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH454	0-0.1	010508-126-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BBH455	0.1-0.2	010508-120-KW	01 May 2008	FILL	No asbestos detected	Respirable fibres not detected
BMW401	0.6-0.7	020508-A2-KW	02 May 2008	FILL	Fibre cement sheet	Chrysotile asbestos detected
- = not collected	1					

<sup>- =</sup> not collected

									1	able 22: Soil an	Fable 22: Soil analytical results - POCAS	- POCAS										
		ABH203(1.9-2.0)	ABH209(1.7-1.9)	ABH203(1.9-2.0) ABH209(1.7-1.9) ABH210(2.6-2.8) ABH214(1.8-2.0) ABH228(1.9-2.2)	ABH214(1.8-2.0)	ABH228(1.9-2.2)	ABH230(1.8-2.0)	BH231(1.6-1.8)	ABH238(1.9-2.0) ABH237(2.3-2.4)	ABH237(2.3-2.4)	ABH242(1.6-1.7)		ABH255(2.4-2.6) ABH258(1.6-1.7)		ABH266(2.02.2) ABH269(2.1-2.2) ABH270(2.4-2.6)	ABH270(2.4-2.6)	Action	Action Criteria (1 - 1000 tonnes)	tonnes)	Action (	Action Criteria (>1000 tonnes)	nes)
Parameters	EQL	7-May-08	7-May-08	6-May-08	7-May-08	6-May-08	8-May-08	8-May-08	7-May-08	6-May-08	8-May-08	8-May-08	12-May-08	12-May-08	13-May-08	13-May-08	Sands to loamy	Sandy loams to	Sandy loams to Medium to heavy	Sands to loamy	Sandy loams to Medium to heavy	fedium to heavy
		Sand	Sand	Sand	Sand	Silty sand	Silty sand	Silty sand	Sand	Sand	Sand	Sand	Sand	Silty sand	Silty sand	Silty sand	spues	light clays	clays	sands	light clays	clays
ieldph(H <sub>2</sub> O)	0.1	5.5	5.5	5.5	5.5	5.5	9	7	5.5	9	9	7	9	9	6.5	6.5						
ield ph (H <sub>2</sub> O <sub>2</sub> )	0.1	-	-	-	5.5	0	\$	00	2	0	2	0	3	2	-	0						
AA (mol H+/tonne)	5	12		\$		12						5										
PA (mol H+/tonne)	5	130		5		165						213					18	36	62	18	18	18
S-KCI (%)	0.01	0.02		800.0		0.039						0.072										
-P (%)	0.01	0.33		0.053		0.48						0.58										
-POS (%)	0.01	0.31		0.045		0.44						0.51					0.03	90'0	0.1	0.03	0.03	0.03
'SA (mol H+/tonne)	2	118		<5.0		153						213										
Note: Concentrations over action criteria are highlighted and shown in bold text.	eria are highlighs	ted and shown in bold tex	ţ.																			
		ABH(2.2-2.4)		ABH272(2.4-2.6) ABH273(2.4-2.6) ABH274(2.5-2.7) ABH275(2.6-2.8) ABH276(2.6-2.8) ABH277(1.2-1	ABH274(2.5-2.7)	ABH275(2.6-2.8)	ABH276(2.6-2.8)	(4:	ABH278(2.6-2.8)	ABH281 (2.4-2.6)	ABH286(2.0-2.2)	ABH291(2.6-2.7)	ABH295(2.4-2.6)	ALG202(2.0-2.4)	ABH278(2.6-2.8) ABH28(2.4-2.6) ABH286(2.0-2.2) ABH291(2.6-2.7) ABH295(2.4-2.6) ALG202(2.0-2.4) ALG203(2.2-2.4) ALG204(2.0-2.4)	ALG204(2.0-2.4)	Action	Action Criteria (1 - 1000 tonnes)	tonnes)	Action (	Action Criteria (>1000 tonnes)	nes)
Parameters	EQL	13-May-08	13-May-08	13-May-08	13-May-08	13-May-08	13-May-08	13-May-08	13-May-08	13-May-08	15-May-08	13-May-08	13-May-08	12-May-08	13-May-08	15-May-08	Sands to loamy	Sandy loams to	Sandy loams to Medium to heavy	Sands to loamy	Sandy loams to Medium to heavy	fedium to heav
		Sand	Silty sand	Silty clay	Silty clay	Silty sand	Silty sand	Silty sand	Silty sand	Silty clay	Silty sand	Silty clay	Silty clay	Silty sand	Silty clay	Silty sand	smds	light clays	clays	spurs	light clays	clays
(O <sup>z</sup> H) hd blo	0.1	- 4	9	6.5	7	6.5	6.5	9	6.2	9	6.5	6.5	6.5	5	59	6.5						
ield ph (H <sub>2</sub> O <sub>2</sub> )	0.1	9	3	0	-	0	0	4	0	3	3.5	6.5	9	4	9	6.5						
AA (mol H+/tonne)	5			\$	<>		<>		\$>		\$>											
PA (mol H+/tonne)	5			505	338		418		240		463						18	36	62	18	18	18
S-KCI (%)	0.01			0.034	0.031		0.058		0.038		0.036											
-P (%)	0.01			1.1	0.81		1.2		89:0		0.72											
9-POS (%)	0.01			1	0.78		17		9.65		69'0						0.03	90.0	0.1	0.03	0.03	0.03
'SA (mol H+/tonne)	5			505	338		418		240		463						18	36	62	18	18	18
Note: Concentrations over action oriteria are highlighted and shown in bold text.	eria are highlight.	ted and shown in bold tex	4																			

	-	BBH401(2.6-2.8)	() BBH403(2.0-2.2)	BBH406(1.8-1.9)	BBH408(2.0-2.2)	BBH411(2.2-2.3)	BBH412(2.2-2.4)	BBH415(2.6-2.8)	BBH421(1.8-2.0)	BBH422(2.6-2.8)	BBH427(2.6-2.8)	BBH440(2.3-2.4)	BBH442(2.6-2.8)	BBH447(2.6-2.8)	BBH453(2.5-2.6) E	BBH458(3.8-4.0)	Action	Action Criteria (1 - 1000 tonnes)	(onnes)	Action	Action Criteria (>1000 tonnes)	onnes)
		28-Apr-08	28-Apr-08	29-Apr-08	29-Apr-08	29-Apr-08	28-Apr-08	30-Apr-08	30-Apr-08	30-Apr-08	29-Apr-08	1-May-08	30-Apr-08	1-May-08	30-Apr-08	1-May-08	Sands to loamy	Sandy loams to	Medium to heavy		Sands to loamy Sandy loams to Medium to heavy	Medium to hear
Parameters	EQL	Sand	Silty sand	Sand	Sand	Sand	Sand	Silty sand	Silty clay	Silty sand	Clayey silt	Silty clay	Silty clay	Silty clay	Silt	Silty sand	smds	light clays	clays	spas	light clays	clays
Fieldph(H <sub>2</sub> O)	0.1	7.5	6.5	9	9	9	7	9	5'9	9	7	6.5	9	6.5	5.5	9						
Field ph (H <sub>2</sub> O <sub>2</sub> )	0.1	6.5	-	4.5	5	2	1	4.5	5	9	3	3	3.5	6.5	1.5	-						
TAA (mol H+/tonne)	2		\$	7.5		5	<>				\$>	<>			<>	<>						
TPA (mol H+/tonne)	5		333	108		\$	338				1010	253			195	1185	18	36	62	18	18	18
S-KCI (%)	0.01		0.047	910.0		600.0	0.039				0.13	0.024			0.043	0.13						
S-P (%)	0.01		92'0	0.22		0.12	82.0				3.9	0.52			0.56	2.5						
S-POS (%)	0.01		0.71	0.21		0.11	0.74				3.7	0.49			0.52	2.4	0.03	90.0	0.1	0.03	0.03	0.03
TSA (mol H+/tonne)	5		333	100		<>	335				1010	253			861	1188	18	36	62	18	18	18
Note: Concentrations over action criteria are highlighted and shown in bold text.	criteria are highligi	thed and shown in bold to	zxt.																			

						Table 23: G	Fround WE	iter Field P	23: Ground Water Field Parameters and Analytical Results	nd Analyti	cal Results										
Sample ID  Date Sampled  Standing Water Level	Standing Water Level	Standing Water Level		Temperature (field)		Redox (field)	Dissolved Oxygen (field)	pH (field)  Electrical Conductivity (fiel	Electrical Conductivity (nei	Sulphate	Total Dissolved Solids	Resistivity	Viinits2	Carbonate Alkalinity as	Bicarbonate Alkalinity as	Total Alkalinity	Ralcium (II) Ion	nol (I) muisskio¶	(sV) muibod	noI (II) muisəngsM	Phenols
Units mBTOC	mBTOC	mBTOC	Н	deg c	Ш	Н	H	its	_	_	l/gm	ohm m	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	H	mg/l	mg/l
J 29 May 2008 1.59	1.59	1.59	-	20.1	1	4		$\dashv$	$\dashv$		7500	nt	7	<0.1	630	nt	320	63			<0.05
3 17 Feb 2017 1.48 25.5	1.48 25.5	1.48 25.5	25.5	+	1	4	+	+	+	+	nt	nt	nt	\$	370	370	300	230	+	099	nt
1.48 25.5	1.48 25.5	1.48 25.5	25.5	$\dashv$	- (	-131.7 0	-	-	25134 9700		nt	nt	nt	\$	370	370	310	240	7300	029	ıı
QAQC2 17 Feb 2017 1.48 25.5	1.48 25.5	1.48 25.5	25.5	-	- (	-131.7 0	0.08 4.	4.78 251	134 9440	1110	nt	nt	nt	√1	323	323	437	205	-	622	nt
290508-02-LJ 29 May 2008 1.59 19	1.59	1.59		19		-162 0				nt	nt	nt	nt	nt	nt	nt	nt	nt		nt	nt
ABH2105 17 Feb 2017 1.5 24.7	1.5 24.7	1.5 24.7	24.7	H	- 11	-110.2 0	H	5.02 10	1013 140	54	nt	nt	nt	<>	270	270	26	8.8	84	16	nt
3 1.4	1.4	1.4		21.1	ı	-5 0		6.83 109	1092 nt	nt	nt	nt	nt	nt	nt	nt	nt	nt		nt	nt
ABH202 17 Feb 2017 1.48 25.3	1.48 25.3	1.48 25.3	25.3		- (1	-113.3 0	0.16 6.				nt	nt	nt	<>	270	270	150	10	140	24	nt
290508-04-LJ 29 May 2008 0.49 17.6	0.49	0.49		17.6		-246 0					3600	nt	3.3	<0.1	540	nt	260	43	092	68	nt
AMW205 17 Feb 2017 0.41 23.3	0.41	0.41		23.3	٠,٧	220.1 0	0.12 5.	5.67 3791	791 880	410	2500	2.6	2500	<>	530	530	230	36	630	99	nt
290508-05-LJ 29 May 2008 0.41 18.4	0.41	0.41		18.4		0 69-	0.16 6.		1082 210		800	nt	⊽	<0.1	150	nt	81	19	120	24	nt
290508-06-LJ Field blind replicate of 290508-05-LJ 29 May 2008 0.41 18.4	J 29 May 2008 0.41	0.41		18.4		0 69-	0.16 6.				006	nt	√	<0.1	150	nt	78	19	120	24	nt
290508-07-LJ Field split replicate of 290508-05-LJ 78.4 18.4	29 May 2008 0.41	0.41		18.4		0 69-					726	nt	0.62	~	153	153	92	20	122	24	nt
300508-12-LJ 30 May 2008 0.67 18.9	29.0	29.0	-	18.9		2 0			8140 3300	390	8600	nt	6.4	<0.1	110	nt	110	89	2100	230	tt
29 May 2008 0.72	0.72	0.72	_	18.6		-94 0	_		-		3600	nt	2.9	<0.1	490	nt	230	47	620	110	nt
30 May 2008 1.5	1.5	1.5	H	18.1			-		H		16000	nt	15	<0.1	470	nt	009	130	4600	450	nt
300508-10-LJ 30 May 2008 0.85 18.7	0.85	0.85		18.7		-100 0		87 77.9	7810 2000		8900	nt	6.2	<0.1	810	nt	610	93	1600	330	Ħ
300508-11-LJ Field blind replicate of 300508-10-LJ 30 May 2008 0.67 18.9	30 May 2008 0.67	0.67		18.9	L	2 0	0.22 6.	6.33 814		2400	2009	nt	6.1	<0.1	810	nt	610	92	1500	320	nt
300508-13-LJ 300508 1.69 nt	1.69	1.69		nt		nt					nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
J 30 May 2008 1.59	1.59	1.59		22.8	Ц	H		H	7350 nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
17 Feb 2017	1.64	1.64	-	25.3	ť	-105.3 0	0.76 6.	6.59 520	5263 1400	-	nt	nt	nt	<>	360	360	97	33	096	42	nt
180608-06-LJ 18 Jun 2008 0.43 18	0.43	0.43		18		-2111					5100	1.6	4100	<0.1	290	nt	089	09	1000	110	nt
LJ 17 Jun 2008 3.96	3.96	3.96	-	21.1		_		-	-	110	099	10	610	<0.1	420	nt	160	10	38	22	Ħ
BMW401 17 Feb 2017 4.14 22.5	4.14	4.14	_	22.5	ď	-150.2			804 30		nt	nt	nt	<>	460	460	110	12	36	14	nt
170608-05-LJ 17 Jun 2008 2.13 19.3	2.13	2.13		19.3	ĺ	-167 -(		6.77 2.78			2100	3.6	1800	<0.1	999	nt	370	23	220	71	nt
170608-02-LJ 17 Jun 2008 3.48 20.5	3.48	3.48		20.5	l	-93 0		6.77 240		\$	1400	4	1600	<0.1	620	nt	130	25	320	3	Ħ
17 Feb 2017 3.5	3.5	3.5		22.4	Ľ	-185.2 0					920	9	1100	<>	450	450	82	23	250	24	nt
170608-03-LJ 17 Jun 2008 2.38 19.7	2.38	2.38		19.7	H	-299	-0.33 6.	6.83 158	15800 5900	830	11000	~	10000	<0.1	280	nt	170	130	3500	30	nt
170608-04-LJ Field Blind Replicate of 170608-03-LJ 17 Jun 2008 2.38 19.7	17 Jun 2008 2.38	2.38		19.			-0.33 6.		15800 6140		11000	62	9350	nt	nt	272	163	130	3160	336	nt
17 Feb 2017	17 Feb 2017 2.24	2.24		22.		-313.9 0			L		nt	nt	nt	<>	320	320	230	120	3500	300	nt
Limit of Reporting 0.01 0.01 0.01	H	H	H	0.1	Н	1 (	0.01 0.	0.01 0.	0.1 0.1	1	10	1	1	0.1	1	1	1	1	1	-	0.05
NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters	_s) - Marine Waters				Ш		Н					٠									400

nt = not analysed
-- = Action Level not established
BR = blind replicate
SPD = split duplicate

	Table 24: G	Table 24: Groundwater Analytical Results	lytical Re	sults - Diss	- Dissolved me	metals				
Location	Sample ID	Date Sampled	Arsenic	muimbr	muimord)	Copper	Геяф	Метсигу	Nickel	əniX
		Units	ug/l	ug/l	ug/l	ug/l	ug/1	l/gn	ug/l	ug/l
	290508-01-LJ-	29 May 2008	9.5	0.2	<1	3.9	$\overline{\ }$	<0.5	5.9	<1
A NATA7202	AMW203	17 Feb 2017	32	<0.1	~	$\overline{\lor}$	$\overline{\lor}$	<0.05	$\nabla$	ightharpoons
CU2W IVIA	QAQC1 Field blind replicate of AMW203	17 Feb 2017	32	<0.1	<1	<1	<1	<0.05	<1	<1
	QAQC2 Field split replicate of AMW204	17 Feb 2017	22	<0.1	<1	<1	<	<0.1	<1	<>
ABH2105	290508-02-LJ	29 May 2008	nt	nt	nt	nt	<	nt	nt	nt
ABI12102	ABH2105	17 Feb 2017	4	<0.1	<1	<1	~	<0.05	<1	5
VBH200	290508-03-LJ	29 May 2008	nt	nt	nt	nt	<1	nt	nt	nt
AD11202	ABH202	17 Feb 2017	9	<0.1	9	1	<1	<0.05	83	14
20CIXIAA	290508-04-LJ	29 May 2008	5.6	<0.1	2.7	2.1	<1	<0.5	2.6	1.2
CO2 W IVIA	AMW205	17 Feb 2017	4	<0.1	1	<1	<1	<0.05	2	<1
	290508-05-LJ	29 May 2008	11	<0.1	<1	$\overline{\ }$	$\overline{\lor}$	<0.5	1.1	<1
AMW201	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	11	<0.1	1.1	<1	<1	<0.5	1	<1
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	10	<0.1	<0.1	<0.1	<0.1	<0.01	<0.1	<0.5
AMW202	300508-12-LJ	30 May 2008	4.9	0.1	1.6	<1	<1	<0.5	<1	<1
AMW204	290508-08-LJ	29 May 2008	6.1	0.3	5.3	<1	<1	<0.5	4.4	5.9
AMW207	300508-09-LJ	30 May 2008	14	0.2	11	$\overline{\lor}$	$\overline{\lor}$	<0.5	64	82
906/81848	300508-10-LJ	30 May 2008	5.7	0.2	1.5	<1	<1	<0.5	11	5.9
002 W IVIE	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	5.5	0.1	1.5	<1	<1	<0.5	11	5.7
ABH2110	300508-13-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt
ABH2100	300508-14-LJ	30 May 2008	nt	nt	nt	nt	<1	nt	nt	nt
AD1121100	ABH2100	17 Feb 2017	14	0.4	4	3	7	<0.05	17	8
BBH304	180608-06-LJ	18 Jun 2008	4.9	<0.1	2.5	2.1	<1	<0.5	1.7	1.5
BMW7401	170608-01-LJ	17 Jun 2008	2.2	<0.1	<1	1.8	<1	<0.5	<1	6.3
DIVI W 401	BMW401	17 Feb 2017	14	<0.1	<1	3	<1	<0.05	<1	4
BMW402	170608-05-LJ	17 Jun 2008	5.6	<0.1	<1	<1	<1	<0.5	1.7	3.1
BMW403	170608-02-LJ	17 Jun 2008	4.9	<0.1	2	<1	<1	<0.5	3.1	<1
COL M INTO	BMW403	17 Feb 2017	3	<0.1	<1	1	~	<0.05	1	1
	170608-03-LJ	17 Jun 2008	1.6	0.2	23	9.9	~	<0.5	2.5	4.1
BMW404	170608-04-LJ Field Blind Replicate of170608-03-LJ	17 Jun 2008	<1	<0.01	24	2	4	$\nabla$	9	<0.1
	BMW404	17 Feb 2017	8	<0.1	3	$\overline{\lor}$	$\overline{\lor}$	<0.05	1	1
Limit of Reporting	orting		1	0.1	1	1	1	0.1	1	3
NEPM (2013	NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters		-	0.7	-	1.3	4.4	0.1	7	8

Note 1: ANZG 2018 Marine 95% (Concentrations above this action level are shown in **bold** text.) nt = Not Tested
--- = Action Level not established
BR = blind replicate

				Table 25: 0	Groundwa	ter Analyt	25: Groundwater Analytical Results - TPH and BTEX	s - TPH a	and BTEX									Γ
Location	Sample ID	Date Sampled	6Э - 9Э НАД	TPH C6 - C10	BLEX (E1) LbH Ce - C10 less	TPH C10 - C14	ТРН С15 - С28	1ьн С59 - С3е	ТВН >С10 - С16	TRH >C10 - C16 less	TRH >C16 - C34	LKH >C34 - C40	Benzene	JuonloT	Ęţμληρeuzeue	теға- & рага-Хујепе	оп'гіло-Хуїепе	Suslenty Napene
		Units	µg/L	hg/L	µg/L	η/gη	hg/L	µg/L	μg/L	hg/L	µg/L	hg/L	µg/L	µg/L	J/gn	η/gη	η/gη	hg/L
	290508-01-LJ	29 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	⊽	~	~	7	⊽	nt
A NATA/202	AMW203	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	~	~	~	\$	⊽	⊽
AM W 203	QAQC1 Field blind replicate of AMW203	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	~	~	$\overline{\ }$	♡	⊽	⊽
	QAQC2 Field split replicate of AMW204	17 Feb 2017	<20	<20	<20	<50	<100	<50	<100	<100	<100	<100	~	7	\$	7	7	\$
A DITO 105	290508-02-LJ	29 May 2008	029	nt	nt	550	<100	<100	nt	nt	nt	nt	190	20	09	150	30	nt
ABIIZIO	ABH2105	17 Feb 2017	260	260	54	<50	<100	<100	<50	<20	<100	<100	200	2	<1	7	7	~
VEHOUS	290508-03-LJ	29 May 2008	72	nt	nt	<50	<100	<100	nt	nt	nt	nt	3.8	<1	1	18	8	nt
ABIIZUZ	ABH202	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	<1	<1	<1	<2	<1	<1
20C/XIVV	290508-04-LJ	29 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
CO2 W IVIN	AMW205	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	<1	<1	<1	<2	<1	<1
	290508-05-LJ	29 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	~	<1	<1	7	7	nt
AMW201		29 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	~	<1	<1	7	7	nt
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	<20	nt	nt	<50	<100	<50	nt	nt	nt	nt	<1	<>	<2>	<2	<2	nt
AMW204		29 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	<1	<1	<1	<2	<1	nt
AMW207		30 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	^1	<1	<1	₹	<1	nt
AUCUMA	300508-10-LJ	30 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	^1	<1	<1	₹	<1	nt
7 IVI VV 2000	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	^1	<1	<1	₹	<1	nt
AMW202	300508-12-LJ	30 May 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	~	<1	<1	<2	<1	nt
ABH2110	300508-13-LJ	30 May 2008	<10	nt	nt	nt	nt	nt	nt	nt	nt	nt	⊽	<1	1>	7	~	nt
ARH2100	31	30 May 2008	<10	nt	nt	nt	nt	nt	nt	nt	nt	nt		<1	<1	<2	~	nt
111111111111111111111111111111111111111		17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	~	~1	~	♡	~	~
BBH304	180608-06-LJ	18 Jun 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	$\overline{\lor}$	<1	√1	7	~	nt
BMW401	1	17 Jun 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	~		~	7	~	nt
		17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	⊽	< <u>-</u>	~	7	~	~
BMW402		17 Jun 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	~	~1	~	7	~	nt
BMW403	T	17 Jun 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	~	~	~	♡	~	nt
		17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	~	~1	~	7	~	~
		17 Jun 2008	<10	nt	nt	<50	<100	<100	nt	nt	nt	nt	~	1.5	~	♡	~	nt
BMW404	170608-04-LJ Field E	17 Jun 2008	<20	nt	nt	<50	<100	<100	nt	nt	nt	nt	▽	\$	<2	7	7	nt
	BMW404	17 Feb 2017	<10	<10	<10	<50	<100	<100	<50	<50	<100	<100	⊽	~	▽	7	~	~
Limit of Reporting	porting		10	10	10	20	100	100	20	20	100	100	1	1	1	1	1	1
NEPM (201	NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters		٠						-				200	-				20
NEPM (201	NEPM (2013) Health Screening Levels (HSLs) - HSL C - Sand, 2m-<4m.		•	'	'	-	-	-	-	'				-				
NEPM (201	NEPM (2013) Health Screening Levels (HSLs) - HSL D - Sand, 2m-<4m.		•	•	009	•	•	•	•	•			200				•	
anoitent moone	a above this action loyal as above in hold taxt																	

Concentrations above this action level are shown in bold text at a NorT seted ... = Action Level not established BR = blind replicate

		Tal	Table 26 : Groun		Analytica	Results -	dwater Analytical Results - Polycyclic Aromatic Hydrocarbons	c Aromati	c Hydroc	arbons							
Location	Sample ID	Date Sampled	Snoledtdge/		Асепарћtћепе	Fluorene	Урепяпұһтепе	Аптһгясепе	у]иогалthеле	Бугепе	Вепхо(а)апthгасепе	Сһгуѕепе	Benzo(b+k)fluoranthens	Benzo(a)pyrene	on97yq(b,2-2,2,1)0n9bnl	oneorathras(a,a)oanedid	Benzo(g,h,i)perylene
		Units	ng/l	ng/1	l/gn	ng/l	l/gn	l/gn	l/gn	l/gn	l/gn	l/gn	l/gn	l/gn	l/gn	l/gn	ug/l
	290508-01-LJ	29 May 2008	7	⊽	~1	~	7	7	~	∀	7	~	\$	<1	~	$\overline{\vee}$	< <u>1</u>
A NAW/2012	AMW203	17 Feb 2017	<1	\ 	<1	<1	<1	<1	<1		<1	<1	<2	<1	<1	<1	<1
202 W IVIA	QAQC1 Field blind replicate of AMW203	17 Feb 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
	QAQC2 Field split replicate of AMW204	17 Feb 2017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
ADID105	290508-02-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABIZIO	ABH2105	17 Feb 2017	~	<1	<1	~	~	<1	<1	~	<1	<1	<2	<1	<1	<1	<1
ABH202	290508-03-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
AD11202	ABH202	17 Feb 2017	<1	~	<1	~	<1	<1	<1	$\vee$	<1	<1	<2	<1	<1	~	<1
A N/W/2005	290508-04-LJ	29 May 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
CO2 W IVIN	AMW205	17 Feb 2017	<1	7	<1	<1	~	<1	<1	7	<1	<1	<2	<1	<1	<1	<1
	290508-05-LJ	29 May 2008	<1	7	<1	<1	<1	~	<1	$\vdash$	<1	<1	<2	<1	<1	<1	<1
AMW201	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	<1	7	<1	<1	~	<1	<1	7	<1	<1	<0.5	<1	<1	<1	<1
AMW202	300508-12-LJ	30 May 2008	<1	~	<1	<1	<1	~	<1	$\vdash$	<1	<1	<2	<1	<1	<1	<1
AMW204	290508-08-LJ	29 May 2008	~	7	^1	~	7	~	~	~	~	~	<2	<1	<1	7	<1
AMW207	300508-09-LJ	30 May 2008	<1	7	<1	<1	~	<1	<1	7	<1	<1	<2	<1	<1	<1	<1
AMW206		30 May 2008	<1	~	<1	~	<1	<1	<1	~	<1	<1	<2	<1	<1	<1	<1
002 W IVID	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	<1	7	<1	<1	~	<1	<1	7	<1	<1	<2	<1	<1	<1	<1
ABH2110		30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ARH2100	300508-14-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
		17 Feb 2017	▽	~	~	$\overline{\lor}$	$\overline{\lor}$	~	~	$\forall$	~	~	⟨2	< <u>1</u>	~	$\overline{\lor}$	<1
BBH304	180608-06-LJ	18 Jun 2008	$\overline{\lor}$	▽	~	$\overline{\lor}$	~	~	~	$\overline{\lor}$	~	~	₽	~1	~	$\overline{\lor}$	$\overline{\ }$
BMW401	170608-01-LJ	17 Jun 2008	~	∵	~	~	7	~	~	7	~	\ \	$\Diamond$	<1	<1	7	<1
TOT WITH	BMW401	17 Feb 2017	~	∵	~	~	7	~	~	▽	~	~	\$	<1	~1	7	~
BMW402	170608-05-LJ	17 Jun 2008	~	7	^1	~	~	~	^	▽	~	^	<2	<1	<1	7	$\overline{\ }$
RMW403	170608-02-LJ	17 Jun 2008	~	7	^1	~1	7	~	^	~	<1	^	<2	<1	<1	7	^
COL HATE	BMW403	17 Feb 2017	~	7	~1	~	▽	~	~	7	~	< <u>-</u>	<2	<1	~1	7	~1
		17 Jun 2008	~	⊽	~	~	▽	~	~	⊽	7	7	\$	^	~	$\nabla$	^
BMW404	170608-04-LJ Field B	17 Jun 2008	~	∵	~	~	7	~	~	~	7	^	~	<0.5	^	▽	^1
	BMW404	17 Feb 2017	~	⊽	~	~	~	~	~	⊽	~	~	7	<1	< <u>-</u>	⊽	~
Limit of Reporting	porting		1	1	1	1	1	1	_	_	1	1	1	1	1	1	1
NEPM (201	NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters		50	,	,	,	,	'	'	'	,	,		,	,		

Concentrations above this action level are shown in **bold** text nt = Not Tested --- = Action Level not established BR = blind replicate

	Table 27: Ground Water Analytic	al Results - Nutrier	ıts		
Location	Sample ID	Date Sampled	Ammonia as N	Total Nitrogen	Total Phosphorous
		Units	mg/L	mg/L	mg/L
	290508-01-LJ	29 May 2008	4.1	5	0.87
4 ) (TV/202	AMW203	17 Feb 2017	1.1	1.4	nt
AMW203 —	QAQC1 Field blind replicate of AMW203	17 Feb 2017	1.1	1.3	nt
	QAQC2 Field split replicate of AMW204	17 Feb 2017	0.96	1.5	0.62
A DI 105	290508-02-LJ	29 May 2008	nt	nt	nt
ABH2105	ABH2105	17 Feb 2017	3	4.1	nt
1 DAY 200	290508-03-LJ	29 May 2008	nt	nt	nt
ABH202	ABH202	17 Feb 2017	0.73	1.8	nt
	290508-04-LJ	29 May 2008	2.4	5.1	0.81
AMW205	AMW205	17 Feb 2017	1	2.2	nt
	290508-05-LJ	29 May 2008	2	3.4	1.3
AMW201	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	2.1	3.4	1.1
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	0.971	2.7	2.7
AMW202	300508-12-LJ	30 May 2008	1.9	2.7	< 0.05
AMW204	290508-08-LJ	29 May 2008	7.2	6	0.28
AMW207	300508-09-LJ	30 May 2008	5.1	7.8	0.24
AMW206	300508-10-LJ	30 May 2008	3.1	7	1.1
AMW206	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	3.1	6.9	1.3
ABH2110	300508-13-LJ	30 May 2008	nt	nt	nt
A DI 12100	300508-14-LJ	30 May 2008	nt	nt	nt
ABH2100	ABH2100	17 Feb 2017	0.29	1.2	nt
BBH304	180608-06-LJ	18 Jun 2008	2.9	5.3	0.63
BMW401	170608-01-LJ	17 Jun 2008	< 0.1	9.5	0.06
BM W401	BMW401	17 Feb 2017	0.92	1.2	nt
BMW402	170608-05-LJ	17 Jun 2008	3	4.3	0.18
BMW403	170608-02-LJ	17 Jun 2008	14	21	0.19
DIVI W 403	BMW403	17 Feb 2017	8	9.2	nt
	170608-03-LJ	17 Jun 2008	4.4	5.6	1
BMW404	170608-04-LJ Field Blind Replicate of170608-03-LJ	17 Jun 2008	4.69	7	0.76
	BMW404	17 Feb 2017	1.7	2.8	nt
Limit of Reporti	ing		0.01	0.01	0.01
	Groundwater Investigation Levels (GILs) - Marine Waters		0.91	-	-

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

nt = Not Tested

-- = Action Level not established

BR: Blind replicate SPD: Split duplicate

			ľ	AAAUG03		W	MANUSOS		100/JANA	l	AMERICAN AND ADDRESS OF THE PERSON AND ADDRE	11000000	ACUTOR .	Action County	ANALOG ANALOG ANALOG ANALOG ANALOG ANALOGO ANALOGO	ŀ	2110	ADDISTOR	301611014	rounda	OVERVACE	100	COMMING	DAMMAG	-	id	101101	
	Location	tion	4	VM W20.5			MWZUS		AMW.201	1 1 100 100 100	AMW204	AMWZ07	VMW206	AMWZ06 AN	MWZ0Z AŁ	SHZ02 ABHZ	2110	ABHZIOO	ABHZIO	BBH304	BMW	101	BM W402	BM W40		1700	IW404	
	Sample	Sample ID 290508-01-IJ	U AMW203		QAQC1 Fiskl QAQC2 Fiskl blind replicate split replicate of AMW203 of AMW204	e 290508-04-LJ	U AMW205	290508-05-13	Field blind replicate of	Field split replicate of	290508-08-11 30	300208-09-17 300	300508-10-LI	Field blind 30050 replicate of	300508-12-LJ AB	ABH202 300508-13-1J	-13-IJ 300508-14-IJ	H.L. ABH2100	ABH2105	180608-06-11	130608.01.11	BAKWAOI	13008-0511	170608-07-11	BANWAM	Fig. 13.00	Field Blind Replicate	BMWd04
	Date Sampled	aled 29 May 2008	08 17 Feb 2017		17 Feb 2017 17 Feb 2017	7 29 May 2008	38 17 Feb 2017	29 May 2008	29 May 2008	29 May 2008	29 May 2008 3	30 May 2008 30	30 May 2008 30		30 May 2008 17 Fe	17 Feb 2017 30 May 2008	y 2008 30 May 2008	008 17 Feb 2017	7 17 Feb 2017	+	17 Jun 2008	17 Feb 2017	-		_			17 Feb 2017
Parameter LOR	Groundwater Groundwater Investigation Levels (GILs) Marine Water	-																										
omethane		Н	<10	<10	<50	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	< 10 nt		<10	<10	0₽>	<10	<10	<10	<10	<10	<10	- 050	<10
Chloromethane 50	/8n -	0 0	V10	×10	8 8	00 00	v 10	010	01×	8 8	01 010	0 0	00 00		+	v 10	8 1	v 10	v 10	7 0	0 00	v10	010	010	010	VIO	8 8	<10
		+	2	017	8 8	207	9	7 9	017	8 8	017	07 07	200	+	+	+	1	4	9	7 7	017	017	207	017	010	017	8 9	010
OC MINIO		+	9 5	710 710	8 8	01>	9	01>	<10	8 8	01>	>10	ol>			01 × 10	+	9 6	100	07	0 >	710	VIO	01>	C10	<10	8 8	710
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ms-1,3-dichloropropene 5	l'an -	~	7	7	10	~	7		V	10	⊽	▽	⊽	▽	▽	1>	ya .	۷1	۷1	~		1	-	~	۷1		\$	7
is-1,3-dichloropropene 5		>	^1	<1	yu .	~	1	·	<1	100	·	▽	▽	▽	▽	<1 nt	ya y	<1	<1	\ 	· ·	^1	>		<1	>	\$	۲>
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drachbroothene 5		-	7	7	*	~	7			. 5		. ^	. △			17		7	7	~		7						7
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ylbenzene 5	- 2	nt	<1	<1	<2	pu	<1	nt	nt	nt	nt	nt	nt	nt	. ut	<1 mt	yu u	<1	<1	-		<1	<1		<1	<1	<5	۷,
omo form 50		~	^1	<1	\$	~	<1	<1	V	\$	⊽	V	∇	▽	. □	<1 nt	ya y	<1	<1	<1	<1	<1	>		<1	-	\$	1
p-xylene 5	380		<2	<2	4	pu	<2	M	)d	pp	DI.	pp	pq	10	. Did	<2 mt	n n	<2	<2	4	4	<2	0	42	<2	₹	\$	<2
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1.2, 2-tetrachloroethane 5		+	7	7	01	~	7		~	٥.	~	~	▽ :	+	+		1	7	7	·		7	V :	V 1	7	V 1	\$ 1	7
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zene 5	Lgu -	⊽	^1	^1	\$	⊽	^1	▽	⊽	\$	⊽		∇	∇	⊽	<1 nt	ju j	^	^1	⊽	· ·	^1	>	⊽	^1	⊽	\$	^1
- propyl benzene 5	- ng/	>	<1	<1	<>	>	<1	>	>	DI.	>	>	₽	▽	. □	<1 nt	y Dt	<1	3	·	·	<1	<	>	<1	<	<>	<1
-ch brotolaene 5	- ng/	>	<1	<1	<>	>	<1	<1	>	<>	<1	▽	₽	▽	. □	<1 nt	y Dt	<1	<1	>	>	<1	<	>	<1	<	<>	<1
-ch brotoluene 5			7	^1	\$	⊽	7	√	⊽	<\$	⊽	⊽	⊽	⊽					7	⊽	⊽	۲۷	⊽	⊽	<1	⊽	<\$	7
5-trimethyl benzene 2	l'an -	⊽ :	₽.	7	\$	⊽:	₽.	⊽	⊽ :	bū	⊽ .	▽ '	▽ '	▽ '	⊽ .	1	+	7	7	7	⊽	₽.	7	⊽:	₽.	⊽ :	\$	₹.
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Sec-butyl benzene 2	l'on -	~	7	7	*	~	7	~	1>	10	~	▽	∇	▽		- 1 - m		7	7	~	~	7	~	~	7	~	\$	7
robenzene 5	l/din -	~	7	7	<>	V	7	~	V	<>	⊽	~	▽	▽		1> nt		^	^1	⊽	▽	7	>	~	7	⊽	<>	7
4-is opropyl foliation 5	/8n -	>	<1	<1	nt	>	<1	>	>	nt	>	⊳	⊳	⊳	. □	<1 nt	ta nt	<1	<1	>	-	<1	<1	>	<1	<1	<5	۷1
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A constraint of the	joss -	ļ	>	1	\$>	~	V	~	~	\$	~				l		l		~	V						~	<>	V

12,2-trichloro benzone
Conontrations above this action level are sh
nt = Not Tested
- = Action Lovel na established
BR: Blinst replicate

						T	ble 29: Gr	oundwate	Table 29: Groundwater Analytical Results - OCP	d Results -	OCP											
Location	Sample ID	Date Sampled	нсв	энд-вирга-ВИС	ЭНА-вттвд	реғя-ВНС	Нереясиюг	деня-внС	niriblA	Heptachlor Epoxide	датта-Съјогдапе	аірћа-Сћіот аяпе	I nsilusobnā	ninbloid	minora Endrin	ph-DDD		Endosulfan II DDT	Endrin Aldehyde	Endosulfan Sulphate	<b>Де</b> ғрох <b>усріо</b> г	
		Units	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	n T/Sn	n J/gn	ng/L n	ng/L u	T/gu T/gu	T ug/L	/L ug/I	/L ng/L	L	ng/L ug/L	T/gu T/	=	ng/L	П
	290508-01-LJ	29 May 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		-		<0.2 <0.2		.2 <0.2	-	<0.2 <(	<0.2 <0.2	.2 <0.2		<0.2	
COC(XI)AAA	AMW203	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2 <0.2	.2 <0.2	.2 <0.2		<0.2 <(	<0.2 <0.2	.2 <0.2	2 <0.2	<0.2	Π
AM W 203	QAQC1 Field blind replicate of AMW203	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 <0.2	.2 <0.2	.2 <0.2		<0.2 <(	<0.2 <0.2	.2 <0.	2 <0.2	<0.2	Π
	QAQC2 Field split replicate of AMW204	17 Feb 2017	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5		nt <	<0.5 <0.5	.5 <0.5		<0.5 <0	<0.5	<0.5 <0.5	.5 <0.5	5 <0.5	<0.5	
\$01CIIGA	290508-02-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt		nt nt	t nt	t nt	nt nt		nt nt	t nt	nt	nt	
ABH2103	ABH2105	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	2	<0.2	< 0.2	<0.2 <0.2	٧		<0.2 <0	<0.2 <(	<0.2 <0.2	.2 <0.2	2 <0.2	<0.2	
ABH202	290508-03-LJ	29 May 2008	nt	nt	nt	nt	nt	nt				nt			t nt						nt	
20211202	ABH202	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 <0.2	.2 <0.2			2	<0.2 <0.2	.2 <0.2	V	<0.2	
300/3004	290508-04-LJ	29 May 2008	<2	7>	<2	<2	2	\$													<2	
CO2 W IVIA	AMW205	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			<0.2	<0.2 <0.2			<0.2 <0	<0.2 <(	<0.2 <0.2			<0.2	
	290508-05-LJ	29 May 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	< 0.2	<0.2	<0.2	<0.2 <0.2	.2 <0.2			<0.2 <(	<0.2 <0.2			<0.2	
AMW201	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.2	<0.2 <0.2	.2 <0.2	.2 <0.2		<0.2 <(	<0.2 <0.2	.2 <0.2	2 <0.2	<0.2	
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	nt	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5		<0.5 <0.5				<0.5 <(	<0.5 <2		> <0.5	Q	
AMW202	300508-12-LJ	30 May 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 <0.2			<0.2 <0	<0.2 <(	<0.2 <0.2	.2 <0.2	2 <0.2	<0.2	
AMW204	290508-08-LJ	29 May 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2			<0.2 <0.2		_		<0.2 <(	<0.2 <0.2	_		<0.2	
AMW207	300508-09-LJ	30 May 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2		<0.2	<0.2 <0.2		_			<0.2 <0.2			<0.2	
90C/XIVV	300508-10-LJ	30 May 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			<0.2	<0.2 <0.2		_	<0.2 <0	<0.2 <(	<0.2 <0.2	.2 <0.2	2 <0.2	<0.2	
7 AINI W 200	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	2			0.2 <0.2		_						<0.2	
ABH2110	300508-13-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt nt	t nt	t nt		nt n	nt nt	t nt	nt	nt	
ABH2100	300508-14-LJ	30 May 2008	nt	nt	nt	Ħ	ııt	nt					-		4		-	_	-	_	nt	
	ABH2100	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 <0.2	.2 <0.2	.2 <0.2		<0.2 <(	<0.2 <0.2	.2 <0.2	2 <0.2	<0.2	
BBH304	180608-06-LJ	18 Jun 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2													<0.2	
DMWWAOI	170608-01-LJ	17 Jun 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			<0.2	<0.2	<0.2 <0.2				<0.2 <(	<0.2 <0.2	_		<0.2	
DIM W 401	BMW401	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 <0.2				<0.2 <(	<0.2 <0.2	_	2 <0.2	<0.2	
BMW402	170608-05-LJ	17 Jun 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2					<0.2 <0.2				<0.2 <(	<0.2 <0.2			<0.2	
BMW403	170608-02-LJ	17 Jun 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 <0.2		.2 <0.2		<0.2 <(	<0.2 <0.2		2 <0.2	<0.2	
	BMW403	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				-									<0.2	
		17 Jun 2008	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2											V		<0.2	T
BMW404	170608-04-LJ Field E	17 Jun 2008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5													Q	П
	BMW 404	17 Feb 2017	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2 <0.2	.2 <0.2		<0.2 <0	<0.2 <(	<0.2 <0.2	.2 <0.2	2 <0.2	<0.2	
Limit of Reporting	orting		0.2	0.2	0.2	0.2	0.2	0.2	0.7	0.2	0.2	0.2	0.2 0.2	2 0.2			0.2 0	0.2 0.2	2 0.2	0.2	0.2	
NEPM (201	NEPM (2013) Groundwater Investigation Levels (GILs) - Marine Waters	S	-	-	-		_					- 0	- 500.0	<u> </u>	0.004		Ļ	<u>.</u>	Ŀ	'		Г

NEPW (LOLS) COURTOWATCH INVOIGEMENT ACRES (CLIES) - NATH CONCENTRATIONS above the action level are shown in bold text cittle Represents results below the laboratory Practical Quantitation Limit. nt = Not Textod --- Action Level not established BR = blind repleate

Location	Sample ID	Date Sampled	Azinphos-methyl (Guthion)	Bromophos ethyl	Chlorpyriphos	Chlorpy riphos-methyl	Diazinon	Dichlorovos	Dimethoate	Ethion	Fenitrothion	Malathion	Parathion	Ronnel
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	290508-01-LJ	29 May 2008		< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
AMW203	AMW203	17 Feb 2017	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
11.11.1203	QAQC1 Field blind replicate of AMW203	17 Feb 2017	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	QAQC2 Field split replicate of AMW204	17 Feb 2017	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	<2	< 0.5
ABH2105	290508-02-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
115112105	ABH2105	17 Feb 2017	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
ABH202	290508-03-LJ	29 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
	ABH202	17 Feb 2017	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
AMW205	290508-04-LJ	29 May 2008	nt	<2	<2	<2	<2	nt	<2	<2	<2	nt	nt	<2
11.1111203	AMW205	17 Feb 2017	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	290508-05-LJ	29 May 2008	nt	< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
AMW201	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	nt	< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	nt	< 0.5	< 0.5	< 0.5	< 0.5	nt	< 0.5	< 0.5	nt	nt	nt	nt
AMW204	290508-08-LJ	29 May 2008	nt	< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
AMW207	300508-09-LJ	30 May 2008	nt	< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
AMW206	300508-10-LJ	30 May 2008	nt	< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
111111200	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	nt	< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
AMW202	300508-12-LJ	30 May 2008	nt	< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
ABH2110	300508-13-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
ABH2100	300508-14-LJ	30 May 2008	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
111111111111111111111111111111111111111	ABH2100	17 Feb 2017	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
BBH304	180608-06-LJ	18 Jun 2008	nt	< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
BMW401	170608-01-LJ	17 Jun 2008	nt	< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
B.1111 101	BMW401	17 Feb 2017	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
BMW402	170608-05-LJ	17 Jun 2008	nt	< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
BMW403	170608-02-LJ	17 Jun 2008	nt	< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
Bit111 103	BMW403	17 Feb 2017	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Į.	170608-03-LJ	17 Jun 2008	nt	< 0.2	< 0.2	< 0.2	< 0.2	nt	< 0.2	< 0.2	< 0.2	nt	nt	< 0.2
BMW404	170608-04-LJ Field Blind Replicate of170608-03-LJ	17 Jun 2008	nt	< 0.5	< 0.5	< 0.5	< 0.5	nt	< 0.5	< 0.5	< 0.5	nt	nt	nt
	BMW404	17 Feb 2017	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Limit of Repo	8		-	0.2	0.2	0.2	0.2	-	0.2	0.2	0.2	-	-	0.2
NEPM (2013	B) Groundwater Investigation Levels (GILs) - Marine Waters		-	-	0.009	-		-	-	-			-	
	d not established													

	Table	e 31: Groundwa	ter Analy	tical Resu	ılts - PCB					
Location	Sample ID	Date Sampled	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Total PCB
		Units	ug/L	ug/L						
	290508-01-LJ	29 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW203	AMW203	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
AIVI W 203	QAQC1 Field blind replicate of AMW203	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
	QAQC2 Field split replicate of AMW204	17 Feb 2017	nt	nt						
ABH2105	290508-02-LJ	29 May 2008	nt	nt						
АБП2103	ABH2105	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
ABH202	290508-03-LJ	29 May 2008	nt	nt						
ABH202	ABH202	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
AMW205	290508-04-LJ	29 May 2008	<20	nt	<20	<20	<20	<20	<20	<20
Alvi w 203	AMW205	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
AMW201	290508-05-LJ	29 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW201	290508-06-LJ Field blind replicate of 290508-05-LJ	29 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW201	290508-07-LJ Field split replicate of 290508-05-LJ	29 May 2008	nt	nt						
AMW204	290508-08-LJ	29 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW207	300508-09-LJ	30 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW206	300508-10-LJ	30 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW206	300508-11-LJ Field blind replicate of 300508-10-LJ	30 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
AMW202	300508-12-LJ	30 May 2008	<2	nt	<2	<2	<2	<2	<2	<2
ABH2110	300508-13-LJ	30 May 2008	nt	nt						
4 DI 12100	300508-14-LJ	30 May 2008	nt	nt						
ABH2100	ABH2100	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
BBH304	180608-06-LJ	18 Jun 2008	<2	nt	<2	<2	<2	<2	<2	<2
D) (W/401	170608-01-LJ	17 Jun 2008	<2	nt	<2	<2	<2	<2	<2	<2
BMW401	BMW401	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
BMW402	170608-05-LJ	17 Jun 2008	<2	nt	<2	<2	<2	<2	<2	<2
D) (IV/402	170608-02-LJ	17 Jun 2008	<2	nt	<2	<2	<2	<2	<2	<2
BMW403	BMW403	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
	170608-03-LJ	17 Jun 2008	<2	nt	<2	<2	<2	<2	<2	<2
BMW404	170608-04-LJ Field Blind Replicate of170608-03-LJ	17 Jun 2008	-	nt	-	-	-	-	-	nt
	BMW404	17 Feb 2017	<2	<2	<2	<2	<2	<2	<2	<2
Limit of Rep	porting	-	2	2	2	2	2	2	2	1
	3) Groundwater Investigation Levels (GILs) - Marine Wa	aters	-	-	-	-	-	-	-	-

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

BR = blind replicate

<sup>&</sup>lt;### Represents results below the laboratory Practical Quantitation Limit.</p>

nt = Not Tested

<sup>-- =</sup> Action Level not established

					Table 3	32: Sub-su	rface Gas	32: Sub-surface Gas Monitoring Results	g Results					
		Initial wall			Initial	well concentrations	rations					Well conc	entrations fo	Well concentrations following purging
	Ambient	pressure above		Flow Rate	$\mathrm{CH}_4$	$CO_2$	$O_2$	Maximum	Recovery	Total	Time	$\mathrm{CH}_4$	$CO_2$	$O_2$
Well ID	reading (ppm)	atmospheric (kPa)	Initial vent	L/hr	(%)	(%)	(%)	vacuum on well (psi)	time (min)	volume purged (L)	vented (Minutes)	(%)	(%)	(%)
ALG201	0	0	Nil	0	0.3	8.4	14.9	Unable to pu	rge as groun	dwater was s	ucked into th	e vacuum ta	Unable to purge as groundwater was sucked into the vacuum tank during monitoring	nitoring
ALG202	0	0	Nil	0	0.2	2.6	18.4	-20	2	40	1	0.2	0.2	20.8
ALG203	0	0	Nil	0	0.1	0.3	20.0	-20	1	40	1	0.2	0.2	20.8
ALG204	0	0	Nil	0	0.2	10.2	4.0	Unable to pu	rge as groun	dwater was s	ucked into th	e vacuum ta	Unable to purge as groundwater was sucked into the vacuum tank during monitoring	nitoring
ALG205	0	0	Nil	0	0.2	3.5	14.3	-20	1	40	1	0.2	3.7	13.6
ALG206	0	0	Nil	0	0.1	6.0	18.6	Unable to pu	rge as groun	dwater was s	ucked into th	e vacuum ta	Unable to purge as groundwater was sucked into the vacuum tank during monitoring	nitoring
BLG401	0	0	Nil	0	0.1	2.7	18.6	-20	1	50		0.1	11.9	6.1
BLG402	0	0	Nil	0	0.2	0.4	20.3	-20	1	50		0.2	0.2	20.8
BLG403	0	0	Nil	0	0.2	1.5	19.7	-20	1	40		0.1	1.4	19.4
BLG404	0	0	Nil	0	0.1	1.2	19.4	-20	1	40	-	0.1	1.2	19.5

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



# Appendix 1 Sampling Analysis and Quality Plan



# SAMPLING, ANALYSIS AND QUALITY PLAN:

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

REPORT ID: CES050706-BCC-01-F

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

Report ID: CES050706-BCC-01-F

# **TABLE OF CONTENTS**

1	Intro	duction	6
2	Obje	ctive and Scope of Work	8
3	Data	Quality Objectives	10
4	Site 1	nformation	14
	4.1	Site Identification	14
	4.2	Site Zoning and Land Use	14
	4.3	Topography	14
	4.4	Geology	15
	4.5	Hydrogeology	15
	4.5.	1 Regional Hydrogeology	15
	4.5.		15
	4.6	Acid Sulfate Soil Risk	16
5	Site I	History	17
	5.1	Historical Aerial Photographs	17
	5.1.	1 1930 (DLWC)	17
	5.1.	2 1943 (DMR)	17
	5.1.	3 1951 (DLWC)	18
	5.1.	4 1961 (DLWC)	18
	5.1.	5 1970 (DLWC)	19
	5.1.	6 1978 (DLWC)	19
	5.1.	7 1986 (DLWC)	19
	5.1.	8 1999 (DLWC)	19
6	Site (	Condition and Surrounding Environment	21
	6.1	Current Owner, Occupier And Operations	21



	6.2	Site Description	21
	6.3	Tanks and Associated Services	21
	6.4	Surrounding Land-use	21
	6.5	Summary of Previous Investigations	22
	6.5.	1 Cooks Cove Development Site	22
	6.5.2	2 Area A: Cooks Cove Development Site	24
	6.5	Bata Quality Review of Previous Investigations	24
7	Conc	eptual Model of Potential Contamination	26
	7.1	Potential Sources of Contamination and Associated COPc	26
	7.1.	1 Market Gardens	26
	7.1.2	2 Reclaimed Land	26
	7.1.	3 Landfill Activities	26
	7.1.4	4 Golf Course	27
	7.1.	Presence of Unlined Landfills on Adjacent Blocks	27
	7.1.0	Summary of Chemicals of Potential Concern	27
	7.2	Characteristics of Chemicals of Potential Concern	28
	7.2.	1 Metals and Metalloids	28
	7.2.2	2 Nutrients	28
	7.2.	Total Petroleum Hydrocarbons (TPHs) and BTEX Compounds	28
	7.2.	Polycyclic Aromatic Hydrocarbons (PAHs)	29
	7.2.:	Organochlorine Pesticides (OCPs) and Organophosphate Pesticides (OPPs)	29
	7.2.	6 Volatile Organic Compounds (VOCs)	29
	7.2.	7 Phenoxyacetic Acid Herbicides	30
	7.2.3	8 Phenols	30
	7.2.9	Asbestos Containing Materials (ACMs)	30
	7.3	Site Conditions	30
	7.4	Approach of Investigation	31
8	Propo	osed Soil, Groundwater and Gas Investigation	32
	8.1	Soil	32
	8.1.	Sampling Pattern, Location and Number of Sampling Points	32
	8.1.2	2 Sampling Depths	32
	8.1	Method of Sample Collection	33
	8.1.4	Decontamination Procedures.	35
	8.1.	Method of Sample Storage and Handling	35



8.1.6	Sample Logging	36
8.1.7	QA/QC Documentation	36
8.2 G	roundwater	37
8.2.1	Location and Number of Sampling Points	37
8.2.2	Well Construction	37
8.2.3	Well Development and Sample Collection	38
8.2.4	Decontamination Procedures	38
8.2.5	Sample Containers	39
8.2.6	Method of Sample Collection, Storage and Handling	39
8.2.7	Documentation	39
8.3 La	andfill Gas	40
8.3.1	Location and Number of Sampling Points	40
8.3.2	Well Construction	40
8.3.3	Well Development and Gas Monitoring	41
9 Propose	d Analytical Plan	43
9.1 Cl	hoice of Analytes	43
9.1.1	Soil	43
9.1.2	Groundwater	43
9.1.3	Landfill Gas	44
9.2 La	aboratory	45
9.3 A	nalytical Methods	45
9.3.1	Soil	45
9.3.2	Groundwater	45
9.3.3	Landfill Gas	45
10 Propose	d Site Assessment Criteria	46
10.1 Sc	oil	46
10.1.1	Aesthetics	46
10.1.2	Ecologically Based Investigation Levels	46
10.1.3	Health-Based Soil Investigation Levels	47
10.1.4	Asbestos in Soil	47
10.1.5	Acid Sulfate Soils	47
10.2 G	roundwater	48
10.3 La	andfill Gas	49
11 Propose	d Quality Control Plan	50



11.1 Fie	eld QA/QC Programme	50
11.1.1	Environmental Samples	50
11.1.2	Blind Replicate Samples	50
11.1.3	Split Samples	51
11.1.4	Rinsate (Equipment) Samples	51
11.1.5	Trip Blanks	52
11.1.6	Laboratory Prepared Trip Spikes	52
11.2 Lal	boratory QA/QC Programme	52
11.2.1	Laboratory Duplicate Samples	52
11.2.2	Laboratory Control Samples	53
11.2.3	Surrogates	53
11.2.4	Matrix Spike	53
11.2.5	Method Blanks	53
11.3 Da	ta Quality Objectives (DQO) and Acceptance Criteria	53
12 Reporting		55
13 Reference	es	56



# LIST OF TABLES

Table 1: Proposed sample locations

Table 2: Proposed analytical program

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

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

Table 5: Analytical parameters, PQLs and methods - Soil

Table 6: Analytical parameters, PQLs and methods - Groundwater.

Table 7: Site assessment criteria - Soils

Table 8: Site assessment criteria - Acid sulfate soils

Table 9: Summary of site assessment criteria - Groundwater

Table 10: Frequency of field QA/QC sampling

Table 11: QA/QC data acceptance criteria

# LIST OF FIGURES

Figure 1: Site location

Figure 2: Site plan of larger development site

Figure 3: Site plan showing proposed sample locations

# LIST OF APPENDICES

Appendix 1: Sample Field Data Sheets



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

Report ID: CES050706-BCC-01-F

# 1 INTRODUCTION

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

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

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

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



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

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

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



#### 2 OBJECTIVE AND SCOPE OF WORK

The objectives of the investigation are to:

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

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

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



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



# 3 DATA QUALITY OBJECTIVES

# **Step 1 - State the Problem**

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

# **Step 2 - Identify the Decision Statement**

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

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

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

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

# Step 3 - Identify inputs to the decision

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

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



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

#### **Step 4 - Define the boundaries of the study**

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

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

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

#### Step 5 - Develop a decision rule

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

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



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

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

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

- Impacted soil will be identified by concentrations exceeding the assessment criteria;
- Impacted groundwater will be identified by concentrations exceeding the assessment criteria;
- The presence of elevated concentrations of landfill gas will be identified by concentrations exceeding the assessment criteria;
- If contaminants of concern are detected in the trip blanks, then potential cross contamination may have occurred during sample transport. To assess whether this is the case, CES will check the trip blank results with the laboratory and compare the results with other blanks provide by the same laboratory. It is possible that detections in trip blanks may reflect background concentrations in laboratory-supplied water or analytical error. If it is concluded that decontamination procedures were inadequate CES will assess the severity of the cross contamination and subsequent impacts on the ability to resolve the decision question. Possible actions may include the raising of working detection limits or the collection of replacement data.
- If RPDs for blind replicates or split samples are outside the acceptable limits, then there may be errors in laboratory analysis process. When assessing duplicate pairs with elevated RPDs, CES will check the results with the laboratory(ies) and examine the nature of the sample being assessed, since heterogeneous samples can often provide high RPDs. If it is believed that irreversible errors have occurred during the laboratory process then additional investigation will be required to resolve the decision question.
- If any of the laboratory data quality tests do not meet the acceptable limits, the laboratory will be requested to retest samples or provide justification for the results.



### Step 6 - Specify acceptable limits on decision errors

There are two types of errors:

- a) Deciding that the site is acceptable for commercial and industrial land use when it actually is not (Type I error). The consequence of this error may be unacceptable ecological or health risk for future users of the site.
- b) Deciding that the site is unacceptable for commercial and industrial land use when it is acceptable (Type II error). The consequence of this error is that the client will pay for further investigation / remediation that is not necessary.

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

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

#### **Step 7 - Optimising the Design for Obtaining Data**

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

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



# 4 SITE INFORMATION

#### 4.1 SITE IDENTIFICATION

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

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

#### 4.2 SITE ZONING AND LAND USE

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

#### 4.3 TOPOGRAPHY

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

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



#### 4.4 GEOLOGY

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

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

#### 4.5 HYDROGEOLOGY

#### 4.5.1 Regional Hydrogeology

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

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

# 4.5.2 Local Hydrogeology

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



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

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

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

#### 4.6 ACID SULFATE SOIL RISK

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

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



# 5 SITE HISTORY

#### 5.1 HISTORICAL AERIAL PHOTOGRAPHS

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

# 5.1.1 1930 (DLWC)

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

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

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

#### 5.1.2 1943 (DMR)

The 1943 aerial photograph indicates that the Cooks River is still fairly torturous in comparison to the aligned state of the present day. The golf club is present on the site, with what appears to



be the present day club house in position. The site is generally covered in vegetation with some patches of sandy areas and some sealed sections around the clubhouse.

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

# 5.1.3 1951 (DLWC)

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

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

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

#### 5.1.4 1961 (DLWC)

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

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

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



### 5.1.5 1970 (DLWC)

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

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

#### 5.1.6 1978 (DLWC)

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

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

#### 5.1.7 1986 (DLWC)

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

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

#### 5.1.8 1999 (DLWC)

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

On neighbouring properties to the north small-scale construction and demolition works have been carried out. Houses on the corner of Marsh and West Botany Streets have been demolished. Directly north of the site across the river, some construction works or redevelopment activities



are being carried out. The central section of the Marsh Street overpass to the airport has been completed.

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

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

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

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



#### **6** SITE CONDITION AND SURROUNDING ENVIRONMENT

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

# 6.1 CURRENT OWNER, OCCUPIER AND OPERATIONS

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

#### 6.2 SITE DESCRIPTION

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

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

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

#### 6.3 TANKS AND ASSOCIATED SERVICES

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

#### 6.4 SURROUNDING LAND-USE

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



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

#### 6.5 SUMMARY OF PREVIOUS INVESTIGATIONS

# **6.5.1** Cooks Cove Development Site

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

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

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

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



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



# 6.5.2 Area A: Cooks Cove Development Site

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

# 6.5.2.1 CES (August, 2001)

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

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

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

# 6.5.3 Data Quality Review of Previous Investigations

#### 6.5.3.1 CES (August, 2001)

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

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



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

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



# 7 CONCEPTUAL MODEL OF POTENTIAL CONTAMINATION

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

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

#### 7.1 POTENTIAL SOURCES OF CONTAMINATION AND ASSOCIATED COPC

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

#### 7.1.1 Market Gardens

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

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

#### 7.1.2 Reclaimed Land

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

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

#### 7.1.3 Landfill Activities

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



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

#### 7.1.4 Golf Course

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

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

# 7.1.5 Presence of Unlined Landfills on Adjacent Blocks

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

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

# 7.1.6 Summary of Chemicals of Potential Concern

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

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



#### 7.2 CHARACTERISTICS OF CHEMICALS OF POTENTIAL CONCERN

#### 7.2.1 Metals and Metalloids

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

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

#### 7.2.2 Nutrients

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

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

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

### 7.2.3 Total Petroleum Hydrocarbons (TPHs) and BTEX Compounds

TPH and BTEX compounds are mostly associated with petroleum products. TPHs are divided into the  $C_6$ - $C_9$ ,  $C_{10}$ - $C_{14}$ ,  $C_{15}$ - $C_{28}$  and  $C_{29}$ - $C_{36}$  fractions based upon the number of carbon atoms within the compound. The  $C_6$ - $C_9$  fraction is considered to be the volatile fraction, with volatility and density decreasing with increasing number of carbon atoms. As a result, the  $C_6$ - $C_9$  fraction is generally the most mobile and will be present within the upper component of the aquifer, whereas the  $C_{29}$ - $C_{36}$  fraction is the leats mobile and will tend to accumulate at the bottom of an aquifer or on top of less permeable layers within the aquifer.

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



## 7.2.4 Polycyclic Aromatic Hydrocarbons (PAHs)

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

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

## 7.2.5 Organochlorine Pesticides (OCPs) and Organophosphate Pesticides (OPPs)

OCPs are chlorine-based pesticides which are now generally banned from use in most parts of the world due to their environmental impact and bioaccumulative potential within fatty tissue. They are generally rapidly broken down by sunlight within about two days and adsorb strongly to soil. Only minor concentrations of OCPs would be expected to be detected in groundwater as they do not dissolve easily.

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

## 7.2.6 Volatile Organic Compounds (VOCs)

The VOCs in question have a density greater than 1 and thus are termed Dense Non-Aqueous Phase Liquids (DNAPLs). Due to their greater density they are expected to accumulate at the bottom of the aquifer or in areas of lower permeability. Thus it becomes important to understand the location and extent of low permeability layers (*ie.* peat) across the site.

The VOCs present are degraded under reducing conditions such as those found in groundwater across the site. Therefore, it is expected that breakdown products of the original contaminants will be present. Of interest will be whether any VOCs detected on the site are the original solvent products or the products of the reductive dehalogenation breakdown process such as chloroethane.

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



## 7.2.7 Phenoxyacetic Acid Herbicides

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

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

#### 7.2.8 Phenols

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

Phenols are highly mobile in soil and are not likely to persist in the environment or bioaccumulate.

## 7.2.9 Asbestos Containing Materials (ACMs)

ACMs are man-made fibres that consist of asbestos. They include fibro sheeting, fire retardants and lagging of piping and other features.

Any degradation will result in the release of microscopic fibres which can be harmful to human health and potentially result in lung diseases. ACMs can be detected either as fibres within a soil sample or by submitting larger pieces of material to the laboratory for analysis.

#### 7.3 SITE CONDITIONS

Based on the results of previous investigations of the larger redevelopment site and knowledge of regional geology and hydrogeology, the following is understood about the site conditions likely to be encountered during the investigation:

• The CES (2001) investigation indicated that the general stratigraphy of the golf course consisted of sand and clay fill material underlain by natural alluvium of Hawkesbury Sandstone bedrock. Bedrock was encountered in BH108 at a depth of 1.5 m, although



- this borehole was located onto a bedrock outcrop. Depth to bedrock would be expected to extend to 20-30 m across the site; and
- Groundwater conditions were not assessed during the CES (2001) investigation. However, it is expected that groundwater would flow to the east and discharge into the Cooks River. Further, groundwater along the eastern portion of the site would be expected to be influenced by tidal variations in the Cooks River.

The site conditions described above indicate that any contamination on the site could easily migrate both vertically downwards and horizontally as there is little evidence of the presence of impervious or low permeability layers. Further, as the site has surface water receptors along it's eastern boundary, any horizontal migration would be likely to migrate off-site and into the Cooks River.

### 7.4 APPROACH OF INVESTIGATION

The investigation outlined in the remainder of this SAQP is designed to provide a delineation of the lateral and vertical extent of impacted soil and groundwater across the site, as well as provide an assessment of whether landfill gas is being generated.

As the major source of potential contamination is considered to be the adjacent landfilling activities, the investigation will focus on assessing whether the adjacent landfill has impacted on local soil and groundwater conditions. Boreholes will be drilled across the site with soil and groundwater samples analysed for the COPCs. The analytical suite selected will also include any additional COPCs identified in Section 7.1 of this document.



# 8 PROPOSED SOIL, GROUNDWATER AND GAS INVESTIGATION

### 8.1 **SOIL**

The following proposed soil sampling programme has been designed on the basis of a review of the site history.

# 8.1.1 Sampling Pattern, Location and Number of Sampling Points

A triangular or herringbone systematic (or grid) pattern will be used to locate boreholes across the site.

Summaries of the proposed sample locations and analytical programmes for soil and groundwater are provided in Tables 1, 2 and 3 respectively. The proposed sampling locations are shown on the attached site plan (Figure 3), with the exact locations to be determined during the sampling programme. Not all of the 108 sampling locations are shown in Figure 3. Five sampling locations have been reserved for targeted sampling of areas not adequately covered by the proposed grid and any potential contaminant sources that may be identified during the drilling programme.

A total of 108 sampling locations, which equates to a sample density of 5 sample points per hectare or a sampling grid of approximately 45 m, are proposed for the investigation. This is less than the minimum sampling points required for site characterisation as outlined in NSW EPA Sampling Design Guidelines (NSW EPA, 1995). A reduced sampling density has been proposed considering that the area will be developed for a less sensitive land use (*ie.* from open space to commercial and industrial) and that historical filling is likely to have occurred in a single episode. This provides a circular hotspot with a diameter of approximately 53 m that can be detected with 95 % confidence (Procedure F, NSW EPA, 1995). The exact depths of samples will be determined in the field based on FID readings and any adverse aesthetics indicating the presence of contamination (*eg.* odour or discoloured soil).

# 8.1.2 Sampling Depths

## 8.1.2.1 Boreholes

Boreholes will be extended to at least one metre into natural soil or drill rig refusal as this depth is expected to be the lower limit of the inferred vertical migration zone of contaminants associated with fill material.



In accordance with NEPC (1999) Data Collection, Sample Design and Reporting, samples will be collected from the near surface between 0-150 mm unless there is evidence of a thin superficial layer of impacted material. At greater depths, samples will be collected at 0.5-1.0 m intervals or at changes in fill or soil type and so that soil is also collected at depths where the presence of contamination is indicated (eg. based on unusual odour, colour, substances, liquids etc).

## 8.1.3 Method of Sample Collection

Care will be taken to ensure that representative samples are obtained and that the integrity is maintained, particularly when dealing with potentially volatile and semi-volatile components.

Samples will be collected in accordance with documented CES procedures by experienced staff. Samples will be collected using a track mounted rig with direct push tubes.

The soil will be transferred from the sample liners to the laboratory-supplied glass sample jar or resealable plastic bag using a new pair of disposable gloves for each sample. Samples will be stored in the manner outlined in Section 8.1.5.

Where there is sufficient sample volume, part of the sample will be placed in a re-sealable polyethylene bag for measurement of volatile soil gases using the closed headspace Photo Ionisation Detector (PID) or Flame Ionisation Detector (FID) method. The procedure for soil screening using a PID/FID is summarised as follows:

- 1. A corresponding sample to that selected for possible laboratory analysis is placed into a "snap-lock" or re-sealable plastic bag until half filled, then sealed;
- 2. The bag is then hand warmed (or left in sunlight) for ten minutes with occasional agitation to maximise the release of volatile compounds into the bag;
- 3. Calibrate the PID/FID instrument;
- 4. Measure background VOC concentrations in ambient air prior to each reading in order to account for sensor drift. Record on a field data sheet along with date, location details, depth and method (HS for headspace method);
- 5. Use the point of the PID/FID or a knife to punch a small hole in the top the plastic bag. Place the tip of the PID/FID in the bag and monitor the readout and note the maximum and minimum concentration during the recording period;
- 6. Make entries in field data sheets;



- 7. Repeat process outlined above for each sample (ie, background reading followed by sample reading);
- 8. Check instrument calibration against span gas at the conclusion of monitoring. A check should be undertaken after every 20 samples if more than 20 samples are to be tested. Calibration checks are to be recorded on field data sheets; and
- 9. Check that samples with high concentrations of volatile compounds in headspace gases have been included for laboratory analysis.

The PID/FID is a non-specific detector, as such, the instrument provides a measure of concentrations of total combustible and ionisable compounds reported as equivalents of a calibration span gas. Therefore, the data are used to compare concentrations of volatile compounds between samples without an understanding of the specific compounds present. PIDs/FIDs are generally calibrated using zero (ambient) air and methane/isobutylene span gases.

FIDs are capable of detecting a wide range of organic compounds from C<sub>1</sub> upwards including a number of chlorinated solvents. For this reason, samples of organic-rich sediments sampled from anoxic environments may display elevated concentrations of combustible gases. This is due to the ability of the FID to detect compounds such as methane.

Volatile concentrations detected by PIDs/FIDs are dependent on a number of factors including:

- The concentration and type of volatile compound present in the soil sample;
- Soil texture and compaction largely influence the potential for volatiles to be released from samples;
- Time since sample collection; and
- Temperature. This strongly affects the level of volatilisation of volatile compounds from soil and fill samples. In fact, temperature changes may result in differences of up to one order of magnitude in levels of volatiles detected using PIDs/FIDs. Consequently, field screening for volatiles should be undertaken at the same time for all samples in order to produce representative results. Generally, it is recommended that samples be stored on ice and returned to base. Screening should be carried out after allowing samples to equilibrate to ambient air temperatures.

As the site consists largely of dredged sediments, soil samples collected as part of the ASS assessment will be sampled from both above and below the water table. Samples will be placed



in a resealable plastic bag and frozen prior to transport to the laboratory. Field testing for PASS will be undertaken by the laboratory.

#### 8.1.4 Decontamination Procedures.

The following decontamination procedures will be adopted for drilling and sampling equipment.

#### 8.1.4.1 Boreholes

The boreholes will be established using a track mounted rig using a direct push tube sampling method. In order to minimise potential cross-contamination of the boreholes, all drilling equipment will be thoroughly cleaned between sampling points (set-ups) using a steam cleaner or pressure washer. Initially using Decon 90 and finally rinsed with clean water. Samples taken using the track mounted rig and the direct push tube sampling method do not require decontamination as dedicated liners are used to collect samples.

## 8.1.4.2 Sampling Equipment

Sampling equipment, such as trowels, will be washed between sampling locations using Decon 90 initially followed by adequate rinsing with clean water. To check the adequacy of the decontamination protocol, rinsate samples will be collected for analysis.

## 8.1.4.3 Sample Containers

The soil sample jars (Table 3) will comprise glass with a Teflon lined lid and be supplied by either the primary or secondary laboratory. The jars will be completely filled with soil, labelled with the job number, date, unique sampling point identification and initials of CES staff.

Resealable plastic bags will be used for the collection of samples for the ASS assessment.

## 8.1.5 Method of Sample Storage and Handling

The soil jars, once filled with sample, will immediately be placed in an esky / cool box in which ice has been added to keep the samples below a temperature of approximately 4°C. At the end of each day the samples in the cool box will be transported to the CES Sydney office where more ice will be added until delivery to the laboratory (within one day).

Samples collected for the ASS assessment will be frozen prior to transport to the laboratory.



## 8.1.6 Sample Logging

A borehole log will be completed during drilling by a qualified environmental engineer/scientist. The log records the following data:

- Sample number and depth;
- Soil classification, colour, consistency or density, odour and moisture content;
- Depth of boring / excavation;
- Auger / bucket refusal;
- Method of drilling / excavation;
- The depth of first encountered free water; and
- Presence or absence of odour and potential asbestos containing materials.

A copy of a blank borehole log is provided in Appendix 1.

All samples, including QA samples, will be transported to the primary and check laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COC will detail the following information:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date:
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch courier(s).

### 8.1.7 QA/QC Documentation

While on site, the supervising engineer/scientist will be required to fill out a copy of CES 'sample register', which documents:

- Time of sample collection;
- Weather:
- Unique sample identification number; and
- Sample location and depth.

All samples will be classified in the field based on soil/fill characteristics and obvious signs of contamination such as discolouration or odour will be noted on the borehole log.



All samples, including QA samples, will be transported to the primary and check laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COC will detail the following information:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date;
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch courier(s)

## 8.2 GROUNDWATER

## 8.2.1 Location and Number of Sampling Points

Six groundwater-monitoring wells will be installed across the site in order to ensure adequate site coverage. The proposed location of the groundwater monitoring wells is provided in Figure 3.

#### 8.2.2 Well Construction

The groundwater investigation will comprise the installation of six shallow groundwater monitoring wells at various locations across the site using a Geoprobe 6620DT drill rig. Groundwater wells are to be constructed using factory-decontaminated, 40 mm internal diameter Schedule 40 PVC machine slotted pre-packed screen sections, 1 mm sand pack, bentonite seal, steel monument set in concrete block at the surface. The use of pre-packed wells allows a gravel pack to be reliably installed around screens in collapsing formations.

Well construction will consist of the following:

- Probe rods fitted with an expendable drive point are driven to the desired depth ensuring approximately 0.5 m of screen is installed above the water table to allow sampling of LNAPLs and free-phase product;
- The well assembly (with end cap) is then lowered into the probe rod string with threaded PVC riser pipe. Once the well assembly is lowered to the bottom of the probe rod string, the probe rods are retracted to a point (approximately 1 metre) above the screen;



- In natural sands, where natural formation collapse (occurring during the initial probe rod retraction) occurs, using pre-pack screens negates the need to add sand. However CES propose to place additional fine-grade (1mm) sand through the rod annulus effectively placing sand from the base of the well to approximately one metre above the screen;
- Granular bentonite is to then be installed in the annulus above the sand pack to form a well seal;
- A PVC cap (screw, push-in or push-on) is to be installed on each well; and
- The well will be finished at the surface by the installation of a flush mounted steel gatic cover set in concrete.

# 8.2.3 Well Development and Sample Collection

Fieldwork will be undertaken in accordance with documented CES procedures by experienced staff. Depending on the volumes of water present, wells will be developed with a foot valve and using a Waterra Power Pack PP1 Pump. Following development of the wells, they will then be allowed to recharge before purging and sampling. The purging process will be undertaken using a low-flow method with drawdown control to limit drawdown to less than 0.05m. This will be done using either a peristaltic pump with inlet tubing set in the middle of the well screen or a bladder pump.

A calibrated water quality meter placed within a flow cell will be used during the purging process to assess chemical equilibrium by measuring pH, redox potential (Eh), electrical conductivity, dissolved oxygen and temperature. The parameters will be considered stable and at equilibrium when two consecutive readings (during the removal of each well volume) are within  $\pm 10\%$ . The water quality meter will be calibrated at the beginning and end of each sampling day by trained CES staff. Calibration standards are kept in the CES office and are appropriate for the water quality meter used.

## **8.2.4** Decontamination Procedures

The pumps used to re-develop each well will be decontaminated in between sample locations by washing in a solution of phosphate-free detergent followed by rinsing with distilled water. The peristaltic pump will not require decontamination since CES propose to use dedicated tubing for each well. Bladders will be disposable and used only once.



## 8.2.5 Sample Containers

Laboratory supplied sample containers will be used to contain the groundwater samples (Table 4). Sample containers will be filled in order of volatility, with the most volatile substances collected first. Care will be taken to minimise disturbance of the sample to avoid aeration by minimising the distance between the outlet tubing and the container, tilting the container so that discharge flows gently down the inner walls, and ensuring containers have no airspace, are capped tightly and placed in an ice cooler immediately.

## 8.2.6 Method of Sample Collection, Storage and Handling

All sample containers will be labelled with the sample number, project number, date obtained and site name. This information will be repeated on the Chain-of-Custody (COC) record form.

Sample containers will be filled in order of the most volatile substances. Care will be taken to minimise disturbance of the sample to avoid aeration by minimising the distance between the outlet tubing and the container and tilting the container so that discharge flows gently down the inner walls.

Once filled, the caps will be checked to ensure that they are secure (and that there are no air bubbles/head space) then placed within an esky / cool box in which a cooling medium has been added to keep the samples below a temperature of approximately 4°C. At the end of each sampling day the samples in the cool box will be transported to the CES office where ice will be added until delivered to the laboratory (within one day). Custody seals will be placed on the esky / cool box for delivery to the laboratory.

#### 8.2.7 Documentation

While on site, the supervising engineer/scientist will be required to fill out a copy of CES "Groundwater Sampling Field Data Sheet" and "Sample Register', which document:

- Time of sample collection;
- Weather;
- Unique sample identification number;
- Sample location and depth;
- Static Water Level;
- Water quality screening results (DO, Temperature, Redox potential, pH and conductivity);
- Presence or absence of odour (nature and intensity);



- Colour of the water;
- Presence or absence of sediment in the well; and
- Well condition and purging volumes.

Copies of these forms are provided in Appendix 1.

All samples, including QA samples, will be transported to the primary and check laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COC will detail the following information:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date;
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch couriers.

#### 8.3 LANDFILL GAS

## 8.3.1 Location and Number of Sampling Points

Six sub-surface gas monitoring wells will be installed across the sites southern boundary to assess whether landfill gas may be migrating onto the site. The proposed location of the sub-surface gas monitoring wells is provided in Figure 3.

#### **8.3.2** Well Construction

Wells will be constructed in accordance with the following specifications:

- Well casing will be Class 18, PVC with 25 to 50 mm internal diameter. Matching male and female threads fitted with O-ring seals were machined onto each length of screen;
- Well screens will be factory slotted and match the specifications as outlined above for casing;
- Wells will be installed to approximately one metre into the unconfined aquifer and be screened to approximately one metre from the surface;



- The annulus around well screens will be filled with washed, graded river gravel (filter pack);
- A bentonite seal will be installed above the filter pack;
- Push-on or threaded caps will be fitted to the base of each well;
- Caps with vapour monitoring ports shall be fitted to each of the sub-surface gas monitoring wells. The fittings will ensure that an "air tight" seal is maintained on the well between sampling events; and
- The wells will be finished using either galvanised steel monuments set in a concrete base or gatic covers concreted at ground level.

## 8.3.3 Well Development and Gas Monitoring

Depending on the volumes of water present, wells will be developed with a foot valve and using a Waterra Power Pack PP1 Pump.

Monitoring will be undertaken in accordance with procedures developed by CES based on techniques for soil-gas studies and landfill surface gas surveys. These procedures are currently used by CES on a number of landfill sites in the Sydney metropolitan region. An outline of subsurface gas monitoring methods is provided below. The procedure for monitoring landfill gas wells involves the following stages:

- Initial measurements and observations:
- Purge well by the application of vacuum; and
- Gas measurements in well.

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

- 1. Measure concentrations of combustible gases in the ambient air using a calibrated Flame Ionisation Detector (FID) or landfill gas analyser;
- 2. Inspect the well for damage;
- 3. Estimate the air volume in the gas monitoring well;
- 4. Measure formation pressure (gas pressure in well before venting) using a pressure gauge;
- 5. Vent gas while taking care not to breathe in the emissions. Note the response of the well to venting (eg, no response; brief initial pulse (typically 1-2 s), long pulse (>5 s) or continuous gas emission); and
- 6. Measure initial concentrations in the well. Use a gas sampling bag if the well discharges gas continuously when vented to atmospheric pressure.



The procedure for purging gas wells is summarised as follows:

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

It should be noted that recovery times of greater than 10 minutes should be considered to be suspect as the effect of sample train leakages is increased with long recovery times. If recovery times of greater than 10 minutes occur, the operator should conclude that the formation has a low permeability to gas, record the final vacuum (small gauge) and take no further action.

In addition to the monitoring discussed above, samples of landfill gas will be collected for analysis of Volatile Organic Compounds (VOCs). Samples will be collected by drawing a volume of air under pressure through activated carbon tubes. Samples will only be collected from wells that equilibrate to atmospheric pressure during the purging process. The tubes of activated carbon will then be submitted to the laboratory for VOC analysis. The tubes will be placed within eskies/coolers and transported to the laboratory within twenty four hours of collection.



# 9 PROPOSED ANALYTICAL PLAN

### 9.1 CHOICE OF ANALYTES

### 9.1.1 Soil

The analytes selected for soil testing have been determined based on our knowledge of past landuse and the results of previous investigations and will comprise:

- Metals and metalloids (arsenic, cadmium, chromium, copper, nickel, lead, mercury and zinc);
- Total Petroleum Hydrocarbons (TPH);
- Monocyclic Aromatic Hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Organochlorine Pesticides (OCPs);
- Polychlorinated Biphenyls (PCBs);
- Potential Asbestos Containing Materials (ACMs), as required;
- SPOCAS; and
- Salinity indicators such as pH, electrical conductivity, salinity, resistivity, texture, soluble sulfate and chloride.

### 9.1.2 Groundwater

#### 9.1.2.1 Field Parameters

Standard field measurements will be taken during purging of the wells, to ascertain when equilibrium is reached, prior to the collection of each groundwater sample. Measurements to be taken will be:

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



■ pH.

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

## 9.1.2.2 Laboratory Testing

The analytes selected for testing have been determined based on the results of previous investigations and with a view to future remediation. CES propose to analyse groundwater for:

- Dissolved metals and metalloids (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury);
- Major anions (chloride, sulfate and alkalinity) and cations (sodium, potassium, calcium and magnesium).
- Nutrients ammonia, nitrogen and phosphorous;
- Total Petroleum Hydrocarbon (TPH);
- Monocyclic Aromatic Hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs); and
- Salinity indicators such as salinity, total dissolved solids, corrosion potential (resistivity and saturation index), alkalinity, ammonia, sulfate and chloride.

### 9.1.3 Landfill Gas

The parameters selected for monitoring have been determined based on CES experience with sub-surface landfill gas monitoring of putrescible landfills in the Sydney metropolitan area. CES propose to monitor sub-surface gas wells for:

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

Methane, carbon dioxide and oxygen concentrations will be measured using a Landfill Gas Analyser (LGA) which will be calibrated at the beginning and end of each work day using manufacturer supplied calibration gases.

Landfill gas will also be analysed for VOCs as part of the human health risk assessment.



#### 9.2 LABORATORY

CES propose to use either Australian Laboratory Services (ALS) Pty Ltd or Labmark Pty Ltd (Labmark) as the primary and secondary 'check' laboratories for the soil and groundwater investigations. Both laboratories are NATA accredited for the above analyses. Bio-Track Pty Ltd will be used for the ASS assessment.

#### 9.3 ANALYTICAL METHODS

#### 9.3.1 Soil

Soil samples will be analysed in accordance with ANZECC (1996) Guidelines for the Laboratory Analysis of Contaminated Soils using USEPA and APHA approved analytical methods as described in Table 5. The laboratory Practical Quantitation Limits (PQLs) are also summarised in Table 5.

The SPOCAS analysis will be undertaken utilising the procedure outlined in the ASSMAC (1998) manual.

## 9.3.2 Groundwater

The water samples will be analysed using analytical methods based on US EPA and APHA methods as described in Table 6. The corresponding laboratory PQLs are also provided in Table 6.

## 9.3.3 Landfill Gas

The gas samples will be analysed using analytical methods based on US National Institute of Occupational Health and Safety (NIOSH) methods 1003, 1300, 1301, 1500 and 1501. The laboratory PQL is  $1 \mu g$  tube<sup>-1</sup>.



## 10 PROPOSED SITE ASSESSMENT CRITERIA

### 10.1 SOIL

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

#### 10.1.1 Aesthetics

Aesthetics relates to the generation of odours from the site and any discolouration of the soil as a result of contamination. Aesthetic issues will continually be addressed during the investigation and reported on the borehole logs.

## 10.1.2 Ecologically Based Investigation Levels

Potential ecological impacts have to be assessed for soils to be retained on site, which are not underneath buildings or slabs. To address potential ecological impacts of these soils, CES will compare the analytical testing results against the lower of the health based investigation levels a set of Ecological based Investigation Levels (EILs) that provides confidence that contaminant concentrations below these levels will not adversely impact specific flora proposed for the site.

Specific flora proposed for the site is not known therefore CES propose to adopt the interim urban Ecological Investigation Levels (EILs) as published in NEPC (1999), which are equivalent to the provisional Phytotoxicity-based Investigation Levels (PBIL) published in NSW EPA (1998). With respect to hydrocarbons, CES will adopt the ecologically based threshold concentrations as published in NSW EPA (1994) Guidelines for Assessing Service Station Sites.

The EILs are generally based on threshold levels for phytotoxicity or other impact to flora. As such, they are framed to protect the most sensitive environmental receptor. Both the NEPC EILs and the NSW EPA PBIL are provisional and only intended as a screening guide. Furthermore, the published levels specifically relate to sandy loams with a pH of between 6 and 8. If the proposed exposed soil does not fit this description, then field observations in conjunction with results of CEC, pH, clay content and organic content testing will be relied upon rather than the EILs.



A summary of the adopted EIL criteria is provided in Table 7.

## 10.1.3 Health-Based Soil Investigation Levels

To address potential health impacts at the site, CES will compare the analytical testing results against a set of Health Based Soil Investigation Levels (HIL) appropriate for the proposed landuse. That is, the HIL will be set at a level that provides confidence that contaminant concentrations below the HIL will not adversely affect human health.

It is understood that Area A will be redeveloped for commercial and industrial land use, while open space land use will be present around the perimeter of the site. Therefore, CES has adopted the following HIL criteria:

- NEPC (1999) Health Based Investigation Levels (HIL) recommended for exposure setting 'F' which includes commercial and industrial land use;
- NEPC (1999) Health Based Investigation Levels (HIL) recommended for exposure setting 'E' which includes recreational open space land use; and
- With respect to hydrocarbons (TPH and BTEX), the NSW EPA (1994) Threshold Levels.

For contaminants with no relevant Australian guidelines, CES will examine guideline levels from overseas which are appropriate for the future intended land-use (eg. USEPA Region 9 Preliminary Remediation Goals).

A summary of the soil assessment criteria is provided in Table 7.

# 10.1.4 Asbestos in Soil

The current EPA policy is that sites should not contain any Asbestos Containing Material (ACM) or asbestos fibres at the surface. For this project, CES propose that there must be no visible ACM and each soil sample collected must not contain any respirable asbestos fibres above the lower detection limit of the analytical method used by Australian Safer Environment and Technology Pty Ltd (ie 0.1 grams per kilogram).

## 10.1.5 Acid Sulfate Soils

ASSMAC (1998) criteria were selected to identify the presence of Acid Sulfate Soils on the site. These guidelines provide a series of trigger levels or action criteria, above which an ASS management plan should be prepared and development consent obtained prior to excavation



works (Table 8). The trigger levels are based on the percentage of oxidisable sulfur (or equivalent TPA, TAA) for broad categories of soil types. For projects that disturb more than 1000 tonnes of soil with  $\geq 0.03\%$  oxidisable sulfur or equivalent existing acidity, a detailed management plan and development consent will be required (Ahern *et al.*, 1998).

## 10.2 GROUNDWATER

Assessment criteria for groundwater will be derived from the ANZECC (2000) water quality guidelines.

Trigger values for marine water will be adopted for this study rather than freshwater guidelines, on the basis that the ultimate receiving system for groundwater at the site is the estuarine section of the Cooks River and ultimately Botany Bay.

The ANZECC (2000) water quality guidelines specify four sets of trigger values corresponding with different levels of protection for ecosystem conditions. Trigger values, derived using the statistical distribution method, relate to the protection of 99%, 95%, 90% and 80% of species in an aquatic ecosystem. Three "categories of ecosystem conditions" are developed in the guidelines. The guidelines advocate that the level of protection afforded to a particular ecosystem should be determined following consideration of site conditions in consultation with key stakeholders. The guidelines recommend that, in most cases, the 95% protection trigger values should be applied to "slightly to moderately disturbed" ecosystems. Consequently, the 95% protection trigger values have been adopted, following discussions with the Auditor. However, the ANZECC (2000) guidelines require that for chemicals which are bioaccumulative, such as mercury, that the 99 % protection trigger values be adopted. Therefore, the 99 % protection trigger value will be adopted for mercury.

In the absence of appropriate marine water levels, the 95% trigger values for freshwater will be utilised for o-xylenes. Additionally, ANZECC (2000) Low Reliability and Environmental Concern Levels (ECLs) will be utilised for TPH C<sub>6</sub>-C<sub>40</sub>. In the absence of any appropriate site assessment criteria for the remaining analytes detected, the EPA NSW (1994) *Guidelines for Assessing Service Station Site* threshold concentrations for "Waters – Protection of Aquatic Ecosystems" will be adopted for toluene, ethylbenzene and total xylenes. Assessment criteria for relevant parameters are summarised in Table 9.



# 10.3 LANDFILL GAS

EPA NSW (1996) specifies that a detection of methane above 1.25% v/v in sub-surface gas monitoring wells will require notification to EPA and an increase in the frequency of monitoring. This criterion will be adopted for the purposes of this investigation.



# 11 PROPOSED QUALITY CONTROL PLAN

Fieldwork will be undertaken by experienced staff in accordance with documented CES procedures as outlined in Section 7. Field and laboratory QA/QC requirements compliant with National Environmental Protection Council (1999) requirements are outlined below.

## 11.1 FIELD QA/QC PROGRAMME

Field QA/QC for this project consists of blind replicates, split samples, rinsate samples, trip spikes and trip blanks. A description of each of these samples and their proposed frequency of testing is provided below.

Rinsate samples are unlikely to be included in this investigation as the Geoprobe 6620DT drill rig utilises location specific core liners for the collection of soil samples. In addition, groundwater sampling will be undertaken using site specific tubing and equipment. However, a description of their collection and purpose has been provided below in the event that different sampling equipment becomes required.

## 11.1.1 Environmental Samples

Environmental samples or field samples are the representative samples of, groundwater or soil (in this case groundwater and soil) collected for analysis to determine aspects of their chemical composition.

# 11.1.2 Blind Replicate Samples

Blind replicate samples are provided by the collection of two environmental samples from the same location or successively from the same monitoring bore. These samples are preserved, stored, transported, prepared and analysed in an identical manner. As a minimum, the results of analyses on the blind replicate sample pair are assessed by calculating the Relative Percentage Differences (RPDs) between the results. The RPD is calculated as the difference between the results divided by their mean value and expressed as a percentage. If the RPD exceeds the value adopted for any analytes, additional investigation will be required, or justification provided for not conducting additional investigation.

One blind replicate will be collected for every ten environmental samples or one for each batch larger than five samples (Table 10). This equates to two blind replicates samples for this investigation.



## 11.1.3 Split Samples

Split samples provide a check on the analytical proficiency of the laboratories. Split samples are collected from the same location or successively from the same monitoring bore. Split samples must be taken from the same location as the blind replicate, thus becoming a triplicate sample. However, split samples are not taken as often as blind replicates. Split samples will generally be collected at a rate of one split sample for every 20 environmental samples or 5% of samples. For small batches split samples are collected subject to project requirements (Table 10). This equates to one split sample for this investigation

Spilt samples (triplicates) are preserved, stored, transported, prepared and analysed in an identical manner to environmental samples.

## 11.1.4 Rinsate (Equipment) Samples

Rinsate (equipment) blanks consist of pre-preserved bottles filled with laboratory-prepared water that has been passed over decontaminated field equipment. Rinsate blanks are prepared on site, labelled with a unique CES sample identification number and transported to the principle laboratory for analysis as regular environmental samples. The purpose of the rinsate blank is to assess the efficiency of decontamination procedures.

For inorganic compounds and semi-volatile organic compounds (SVOCs), rinsate water must consist of milli-Q water (distilled tap water passed through a resin de-ioniser). This water is unsuitable for the analysis of volatile organic compounds (VOC) due to the inclusion of volatiles in the milli-Q water. Only purged water is to be used for volatiles (VOC) rinsate blanks. This water is produced at the laboratory by purging spring water that has not been adulterated by VOCs as with tap water. Purged water is unsuitable for the production of rinsate samples for inorganics due to the presence of trace levels of inorganic compounds.

While the number of equipment blanks varies between projects, the following strategy is generally adopted (Table 10): a rate of one rinsate blank for each field collection (>5 samples). Rinsate sampling will be subject to project requirements for smaller batches (<5 samples).

Rinsate samples are not required if field equipment is dedicated for the specific sampling location.



## 11.1.5 Trip Blanks

Trip blanks consisting of pre-washed bottles containing distilled or de-ionised water and appropriate preservatives will be supplied by the analytical laboratory. The role of trip blanks is to detect potential contamination during sample transport. These samples reside in transport vessels during sampling activities and are not opened in the field. Trip blanks are analysed at the laboratory as regular samples or only for volatile organic compounds, as deemed appropriate.

One trip blank will be prepared for each field collection day as is the standard.

## 11.1.6 Laboratory Prepared Trip Spikes

Laboratory-prepared VOC spikes consisting of distilled, de-ionised water or sand spiked with known concentrations of BTEX should be included in QA/QC programmes where TPH and BTEX concentrations are being measured. Laboratory-prepared VOC spikes should be included at a rate of one per sample batch. These samples are to be submitted for BTEX analysis with results compared with the known additions. Generally, samples are spiked with concentrations of 10, 10, 10 and 30 ppm of benzene, toluene, ethylbenzene and total xylenes respectively. The purpose of these samples is to monitor VOC losses during transit.

Care will be taken to ensure that only freshly-prepared spiked samples are used. Spikes more than 2 days old at the time of receipt from the laboratory should be discarded. All trip spikes received will be checked for leakage or bubbles. Any spikes containing bubbles or any other defects will be discarded. Furthermore, only spikes delivered under laboratory COC will be accepted. COCs will be stored in the project file for reference.

## 11.2 LABORATORY QA/QC PROGRAMME

The reliability of test results from the analytical laboratories will be monitored according to the QA/QC procedures used by the NATA accredited laboratory. The QA/QC programme employed by ALS (the primary laboratory) will specify holding times, extraction dates, method descriptions, Chain of Custody (COC) requirements, analysis, PQLs and acceptance criteria for the results. Laboratory QA/QC requirements to be undertaken by ALS are based on NEPM requirements and are outlined below (NEPC, 1999).

# 11.2.1 Laboratory Duplicate Samples

Laboratory duplicates provide data on analytical precision for each batch of samples. Where required and in order to provide sufficient sample for analysis of laboratory duplicate, two



batches of samples are collected at the first site listed on the Chain of Custody form. This is done in order to ensure that sufficient sample is collected.

Laboratory duplicates are performed at a rate of one duplicate for batches of 6-14 samples with an additional duplicate for each subsequent ten samples.

## 11.2.2 Laboratory Control Samples

Laboratory control samples consist of a clean matrix (de-ionised water or clean sand) spiked with a known concentration of the analyte being measured. These samples monitor method recovery in clean samples and can also be used to evaluate matrix interference by comparison with matrix spikes. Laboratory control samples may be certified reference materials.

## 11.2.3 Surrogates

For organic analyses, a surrogate is added at the extraction stage in order to verify method effectiveness. The surrogate is then analysed with the batch of samples. Percent recovery is calculated.

## 11.2.4 Matrix Spike

A matrix spikes consist of samples spiked with a known concentration of the analyte being measured, in order to identify properties of the matrix that may hinder method effectiveness. Samples are spiked with concentrations equivalent to 5 to 10 times the PQL. Percent recovery is calculated.

#### 11.2.5 Method Blanks

Method blanks (de-ionised water or clear sand) are carried through all stages of sample preparation and analysis at a rate of approximately 10%. Analyte concentrations in blanks should be less than the stated PQL. Reagent blanks are run if the method blank exceeds the PQL. The purpose of method blanks is to detect laboratory contamination.

## 11.3 DATA QUALITY OBJECTIVES (DQO) AND ACCEPTANCE CRITERIA

The QA/QC Data will be assessed against the Data Acceptance Criteria (DAC) provided in Table 11. If data does not meet the DAC then the following steps will be taken:

Request that the laboratory re-check or even re-analyse the sample; and



- Inspect the sample for anomalies which may be causing the failure; and
- If necessary, undertake additional sampling and analyses; or
- Qualify data. For example, data may be used for screening purposes only or working PQLs may be raised.



# 12 REPORTING

The proposed monitoring programme outlined in this SAQP, including field and laboratory methods and results, will be reported in accordance with the requirements of guidelines adopted by NSW EPA.



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Project ID: CES050706-BCC-01-F



# **TABLES**



Table 1: Proposed Sampling Locations					
Sample Location	Sampling Pattern	Location Rationale	Potential Contaminants of Concern for analysis	Method of Sample Collection	
BHAE100 series	Triangular Grid	Located on grid pattern across eastern portion of site.	General Suite (Table 2)	Boreholes	
BHAW100 series	Triangular Grid	Located on grid pattern across western portion of site.	General Suite (Table 2)	Borehole	
MWA101	Targetted	Located in south western corner of site.	General Suite (Table 2)	Soil and groundwater well	
MWA102	Targetted	Located along central westen boundary of site.	General Suite (Table 2)	Soil and groundwater well	
MWA103	Targetted	Located in north eastern corner of site.	General Suite (Table 2)	Soil and groundwater well	
MWA104	Targetted	Located towards middle of site.	General Suite (Table 2)	Soil and groundwater well	
MWA105	Targetted	Located along central eastern boundary of site.	General Suite (Table 2)	Soil and groundwater well	
MWA106	Targetted	Located in south eastern corner of site.	General Suite (Table 2)	Soil and groundwater well	
LGA101	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well	
LGA102	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well	
LGA103	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well	
LGA104	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well	
LGA105	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well	
LGA106	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well	



Table 2: Proposed Analytical Program				
Matrix	No. of Sampling Points	Potential Contaminants	Number of Environmental Samples to be Analysed	
Soil	108	General Suite	Metals and metalloids (162) TPH/BTEX (81) PAHs (81) OCPs/OPPs (54) VOCs (27) PAAHs (27) Phenols (27) Nutrients (27) Asbestos (37) SPOCAS - field (27) SPOCAS (12)	
Groundwater	6	General Suite	Metals and metalloids (6)  Major ions (6)  Nutrients (6)  TPH/BTEX (6)  PAHs (6)  Salinity indicators (6)	



Table 3: Containers, preservation requirements and holding times – Soil						
Parameter	Container	Preservation	Maximum holding time	Colour code		
Acid digestible metals and metalloids (As, Cd, Cr, Cu, Ni, Pb, Zn, Sn)	250 mL glass	Nil	6 months	Orange		
Mercury	250 mL glass	4°C	28 days	Orange		
TPH/BTEX	250 mL glass	4°C	14 days	Orange		
PAHs	250 mL glass	4°C, zero headspace	14 days	Orange		
OCPs/OPPs/PCBs	250 mL glass	4°C, zero headspace	14 days	Orange		
VOCs, PAAHs, Phenols	250 mL glass	4°C, zero headspace	14 days	Orange		
Nutrients	250 mL glass	4°C	7 days	Orange		
Asbestos	Sealed plastic bag	Nil	Nil	Nil		
SPOCAS	Sealed plastic bag	Frozen	Nil	Nil		
Salinity indicators	Sealed plastic bag - min 1500g	Nil	Nil	Nil		



Table 4: Containers, preservation requirements and holding times – Groundwater					
Parameter	Container	Preservative	Maximum	Colour	Field
	Volume (mL)		holding time	Code	Filtered
Metals and metalloids	125 mL Plastic	$HNO_3 / 4^{\circ}C$	6 months	Red	Yes
Anions	250 ml Plastic	None / 4°C	48 Hrs	Green	No
Cations	125 mL Plastic	HNO <sub>3</sub> / 4°C	7 days	Red	Yes
Nutrients	250 ml Plastic	$H_2SO_4 / 4$ °C	28 days	Purple	No
TPH (C <sub>6</sub> -C <sub>9</sub> )/BTEX/VOCs	4 x 43 mL Glass	HCl / 4°C	14 days	Orange	No
TPH (C <sub>10</sub> -C <sub>36</sub> )/PAHs	1000 mL Glass	None / 4°C	28 days	Orange	No
PAAHs, Phenols	1000 mL Glass	None / 4°C	28 days	Orange	No
Salinity Indicators	1000 mL	None / 4°C	48 Hrs	Green	No



Parameter	Unit	PQL	Method Based On
N	Tetals and Metalloid	s in Soil	
rsenic 1	mg kg <sup>-1</sup>	1	USEPA 200.7
admiun <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
nromium <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
opper <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
ercury <sup>2</sup>	mg kg <sup>-1</sup>	0.1	USEPA 7471A
ickel 1	mg kg <sup>-1</sup>	1	USEPA 200.7
ead <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
nc <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
Total Petroleum I	Hydrocarbons (TPH)	and BTEX C	Compounds
<sub>5</sub> -C <sub>9</sub> fraction	mg kg <sup>-1</sup>	2	USEPA 8015B
<sub>10</sub> -C <sub>14</sub> fraction	mg kg <sup>-1</sup>	50	USEPA 8015B
<sub>15</sub> -C <sub>28</sub> fraction	mg kg <sup>-1</sup>	100	USEPA 8015B
<sub>29</sub> -C <sub>36</sub> fraction	mg kg <sup>-1</sup>	100	USEPA 8015B
otal C <sub>6</sub> -C <sub>36</sub>	mg kg <sup>-1</sup>		USEPA 8015B
enzene	mg kg <sup>-1</sup>	0.2	USEPA 8021A
oluene	mg kg <sup>-1</sup>	0.5	USEPA 8021A
hylbenzene	mg kg <sup>-1</sup>	0.5	USEPA 8021A
&p-xylene	mg kg <sup>-1</sup>	1	USEPA 8021A
xylenes	mg kg <sup>-1</sup>	0.5	USEPA 8021A
	Organics in So	il	
olycyclic Aromatic Hydrocarbons	mg kg <sup>-1</sup>	0.5-1	USEPA 8270 SIM
rganochlorine Pesticides	mg kg <sup>-1</sup>	0.05-0.2	USEPA 8081A
olychlorinated Biphenyls	mg kg <sup>-1</sup>	0.1	USEPA 8081A
	Asbestos		
sbestos	-	-	Polarised Light Microscopy
	SPOCAS analys		
POCAS	% or mol H <sup>+</sup> tonne		Ahern <i>et al</i> (1998)
т	Salinity Indicate		A C2150 1005
ectrical Conductivity	pH units μS cm <sup>-1</sup>	0.01	AS2159:1995 AS2159:1995
<u>*</u>	<del> </del>		
esistivity	ppt Ohms	1	AS2159:1995 AS2159:1995
oluble sulfate	mg kg <sup>-1</sup>		
olubie Sulfate	mg kg	10	AS2159:1995 AS2159:1995



Parameter	Unit	PQL	Method Based On
	Metals in W	ater	
Arsenic	μg L <sup>-1</sup>	1	USEPA 200.8
Cadmium	μg L <sup>-1</sup>	0.1	USEPA 200.8
Chromium	μg L <sup>-1</sup>	1	USEPA 200.8
Copper	μg L <sup>-1</sup>	1	USEPA 200.8
Mercury	μg L <sup>-1</sup>	0.1	USEPA 7470
Nickel	μg L <sup>-1</sup>	1	USEPA 200.8
Lead	μg L <sup>-1</sup>	1	USEPA 200.8
Zinc	μg L <sup>-1</sup>	5	USEPA 200.8
M	ajor Ions in	Water	
Cations (Na <sup>+</sup> , K <sup>+</sup> , Ca <sup>2+</sup> , Mg <sup>2+</sup> )	mg L <sup>-1</sup>	1	USEPA 200.7
Anions (Cl <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , HCO <sub>3</sub> <sup>-</sup> , CO <sub>3</sub> <sup>2-</sup> )	mg L <sup>-1</sup>	1	APHA 2320
	Nutrient	s	
Total Nitrogen	mg L <sup>-1</sup>	0.1	APHA 20 <sup>th</sup> Ed 4500
Ammonia	mg L <sup>-1</sup>	0.1	APHA 20 <sup>th</sup> Ed 4500 NH <sub>3</sub> -H
Total Phosphorous	mg L <sup>-1</sup>	0.1	USEPA 600/4-79-020
Total Petroleum	Hydrocark	ons (TPI	H) in Water
C <sub>6</sub> -C <sub>9</sub> fraction	μg L <sup>-1</sup>	50	USEPA 8015B
C <sub>10</sub> -C <sub>14</sub> fraction	μg L <sup>-1</sup>	50	USEPA 8015B
C <sub>15</sub> -C <sub>28</sub> fraction	μg L <sup>-1</sup>	400	USEPA 8015B
C <sub>29</sub> -C <sub>36</sub> fraction	μg L <sup>-1</sup>	100	USEPA 8015B
В	TEX Comp	ounds	
Benzene	μg L <sup>-1</sup>	1	USEPA 5030/8260B
Toluene	μg L <sup>-1</sup>	1	USEPA 5030/8260B
Ethylbenzene	μg L <sup>-1</sup>	1	USEPA 5030/8260B
ortho-Xylenes	μg L <sup>-1</sup>	2	USEPA 5030/8260B
meta- and para-Xylenes	μg L <sup>-1</sup>	1	USEPA 5030/8260B
Organic	Contamina	nts in W	ater
Polycyclic Aromatic Hydrocarbons	μg L <sup>-1</sup>	0.5	USEPA 8270/EP032B
S	alinity Indi	cators	
рН	pH units	0.1	AS2159:1995
Electrical conductivity	μS cm <sup>-1</sup>	1	AS2159:1995
Salinity	ppt	1	AS2159:1995
Total dissolved solids	mg L <sup>-1</sup>	1	AS2159:1995
Resistivity	Ohms	1	AS2159:1995
Saturation Index	-	-	AS2159:1995
Alkalinity	mg L <sup>-1</sup>	1	AS2159:1995
Ammonia	mg L <sup>-1</sup>	0.01	AS2159:1995
Sulfate	mg L <sup>-1</sup>	0.1	AS2159:1995
Chloride	mg L <sup>-1</sup>	0.1	AS2159:1995



Table 7: Site Assessment Criteria – Soils (mg kg <sup>-1</sup> )				
Contaminant	HIL (Setting F)	HIL (Setting E)	EIL	Source
Arsenic (total)	500	200	20	NEPC (1999) – Schedule (B1)
Benzo(a)pyrene	5	2	-	NEPC (1999) – Schedule (B1)
Cadmium	100	40	3	NEPC (1999) – Schedule (B1)
Chromium (III)	60 %	24 %	400	NEPC (1999) – Schedule (B1)
Copper	5000	2000	100	NEPC (1999) – Schedule (B1)
Lead	1500	600	600	NEPC (1999) – Schedule (B1)
Mercury (inorganic)	75	30	1	NEPC (1999) – Schedule (B1)
Nickel	3000	600	60	NEPC (1999) – Schedule (B1)
Zinc	35 000	14 000	200	NEPC (1999) – Schedule (B1)
Total PAHs	100	40	-	NEPC (1999) – Schedule (B1)
TPH C <sub>6</sub> -C <sub>9</sub>	65	65	-	NSW EPA (1994)
TPH C <sub>10</sub> -C <sub>40</sub>	1000	1000	-	NSW EPA (1994)
Benzene	1	1	-	NSW EPA (1994)
Toluene	130	130	-	NSW EPA (1994)
Ethylbenzene	50	50	-	NSW EPA (1994)
Total Xylene	25	25	-	NSW EPA (1994)
Aldrin + Dieldrin	50	20	-	NEPC (1999) – Schedule (B1)
Chlordane	250	100	-	NEPC (1999) – Schedule (B1)
DDT+DDD+DDE	1000	400	-	NEPC (1999) – Schedule (B1)
Heptachlor	50	20	-	NEPC (1999) – Schedule (B1)
Polychlorinated Biphenyls	50	20	-	NEPC (1999) – Schedule (B1)



Table 8: Action criteria based on ASS soil analysis					
Type of Material		Action Criteria		Action Criteria if more than	
		1-1000 tonnes disturbed		1000 tonnes disturbed	
	Approx. clay	Sulfur trail	Acid trail	Sulfur trail	Acid trail
Texture range <sup>1</sup>	content	% S oxidisable	mol H+/tonne	% S oxidisable	mol H+/tonne
1 exture range	(%<0.002 mm)	(oven-dry basis) eg	(oven-dry basis) eg	(oven-dry basis) eg	(oven-dry basis)
		$S_{TOS}$ or $S_{POS}$	TPA or TSA	S <sub>TOS</sub> or S <sub>POS</sub>	eg TPA or TSA
Coarse Texture	≤5	0.03	18	0.03	18
Sands to loamy sands	≥3	0.03	10	0.03	10
Medium Texture					
Sandy loams to light	5-40	0.06	18	0.03	18
clays					
Fine Texture					
Medium to heavy	≥40	0.1	18	0.03	18
clays and silty clays.					
Source: Ahern et al. (1998a) Table 4.4.					



Table 9: Su	immary of site assessment	criteria - groundwater
Parameter	Criterion (µg L <sup>-1</sup> )	Source and Comments <sup>1</sup>
	Metals and Metallo	ids
Arsenic (V)	13	ANZECC 2000 (95 % freshwater)
Cadmium	5.5	ANZECC 2000 (95 % marine)
Chromium VI	4.4	ANZECC 2000 (95 % marine)
Copper	1.3	ANZECC 2000 (95 % marine)
Nickel	70	ANZECC 2000 (95 % marine)
Lead	4.4	ANZECC 2000 (95 % marine)
Zinc	15	ANZECC 2000 (95 % marine)
Mercury (inorganic)	0.1	ANZECC 2000 (99 % marine)
	Nutrients	
Nitrate	10 000	ANZECC 2000 <sup>6</sup>
Ammonia	910	ANZECC 2000
	TPH and BTEX	
TPH C <sub>6</sub> -C <sub>36</sub>	285	ANZECC 2000 <sup>5</sup>
Benzene	700	ANZECC 2000
Toluene	180	ANZECC 2000 <sup>2</sup>
Ethylbenzene	5	ANZECC 2000 <sup>2</sup>
m + p xylene	ID	ANZECC 2000 <sup>2</sup>
o-xylene	350	ANZECC 2000
Total xylenes	380	EPA NSW 1994 <sup>3</sup>
	Polycyclic Aromatic Hydr	ocarbons
Fluoranthene	1	ANZECC 2000 <sup>2</sup>
Phenanthrene	0.6	ANZECC 2000 <sup>2</sup>
Anthracene	0.01	ANZECC 2000 <sup>2</sup>
Benzo(a)pyrene	0.1	ANZECC 2000 <sup>2</sup>
Napthalene	50	ANZECC 2000 (99%)
	Organic Compound	ls
Organochlorine Pesticides	Various	ANZECC 2000 <sup>2</sup>
Polychlorinated Biphenyls	Various	ANZECC 2000 <sup>2</sup>
Volatile Organic Compounds	Various	ANZECC 2000 <sup>2</sup>
Dissolved methane	-	-

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

Note 2: ANZECC 2000 low reliability threshold in marine water.

Note 3: EPA NSW 1994 Guidelines for Assessing Service Stations.

Note 4: ID - insufficient data for guideline development.

Note 5: Addition of the combined detection limits

Note 6: ANZECC 2000 recreational waters guideline



Table 10: Frequency of Field QA/QC sampling				
Environmental samples	Blind replicates	Split sample	Rinsate Blanks (if required)	
0 – 5	Subject to project requirements			
5 - 10	1	0	1	
10 – 15	1	1	1	
>15	10%	5%	1	



QA/QC Sample Type	Method of Assessment	Acceptable Range
	Field QA/QC	
Blind Replicates and Split Samples	The assessment of split replicate is undertaken by calculating the Relative Percent Difference (RPD) of the replicate concentration compared with the original sample concentration. The RPD is defined as:	The acceptable range depends upon the levels detected:  • 0 - 100% RPD (When the average concentration is < 5 times the PQL)  • 0 - 75% RPD (When the average concentration is 5 to 10 times the PQL)  • 0 - 50% RPD (When the average concentration is > 10 times the PQL)
Laboratory-prepared Trip Spikes	The trip spike is analysed after returning from the field and the % Recovery of the known spike.	70% - 130%
Blanks (Rinsate and Trip blanks)	Each blank is analysed as per the original samples.	Analytical Result < PQL
	Laboratory QA/QC	
Laboratory Duplicates	Assessment as per Split Replicates.	The acceptable range depends upon the levels detected:  • 0 - 100% RPD (When the average concentration is < 4 times the PQL)  • 0 - 50% RPD (When the average concentration is 4 to 10 times the PQL)  • 0 - 30% RPD (When the average concentration is > 10 times the PQL)
Surrogates  Matrix Spikes  Laboratory Control  Samples	Assessment is undertaken by determining the % Recovery of the known spike or addition to the sample.  C - A  Recovery = 100 x  B  Where: A = Concentration of analyte determined in the original sample; B = Added Concentration; C = Calculated Concentration.	Surrogates:  70% – 130%  Matrix Spikes:  70% - 130% (Organics)  80% - 120% (Inorganics)  LCS:  70% - 130% (Organics)  90% - 110% (Inorganics)
Method Blanks	Each blank is analysed as per the original samples.	Analytical Result < PQL

Project ID: CES050706-BCC-01-F



# **FIGURES**



# **APPENDIX 1 Sample Field Data Sheets**



# SAMPLING, ANALYSIS AND QUALITY PLAN:

ENVIRONMENTAL SITE ASSESSMENT, AREA B - PROPOSED GOLF COURSE NORTH, COOKS COVE DEVELOPMENT SITE PREPARED FOR BOYD COOK COVE.

REPORT ID: CES050706-BCC-02-F

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# SAMPLING, ANALYSIS AND QUALITY PLAN: ENVIRONMENTAL SITE ASSESSMENT, AREA B - PROPOSED GOLF COURSE NORTH, COOKS COVE DEVELOPMENT SITE. PREPARED FOR BOYD COOK COVE.

Report ID: CES050706-BCC-02-F

# **TABLE OF CONTENTS**

1 Introduction		
Objec	etive and Scope of Work	7
Data	Quality Objectives	9
Site I	nformation	13
4.1	Site Identification	13
4.2	Site Zoning and Land Use	13
4.3	Topography	13
4.4	Geology	13
4.5	Hydrogeology	14
4.5.	Regional Hydrogeology	14
4.5.		14
4.6	Acid Sulfate Soil Risk	15
Site (	Condition and Surrounding Environment	16
5.1	Current Owner, Occupier And Operations	20
5.2	Site Description	20
5.3	Tanks and Associated Services	20
5.4	Surrounding Land-use	20
5.5	Summary of Previous Investigations	21
5.5.		21
	1	23
Site I	Iistory	16
6.1	Historical Aerial Photographs	16
6.1.		16
6.1.		16
	Object Data 6 Site In 4.1 4.2 4.3 4.4 4.5 4.5.1 4.5.2 4.6 Site C 5.1 5.2 5.3 5.4 5.5 Site In 6.1 6.1.1	Objective and Scope of Work Data Quality Objectives Site Information 4.1 Site Identification 4.2 Site Zoning and Land Use 4.3 Topography 4.4 Geology 4.5 Hydrogeology 4.5.1 Regional Hydrogeology 4.5.2 Local Hydrogeology 4.6 Acid Sulfate Soil Risk Site Condition and Surrounding Environment 5.1 Current Owner, Occupier And Operations 5.2 Site Description 5.3 Tanks and Associated Services 5.4 Surrounding Land-use 5.5 Summary of Previous Investigations 5.5.1 Cooks Cove Development Site 5.5.2 Area B: Cooks Cove Development Site Site History 6.1 Historical Aerial Photographs 6.1.1 1930 (DLWC)



6.1.3	1951 (DLWC)	17
6.1.4	1961 (DLWC)	17
6.1.5	1970 (DLWC)	18
6.1.6	1978 (DLWC)	18
6.1.7	1986 (DLWC)	18
6.1.8	1999 (DLWC)	18
7 Proposed	d Soil, Groundwater and Gas Investigation	26
7.1 Sc	pil	32
7.1.1	Sampling Pattern, Location and Number of Sampling Points	32
7.1.2	Sampling Depths	32
7.1.3	Method of Sample Collection	33
7.1.4	Decontamination Procedures.	35
7.1.5	Method of Sample Storage and Handling	35
7.1.6	Sample Logging	35
7.1.7	QA/QC Documentation	36
7.2 G1	coundwater	37
7.2.1	Location and Number of Sampling Points	37
7.2.2	Well Construction	37
7.2.3	Well Development and Sample Collection	38
7.2.4	Decontamination Procedures	39
7.2.5	Sample Containers	39
7.2.6	Method of Sample Collection, Storage and Handling	39
7.2.7	Documentation	39
7.3 La	andfill Gas	40
7.3.1	Location and Number of Sampling Points	40
7.3.2	Well Construction	40
7.3.3	Well Development and Gas Monitoring	41
8 Proposed	d Analytical Plan	43
8.1 Cł	noice of Analytes	43
8.1.1	Soil	43
8.1.2	Groundwater	43
8.1.3	Landfill Gas	45
8.2 La	aboratory	45
8.3 A1	nalytical Methods	45
8.3.1	Soil	45



8.3.2	Groundwater	46
9 Proposed Site Assessment Criteria		47
9.1 Soi	1	47
9.1.1	Health-Based Soil Investigation Levels	48
9.1.2	Asbestos in Soil	48
9.1.3	Acid Sulfate Soils	48
9.2 Gro	oundwater	49
9.3 Lar	9.3 Landfill Gas	
10 Proposed	Quality Control Plan	51
10.1 Fie	ld QA/QC Programme	51
10.1.1	Environmental Samples	51
10.1.2	Blind Replicate Samples	51
10.1.3	Split Samples	52
10.1.4	Rinsate (Equipment) Samples	52
10.1.5	Trip Blanks	53
10.1.6	Laboratory Prepared Trip Spikes	53
10.2 Lab	poratory QA/QC Programme	53
10.2.1	Laboratory Duplicate Samples	53
10.2.2	Laboratory Control Samples	54
10.2.3	Surrogates	54
10.2.4	Matrix Spike	54
10.2.5	Method Blanks	54
10.3 Dar	ta Quality Objectives (DQO) and Acceptance Criteria	54
11 Reporting	Ţ,	56
12 Reference	es	57



# LIST OF TABLES

- Table 1: Proposed sample locations
- Table 2: Proposed analytical program
- Table 3: Containers, preservation requirements and holding times Soil
- Table 4: Containers, preservation requirements and holding times Groundwater
- Table 5: Analytical parameters, PQLs and methods Soil
- Table 6: Analytical parameters, PQLs and methods Groundwater.
- Table 7: Site assessment criteria Soils
- Table 8: Site assessment criteria Acid sulfate soils
- Table 9: Summary of site assessment criteria Groundwater
- Table 10: Frequency of field QA/QC sampling
- Table 11: QA/QC data acceptance criteria

# LIST OF FIGURES

- Figure 1: Site location
- Figure 2: Site plan of larger development site
- Figure 3: Site plan showing proposed sample locations

# LIST OF APPENDICES

Appendix 1: Sample Field Data Sheets



# SAMPLING, ANALYSIS AND QUALITY PLAN: ENVIRONMENTAL SITE ASSESSMENT, AREA B - PROPOSED GOLF COURSE NORTH, COOKS COVE DEVELOPMENT SITE. PREPARED FOR BOYD COOK COVE.

Report ID: CES050706-BCC-02-F

#### 1 INTRODUCTION

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

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

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

- Area A (Proposed business and technology park): The northern portion of the CCD site located between the East-West Link to the south and Northern Pocket Park to the north (~21 ha);
- Area B: The golf course area between the East-West Link to the north and the SWSOOS to the south (~9.5 ha);
- Area C: The playing fields located between the SWSOOS to the north and the Spring Creek Channel to the south. These fields are located on a former putrescible waste landfill (~33 ha);
- Area D: The areas adjacent to the St George Soccer Stadium between the Spring Creek Channel to the north and Bestic Park to the south. These areas are located on a former waste landfill (~13 ha); and
- Area E: The area occupied by Firmstone Gardens located between Area C and West Botany Street (~1 ha). Information sources suggest that this area was also subject to landfilling.



This document refers to Area B, the second most northern portion of the CCD site, herein referred to as 'the site' or 'Area B' (Figure 2). Area B covers an area of approximately 9.5 Ha and is currently occupied by the southern portion of Kogarah Golf Club. It is proposed that this portion of the site will be retained by Kogarah Golf Club and in the new development will consist of the northern portion of the new golf course design.

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



#### 2 OBJECTIVE AND SCOPE OF WORK

The objectives of the investigation are to:

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

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

- Preparation of Sampling, Analysis and Quality Program (SAQP);
- Drill sampling locations in a grid pattern across Area B so that statistical analysis can be used (if required) to assess whether this area is suitable for the proposed use as a golf course without any or major remediation works and to be able to assess the size of contamination hotspots (approximately 53m in diameter) which may be encountered during the investigation. A total of 48 sample locations (which equates to a sample density of 5 sample points per hectare or a sampling grid of approximately 45m) are proposed for the investigation. This sample density is less than the minimum sampling points required for site characterisation outlined in the NSW EPA (1996) Sampling Design Guidelines. A reduced sampling density has been proposed considering that the land use of the current area will not be changing as part of the development;
- Four (4) of the boreholes will be converted into groundwater monitoring wells and four (4) into gas monitoring wells. The boreholes for the groundwater wells will be extended to the base of fill or to bedrock refusal;
- Soil/fill samples will be analysed for metals and metalloids (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg), Total Petroleum Hydrocarbons (TPH), the monocyclic aromatic hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), Organochlorine Pesticides (OCPs), Organophosphate Pesticides (OPPs), Volatile Organic Compounds (VOCs), Phenoxyacetic Acid Herbicides (PAAHs), nutrients (nitrogen and phosphorus), phenols and potential Asbestos Containing Materials (ACMs). In addition, pieces of potential ACMs will be analysed as appropriate;
- Soil samples collected as part of the ASS assessment will be field screened, with select samples analysed for the Suspension Peroxide Oxidation Combined Acidity and Sulfate (SPOCAS) analysis;



- Soil samples collected as part of the salinity assessment will be analysed for pH, electrical conductivity, salinity, resistivity, texture, soluble sulfate and chloride;
- Wells will be installed using Geoprobe prepacked screens, which will be developed prior to sampling. Groundwater sampling will be undertaken using low-flow methods with minimum drawdown;
- Undertake sampling and analysis on all newly installed wells as well as existing groundwater wells BH106, BH107, BH304 and BH305, if locatable and in sound condition;
- Groundwater samples will be analysed for field parameters (depth to water table, temperature, pH, electrical conductivity, dissolved oxygen and redox potential) dissolved metals and metalloids, major ions, nutrients, TPH, BTEX, PAHs, OCPs, OPPs, VOCs, PAAHs and phenols;
- As part of the salinity assessment, groundwater samples will also be analysed for pH, electrical conductivity, salinity, total dissolved solids, resistivity, saturation index, alkalinity, ammonia, sulfate and chloride;
- Gas wells will be monitored to assess concentrations of methane, carbon dioxide, oxygen and combustible gasses as well as formation gas pressures and gas flow rates; and
- The results of the environmental assessment works for Area B will be prepared into a report which will outline the results of the former investigations along with the results of the current investigation and either conclude that Area B is suitable for the continuation of the existing open space land use or recommend any further investigations or remediation which may be required.



# 3 DATA QUALITY OBJECTIVES

# **Step 1 - State the Problem**

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

# **Step 2 - Identify the Decision Statement**

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

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

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

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

# Step 3 - Identify inputs to the decision

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

- The key contaminants of concern as identified from the findings from previous consultant investigations and more recently by CES;
- The installation of 48 boreholes across the site, with four boreholes converted to groundwater monitoring wells and four boreholes converted to gas monitoring wells. In addition, it will be attempted to locate four existing groundwater monitoring wells installed on the site by previous investigations;
- Collection of soil samples at regular depth intervals in each borehole;
- Collection of groundwater samples from each of the groundwater monitoring wells following development and purging in accordance with appropriate methods;
- Standing water levels to be recorded in each monitoring well prior to sampling;
- Monitoring of landfill gas characteristics in each of the sub-surface gas monitoring wells;



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

#### **Step 4 - Define the boundaries of the study**

The site has been referred to as Area B of the Cooks Cove Development site. It is bound by Area A to the north, Marsh Street to the west, the Cooks River to the east and the M5 East and SWSOOS easements to the south. There is currently no obvious northern boundary, although it will be defined prior to undertaking the field component of this investigation.

The legal description of the developable land is Part of Lot 11 in Deposited Plan (DP) 570900, and Part of Lot 1 DP 108492. It is located within the Local Government Area (LGA) of Rockdale, Parish of St George, County of Cumberland.

A site survey plan including the site and individual allotment boundaries, building locations and other relevant detail is provided as Figure 2.

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

#### **Step 5 - Develop a decision rule**

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

The parameters of interest (or contaminants of concern) in the soil for this investigation are metals and metalloids, TPH, BTEX, PAHs, OCPs, PCBs and asbestos. For the groundwater investigation, the contaminants of concern are metals and metalloids, nutrients, TPH, BTEX and



PAHs. In addition to soil and groundwater, landfill gas is also a potential contaminant of concern.

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

The types of data quality required during the fieldwork component of the investigation and for the laboratory analyses are specified in Sections 10.1 and 10.2 respectively. The acceptable limits for this data are defined in Table 11.

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

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



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

# Step 6 - Specify acceptable limits on decision errors

There are two types of errors:

- a) Deciding that the site is acceptable for recreational open space land use when it actually is not (Type I error). The consequence of this error may be unacceptable ecological or health risk for future users of the site.
- b) Deciding that the site is unacceptable for recreational open space land use when it is acceptable (Type II error). The consequence of this error is that the client will pay for further investigation / remediation that is not necessary.

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

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

#### **Step 7 - Optimising the Design for Obtaining Data**

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

The resource effective data collection design that is expected to satisfy the DQOs is described in detail in Section 10. To ensure the design satisfies the DQOs a comprehensive Quality Assurance and Quality Control plan will be implemented as described in Section 11.



#### 4 SITE INFORMATION

#### 4.1 SITE IDENTIFICATION

The site is referred to as Area B of the Cooks Cove Development site, Cooks Cove, NSW. It is located in the northern portion of the development site and covers an approximate area of 9.5 Ha. The legal description of the developable land is Part of Lot 11 in Deposited Plan (DP) 570900, and Part of Lot 1 DP 108492. It is located within the Local Government Area (LGA) of Rockdale, Parish of St George, County of Cumberland.

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

#### 4.2 SITE ZONING AND LAND USE

The overall site is currently zoned for open space/recreational land use and is currently occupied by the Kogarah Golf Club for its golf course. It is not proposed to change the zoning of the site as part of the development.

#### 4.3 TOPOGRAPHY

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

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

#### 4.4 GEOLOGY

The Sydney 1:100 000 Geological Series map indicates that the site is underlain by silty to peaty quartz sand, silt and clay. Ferruginous and humic cementation occurs in places with common



shell layers also reported. This material is most likely of alluvial origin, deposited as sub-aerial and sub-aqueous components of the Cooks River delta. This deposit has been reworked significantly in the last century as part of river diversion and training works. These works would have involved significant dredging operations.

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

#### 4.5 HYDROGEOLOGY

# 4.5.1 Regional Hydrogeology

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

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

#### 4.5.2 Local Hydrogeology

CES (2001) undertook a search of the groundwater database at the DLWC (now DIPNR). A total of 66 registered groundwater wells were identified within a 2 km radius of the centre of the Cooks Cove Development site. Work summaries are presented in Appendix 1. Twenty five wells are registered for "General Use" with a further 17 registered for "Domestic Use". Wells for general use were registered between 1950 and 1969 while wells for domestic use were registered between 1991 and 2000. It is proposed that general and domestic wells refer to use by private persons for non-potable use. The different classes are attributed to a change in well classification methods by the DLWC.

Three wells are registered for recreational or irrigation use. All of these wells are registered to local sporting facilities, including the Kogarah Golf Club (installed in 1966). Twenty one of the wells are registered for environmental monitoring or testing. Sixteen of these wells are registered in association with the M5 East Motorway. None of these wells are located within Area B.



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

#### 4.6 ACID SULFATE SOIL RISK

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

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



## 5 SITE HISTORY

#### 5.1 HISTORICAL AERIAL PHOTOGRAPHS

Historical aerial photographs from the Department of Land and Water Conservation were examined. Aerial surveys have typically been conducted every 8-10 years with the earliest photographs being taken in 1930. The following photographs were examined for this report: 1930; 1951; 1961; 1970; 1978; 1986, 1994 and 2002. In addition, the 1943 aerial photograph acquired by the Department of Main Roads (DMR), now the Roads and Traffic Authority (RTA), was also examined. The findings of air photo investigations are as presented below.

# 5.1.1 1930 (DLWC)

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

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

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

#### 5.1.2 1943 (DMR)

The 1943 aerial photograph indicates that the Cooks River is still fairly torturous in comparison to the aligned state of the present day. The golf club is present on the site, with what appears to



be the present day club house in position. The site is generally covered in vegetation with some patches of sandy areas and some sealed sections around the clubhouse.

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

# 5.1.3 1951 (DLWC)

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

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

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

#### 5.1.4 1961 (DLWC)

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

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

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



#### 5.1.5 1970 (DLWC)

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

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

#### 5.1.6 1978 (DLWC)

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

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

#### 5.1.7 1986 (DLWC)

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

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

#### 5.1.8 1999 (DLWC)

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

On neighbouring properties to the north small-scale construction and demolition works have been carried out. Houses on the corner of Marsh and West Botany Streets have been demolished. Directly north of the site across the river, some construction works or redevelopment activities



are being carried out. The central section of the Marsh Street overpass to the airport has been completed.

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

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

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

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



#### **6** SITE CONDITION AND SURROUNDING ENVIRONMENT

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

### 6.1 CURRENT OWNER, OCCUPIER AND OPERATIONS

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

#### 6.2 SITE DESCRIPTION

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

Current access to the site is through Area A of the larger development site, that is, the northern portion of the existing Kogarah Golf Club. The site consists of features typical of a golf course such as greens, fairways, sand bunkers and surface water bodies.

The majority of the site is unsealed.

#### 6.3 TANKS AND ASSOCIATED SERVICES

No Underground Storage Tanks (USTs) or Above Ground Storage Tanks (ASTs) are known to have previously existed on the site.

#### 6.4 SURROUNDING LAND-USE

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

■ *North* – The northern portion of the Kogarah Golf Club, that is, Area A of the CCD site, forms the northern boundary of the site;



- South The M5 East and SWSOOS easements form the southern boundary of the site;
- *East* The Cooks River forms the eastern boundary of the site. To the east of the Cooks River is the International Terminal of Kingsford Smith Airport; and
- West Marsh Street and a wetlands area form the western boundary of the site.
   Residential properties are located on the western side of Marsh Street.

#### 6.5 SUMMARY OF PREVIOUS INVESTIGATIONS

# **6.5.1** Cooks Cove Development Site

The following environmental and geotechnical investigation reports have been prepared for the entire CCD Site.

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

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

- The CCD site has been subjected to extensive filling. The type and depth of filling varies across the CCD site;
- The subsurface conditions underlying Areas A and B generally consist of fill sands to depths of 0.2 to 0.8 metres below ground level (mBGL) underlying alluvial sands and



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



# 6.5.2 Area B: Cooks Cove Development Site

From the information review, Area B has been subjected to a number of potentially contaminating activities including agricultural activities (entire area), reclamation of land using dredged sediments (eastern and southern boundary), miscellaneous filling (entire area) and activities/operations associated with the maintenance of the golf course. It is possible that the southern portion of Area B has been subjected to, and/or affected by, the landfilling activities known to have occurred on the adjoining Area C. A summary of the reports relevant to the soil and groundwater quality at the site is provided below.

#### 6.5.2.1 CES (August, 2001)

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

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

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

#### 6.5.2.2 Golders (2002)

Golders were commissioned to undertake a contamination investigation and prepare a conceptual remediation approach for the CCD site by Page Kirkland Management (Golders, 2002). The portion of the investigation undertaken on Area B of the CCD site included the excavation of ten test pits and the installation of two groundwater monitoring wells (BH304 and BH305).

Analytical data from the test pits is not provided in the report. Chromium concentrations were detected in soil samples collected from BH305 at depths of 0.5-0.7 and 2.6-3.0 m that exceeded the adopted phytoxicity guideline levels. Concentrations of other parameters in soil were less than the adopted assessment criteria. Elevated ammonia concentrations were detected in groundwater sampled from BH304 (7.96 and 6.67 mg L<sup>-1</sup>) and BH305 (7.24 and 7.79 mg L<sup>-1</sup>). No other groundwater parameters were detected at elevated concentrations.



#### 6.5.3 Data Quality Review of Previous Investigations

#### 6.5.3.1 CES (August, 2001)

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

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

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

#### 6.5.3.2 Golders (2002)

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

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

"...to generate data quality that was consistent with the objectives of the investigation. This mainly consisted of generating quality data on the soil and groundwater conditions in the areas



targeted for sampling. The key elements to achieve the DQO related to implementation of the field work, collection of quality control samples and generation of internal laboratory quality control data to support the reported results and the assessment of laboratory results."

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

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

The above QA/QC programme is generally acceptable for the purposes of the investigation. QA/QC components that were not undertaken or addressed were the absence of split samples during the soil and water sampling programme and the absence of a trip blank during the soil sampling programme.



#### 7 CONCEPTUAL MODEL OF POTENTIAL CONTAMINATION

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

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

#### 7.1 POTENTIAL SOURCES OF CONTAMINATION AND ASSOCIATED COPC

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

#### 7.1.1 Market Gardens

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

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

# 7.1.2 Reclaimed Land

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

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

#### 7.1.3 Landfill Activities

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



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

#### 7.1.4 Golf Course

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

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

# 7.1.5 Presence of Unlined Landfills on Adjacent Blocks

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

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

# 7.1.6 Summary of Chemicals of Potential Concern

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

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



#### 7.2 CHARACTERISTICS OF CHEMICALS OF POTENTIAL CONCERN

#### 7.2.1 Metals and Metalloids

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

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

#### 7.2.2 Nutrients

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

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

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

# 7.2.3 Total Petroleum Hydrocarbons (TPHs) and BTEX Compounds

TPH and BTEX compounds are mostly associated with petroleum products. TPHs are divided into the  $C_6$ - $C_9$ ,  $C_{10}$ - $C_{14}$ ,  $C_{15}$ - $C_{28}$  and  $C_{29}$ - $C_{36}$  fractions based upon the number of carbon atoms within the compound. The  $C_6$ - $C_9$  fraction is considered to be the volatile fraction, with volatility and density decreasing with increasing number of carbon atoms. As a result, the  $C_6$ - $C_9$  fraction is generally the most mobile and will be present within the upper component of the aquifer, whereas the  $C_{29}$ - $C_{36}$  fraction is the leats mobile and will tend to accumulate at the bottom of an aquifer or on top of less permeable layers within the aquifer.

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



# 7.2.4 Polycyclic Aromatic Hydrocarbons (PAHs)

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

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

# 7.2.5 Organochlorine Pesticides (OCPs) and Organophosphate Pesticides (OPPs)

OCPs are chlorine-based pesticides which are now generally banned from use in most parts of the world due to their environmental impact and bioaccumulative potential within fatty tissue. They are generally rapidly broken down by sunlight within about two days and adsorb strongly to soil. Only minor concentrations of OCPs would be expected to be detected in groundwater as they do not dissolve easily.

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

# 7.2.6 Volatile Organic Compounds (VOCs)

The VOCs in question have a density greater than 1 and thus are termed Dense Non-Aqueous Phase Liquids (DNAPLs). Due to their greater density they are expected to accumulate at the bottom of the aquifer or in areas of lower permeability. Thus it becomes important to understand the location and extent of low permeability layers (*ie.* peat) across the site.

The VOCs present are degraded under reducing conditions such as those found in groundwater across the site. Therefore, it is expected that breakdown products of the original contaminants will be present. Of interest will be whether any VOCs detected on the site are the original solvent products or the products of the reductive dehalogenation breakdown process such as chloroethane.

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



# 7.2.7 Phenoxyacetic Acid Herbicides

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

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

#### 7.2.8 Phenols

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

Phenols are highly mobile in soil and are not likely to persist in the environment or bioaccumulate.

# 7.2.9 Asbestos Containing Materials (ACMs)

ACMs are man-made fibres that consist of asbestos. They include fibro sheeting, fire retardants and lagging of piping and other features.

Any degradation will result in the release of microscopic fibres which can be harmful to human health and potentially result in lung diseases. ACMs can be detected either as fibres within a soil sample or by submitting larger pieces of material to the laboratory for analysis.

### 7.3 SITE CONDITIONS

Based on the results of previous investigations of the larger redevelopment site and knowledge of regional geology and hydrogeology, the following is understood about the site conditions likely to be encountered during the investigation:

 Bore logs for BH304 and BH305 (Golders, 2002) indicate that approximately one metre of fill material is present across Area B. The fill material encountered in these two



boreholes consisted of fine to medium grained silty or gravely sand. The underlying alluvium consisted of silty sands and clays with layers of peat material;

- Bedrock was not encountered in either BH304 or BH305 at final depths of 6 and 7.5 m respectively; and
- Groundwater was encountered at approximately 1.2 m in both boreholes. Groundwater present across the site would be expected to flow to the east into the Cooks River.

The site conditions described above indicate that any contamination on the site could easily migrate both vertically downwards and horizontally as, with the exception of the clayey peat layer present at the base of the landfill, there is little evidence of the presence of impervious or low permeability layers. Further, as the site has surface water receptors along it's eastern boundary, any horizontal migration would be likely to migrate off-site and into the Cooks River.

### 7.4 APPROACH OF INVESTIGATION

The investigation outlined in the remainder of this SAQP is designed to provide a delineation of the lateral and vertical extent of impacted soil and groundwater across the site, as well as provide an assessment of whether landfill gas is being generated.

As the major source of potential contamination is considered to be the adjacent landfilling activities, the investigation will focus on assessing whether the adjacent landfill has impacted on local soil and groundwater conditions. Boreholes will be drilled across the site with soil and groundwater samples analysed for the COPCs. The analytical suite selected will also include any additional COPCs identified in Section 7.1 of this document.



# 8 PROPOSED SOIL, GROUNDWATER AND GAS INVESTIGATION

### 8.1 **SOIL**

The following proposed soil sampling programme has been designed on the basis of a review of the site history.

# 8.1.1 Sampling Pattern, Location and Number of Sampling Points

A triangular or herringbone systematic (or grid) pattern will be used to locate boreholes across the site.

Summaries of the proposed sample locations and analytical programmes for soil and groundwater are provided in Tables 1, 2 and 3 respectively. The proposed sampling locations are shown on the attached site plan (Figure 3), with the exact locations to be determined during the sampling programme based on local access issues and field observations.

A total of 48 sampling locations, which equates to a sample density of 5 sample points per hectare or a sampling grid of approximately 45 m, are proposed for the investigation. This is less than the minimum sampling points required for site characterisation as outlined in NSW EPA *Sampling Design Guidelines* (NSW EPA, 1995). A reduced sampling density has been proposed considering that the area will maintain its existing land use and that historical filling is likely to have occurred in a single episode. This provides a circular hotspot with a diameter of approximately 53 m that can be detected with 95 % confidence (Procedure F, NSW EPA, 1995). The exact depths of samples will be determined in the field based on FID readings and any adverse aesthetics indicating the presence of contamination (eg. odour or discoloured soil).

# 8.1.2 Sampling Depths

### 8.1.2.1 Boreholes

Boreholes will be extended to at least one metre into natural soil or drill rig refusal as this depth is expected to be the lower limit of the inferred vertical migration zone of contaminants associated with fill material.

In accordance with NEPC (1999) *Data Collection, Sample Design and Reporting*, samples will be collected from the near surface between 0-150 mm unless there is evidence of a thin superficial layer of impacted material. At greater depths, samples will be collected at 0.5-1.0 m



intervals or at changes in fill or soil type and so that soil is also collected at depths where the presence of contamination is indicated (eg. based on unusual odour, colour, substances, liquids etc).

# 8.1.3 Method of Sample Collection

Care will be taken to ensure that representative samples are obtained and that the integrity is maintained, particularly when dealing with potentially volatile and semi-volatile components.

Samples will be collected in accordance with documented CES procedures by experienced staff. Samples will be collected using a track mounted rig with direct push tubes.

The sample will be transferred from the sample liners to the laboratory-supplied glass sample jar or resealable plastic bag using a new pair of disposable gloves for each sample. Samples will be stored in the manner outlined in Section 8.1.5.

Where there is sufficient sample volume, part of the sample will be placed in a re-sealable polyethylene bag for measurement of volatile soil gases using the closed headspace Photo Ionisation Detector (PID) or Flame Ionisation Detector (FID) method. The procedure for soil screening using a PID/FID is summarised as follows:

- 1. A corresponding sample to that selected for possible laboratory analysis is placed into a "snap-lock" or re-sealable plastic bag until half filled, then sealed;
- 2. The bag is then hand warmed (or left in sunlight) for ten minutes with occasional agitation to maximise the release of volatile compounds into the bag;
- 3. Calibrate the PID/FID instrument;
- 4. Measure background VOC concentrations in ambient air prior to each reading in order to account for sensor drift. Record on a field data sheet along with date, location details, depth and method (HS for headspace method);
- 5. Use the point of the PID/FID or a knife to punch a small hole in the top the plastic bag. Place the tip of the PID/FID in the bag and monitor the readout and note the maximum and minimum concentration during the recording period;
- 6. Make entries in field data sheets;
- 7. Repeat process outlined above for each sample (ie, background reading followed by sample reading);



- 8. Check instrument calibration against span gas at the conclusion of monitoring. A check should be undertaken after every 20 samples if more than 20 samples are to be tested. Calibration checks are to be recorded on field data sheets; and
- 9. Check that samples with high concentrations of volatile compounds in headspace gases have been included for laboratory analysis.

The PID/FID is a non-specific detector, as such, the instrument provides a measure of concentrations of total combustible and ionisable compounds reported as equivalents of a calibration span gas. Therefore, the data are used to compare concentrations of volatile compounds between samples without an understanding of the specific compounds present. PIDs/FIDs are generally calibrated using zero (ambient) air and methane/isobutylene span gases.

FIDs are capable of detecting a wide range of organic compounds from  $C_1$  upwards including a number of chlorinated solvents. For this reason, samples of organic-rich sediments sampled from anoxic environments may display elevated concentrations of combustible gases. This is due to the ability of the FID to detect compounds such as methane.

Volatile concentrations detected by PIDs/FIDs are dependent on a number of factors including:

- The concentration and type of volatile compound present in the soil sample;
- Soil texture and compaction largely influence the potential for volatiles to be released from samples;
- Time since sample collection; and
- Temperature. This strongly affects the level of volatilisation of volatile compounds from soil and fill samples. In fact, temperature changes may result in differences of up to one order of magnitude in levels of volatiles detected using PIDs/FIDs. Consequently, field screening for volatiles should be undertaken at the same time for all samples in order to produce representative results. Generally, it is recommended that samples be stored on ice and returned to base. Screening should be carried out after allowing samples to equilibrate to ambient air temperatures.

As the site consists largely of dredged sediments, soil samples collected as part of the ASS assessment will be sampled from both above and below the water table. Samples will be placed in a resealable plastic bag and frozen prior to transport to the laboratory. Field testing for PASS will be undertaken by the laboratory.



#### 8.1.4 Decontamination Procedures.

The following decontamination procedures will be adopted for drilling and sampling equipment.

### 8.1.4.1 Boreholes

The boreholes will be established using a track mounted rig using a direct push tube sampling method. In order to minimise potential cross-contamination of the boreholes, all drilling equipment will be thoroughly cleaned between sampling points (set-ups) using a steam cleaner or pressure washer. Initially using Decon 90 and finally rinsed with clean water. Samples taken using the track mounted rig and the direct push tube sampling method do not require decontamination as dedicated liners are used to collect samples.

# 8.1.4.2 Sampling Equipment

Sampling equipment, such as trowels, will be washed between sampling locations using Decon 90 initially followed by adequate rinsing with clean water. To check the adequacy of the decontamination protocol, rinsate samples will be collected for analysis.

# 8.1.4.3 Sample Containers

The soil sample jars (Table 3) will comprise glass with a Teflon lined lid and be supplied by either the primary or secondary laboratory. The jars will be completely filled with soil, labelled with the job number, date, unique sampling point identification and initials of CES staff.

Resealable plastic bags will be used for the collection of samples for the ASS assessment.

# 8.1.5 Method of Sample Storage and Handling

The soil jars, once filled with sample, will immediately be placed in an esky / cool box in which ice has been added to keep the samples below a temperature of approximately 4°C. At the end of each day the samples in the cool box will be transported to the CES Sydney office where more ice will be added until delivery to the laboratory (within one day).

Samples collected for the ASS assessment will be frozen prior to transport to the laboratory.

# 8.1.6 Sample Logging

A borehole log will be completed during drilling by a qualified environmental engineer/scientist. The log records the following data:



- Sample number and depth;
- Soil classification, colour, consistency or density, odour and moisture content;
- Depth of boring / excavation;
- Auger / bucket refusal;
- Method of drilling / excavation;
- The depth of first encountered free water; and
- Presence or absence of odour and potential asbestos containing materials.

A copy of a blank borehole log is provided in Appendix 1.

All samples, including QA samples, will be transported to the primary and check laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COC will detail the following information:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date;
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch courier(s).

# 8.1.7 QA/QC Documentation

While on site, the supervising engineer/scientist will be required to fill out a copy of CES 'sample register', which documents:

- Time of sample collection;
- Weather;
- Unique sample identification number; and
- Sample location and depth.

All samples will be classified in the field based on soil/fill characteristics and obvious signs of contamination such as discolouration or odour will be noted on the borehole log.



All samples, including QA samples, will be transported to the primary and check laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COC will detail the following information:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date;
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch courier(s)

### 8.2 GROUNDWATER

# 8.2.1 Location and Number of Sampling Points

Four groundwater-monitoring wells will be installed across the site in order to ensure adequate site coverage. Groundwater in the north eastern corner of the site will be assessed using a groundwater well that is to be installed in the south eastern corner of Area A. The proposed location of the groundwater monitoring wells is provided in Figure 3.

In addition, existing groundwater wells on the site that were installed during previous investigations will also be sampled, provided that they can be located and are in sound condition. These include BH106 and BH107 (CES, 2001) and BH304 and BH305 (Golders, 2001) (Figure 3).

### **8.2.2** Well Construction

The groundwater investigation will comprise the installation of four shallow groundwater monitoring wells at various locations across the site using a Geoprobe 6620DT drill rig. Groundwater wells are to be constructed using factory-decontaminated, 40 mm internal diameter Schedule 40 PVC machine slotted pre-packed screen sections, 1 mm sand pack, bentonite seal, steel monument set in concrete block at the surface. The use of pre-packed wells allows a gravel pack to be reliably installed around screens in collapsing formations.

Well construction will consist of the following:



- Probe rods fitted with an expendable drive point are driven to the desired depth ensuring approximately 0.5 m of screen is installed above the water table to allow sampling of LNAPLs and free-phase product;
- The well assembly (with end cap) is then lowered into the probe rod string with threaded PVC riser pipe. Once the well assembly is lowered to the bottom of the probe rod string, the probe rods are retracted to a point (approximately 1 metre) above the screen;
- In natural sands, where natural formation collapse (occurring during the initial probe rod retraction) occurs, using pre-pack screens negates the need to add sand. However CES propose to place additional fine-grade (1mm) sand through the rod annulus effectively placing sand from the base of the well to approximately one metre above the screen;
- Granular bentonite is to then be installed in the annulus above the sand pack to form a well seal;
- A PVC cap (screw, push-in or push-on) is to be installed on each well; and
- The well will be finished at the surface by the installation of a flush mounted steel gatic cover set in concrete.

# 8.2.3 Well Development and Sample Collection

Fieldwork will be undertaken in accordance with documented CES procedures by experienced staff. Depending on the volumes of water present, wells will be developed with a foot valve and using a Waterra Power Pack PP1 Pump. Following development of the wells, they will then be allowed to recharge before purging and sampling. The purging process will be undertaken using a low-flow method with drawdown control to limit drawdown to less than 0.05m. This will be done using either a peristaltic pump with inlet tubing set in the middle of the well screen or a bladder pump.

A calibrated water quality meter placed within a flow cell will be used during the purging process to assess chemical equilibrium by measuring pH, redox potential (Eh), electrical conductivity, dissolved oxygen and temperature. The parameters will be considered stable and at equilibrium when two consecutive readings (during the removal of each well volume) are within  $\pm 10\%$ . The water quality meter will be calibrated at the beginning and end of each sampling day by trained CES staff. Calibration standards are kept in the CES office and are appropriate for the water quality meter used.



#### **8.2.4** Decontamination Procedures

The pumps used to re-develop each well will be decontaminated in between sample locations by washing in a solution of phosphate-free detergent followed by rinsing with distilled water. The peristaltic pump will not require decontamination since CES propose to use dedicated tubing for each well. Bladders will be disposable and used only once.

# 8.2.5 Sample Containers

Laboratory supplied sample containers will be used to contain the groundwater samples (Table 4). Sample containers will be filled in order of volatility, with the most volatile substances collected first. Care will be taken to minimise disturbance of the sample to avoid aeration by minimising the distance between the outlet tubing and the container, tilting the container so that discharge flows gently down the inner walls, and ensuring containers have no airspace, are capped tightly and placed in an ice cooler immediately.

# 8.2.6 Method of Sample Collection, Storage and Handling

All sample containers will be labelled with the sample number, project number, date obtained and site name. This information will be repeated on the Chain-of-Custody (COC) record form.

Sample containers will be filled in order of the most volatile substances. Care will be taken to minimise disturbance of the sample to avoid aeration by minimising the distance between the outlet tubing and the container and tilting the container so that discharge flows gently down the inner walls.

Once filled, the caps will be checked to ensure that they are secure (and that there are no air bubbles/head space) then placed within an esky / cool box in which a cooling medium has been added to keep the samples below a temperature of approximately 4°C. At the end of each sampling day the samples in the cool box will be transported to the CES office where ice will be added until delivered to the laboratory (within one day). Custody seals will be placed on the esky / cool box for delivery to the laboratory.

### 8.2.7 Documentation

While on site, the supervising engineer/scientist will be required to fill out a copy of CES "Groundwater Sampling Field Data Sheet" and "Sample Register', which document:

- Time of sample collection;
- Weather:



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

Copies of these forms are provided in Appendix 1.

All samples, including QA samples, will be transported to the primary and check laboratories under Chain-of Custody procedures and maintained in an ice-filled cooler. The COC will detail the following information:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date;
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch couriers.

#### 8.3 LANDFILL GAS

# 8.3.1 Location and Number of Sampling Points

Four sub-surface gas monitoring wells will be installed across the sites southern boundary to assess whether landfill gas may be migrating onto the site. The proposed location of the sub-surface gas monitoring wells is provided in Figure 3.

# 8.3.2 Well Construction

Wells will be constructed in accordance with the following specifications:



- Well casing will be Class 18, PVC with 25 to 50 mm internal diameter. Matching male and female threads fitted with O-ring seals were machined onto each length of screen;
- Well screens will be factory slotted and match the specifications as outlined above for casing;
- Wells will be installed to approximately one metre into the unconfined aquifer and be screened to approximately one metre from the surface;
- The annulus around well screens will be filled with washed, graded river gravel (filter pack);
- A bentonite seal will be installed above the filter pack;
- Push-on or threaded caps will be fitted to the base of each well;
- Caps with vapour monitoring ports shall be fitted to each of the sub-surface gas monitoring wells. The fittings will ensure that an "air tight" seal is maintained on the well between sampling events; and
- The wells will be finished using either galvanised steel monuments set in a concrete base or gatic covers concreted at ground level.

# 8.3.3 Well Development and Gas Monitoring

Depending on the volumes of water present, wells will be developed with a foot valve and using a Waterra Power Pack PP1 Pump.

Monitoring will be undertaken in accordance with procedures developed by CES based on techniques for soil-gas studies and landfill surface gas surveys. These procedures are currently used by CES on a number of landfill sites in the Sydney metropolitan region. An outline of subsurface gas monitoring methods is provided below. The procedure for monitoring landfill gas wells involves the following stages:

- Initial measurements and observations;
- Purge well by the application of vacuum; and
- Gas measurements in well.

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

- 1. Measure concentrations of combustible gases in the ambient air using a calibrated Flame Ionisation Detector (FID) or landfill gas analyser;
- 2. Inspect the well for damage;



- 3. Estimate the air volume in the gas monitoring well;
- 4. Measure formation pressure (gas pressure in well before venting) using a pressure gauge;
- 5. Vent gas while taking care not to breathe in the emissions. Note the response of the well to venting (eg, no response; brief initial pulse (typically 1-2 s), long pulse (>5 s) or continuous gas emission); and
- 6. Measure initial concentrations in the well. Use a gas sampling bag if the well discharges gas continuously when vented to atmospheric pressure.

The procedure for purging gas wells is summarised as follows:

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

It should be noted that recovery times of greater than 10 minutes should be considered to be suspect as the effect of sample train leakages is increased with long recovery times. If recovery times of greater than 10 minutes occur, the operator should conclude that the formation has a low permeability to gas, record the final vacuum (small gauge) and take no further action.

In addition to the monitoring discussed above, samples of landfill gas will be collected for analysis of Volatile Organic Compounds (VOCs). Samples will be collected by drawing a volume of air under pressure through activated carbon tubes. Samples will only be collected from wells that equilibrate to atmospheric pressure during the purging process. The tubes of activated carbon will then be submitted to the laboratory for VOC analysis. The tubes will be placed within eskies/coolers and transported to the laboratory within twenty four hours of collection.



# 9 PROPOSED ANALYTICAL PLAN

### 9.1 CHOICE OF ANALYTES

### 9.1.1 Soil

The analytes selected for soil testing have been determined based on our knowledge of past land use and the results of previous investigations and will comprise:

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

### 9.1.2 Groundwater

### 9.1.2.1 Field Parameters

Standard field measurements will be taken during purging of the wells, to ascertain when equilibrium is reached, prior to the collection of each groundwater sample. Measurements to be taken will be:



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

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

# 9.1.2.2 Laboratory Testing

The analytes selected for testing have been determined based on the results of previous investigations and with a view to future remediation. CES propose to analyse groundwater for:

- Dissolved metals and metalloids (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury);
- Major anions (chloride, sulfate and alkalinity) and cations (sodium, potassium, calcium and magnesium).
- Nutrients ammonia, nitrogen and phosphorous;
- Total Petroleum Hydrocarbon (TPH);
- Monocyclic Aromatic Hydrocarbons of Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Organochlorine Pesticides (OCPs);
- Organophosphate Pesticides (OPPs);
- Volatile Organic Compounds (VOCs);
- Phenoxyacetic Acid Herbicides (PAAHs);
- Phenols; and
- Salinity indicators such as salinity, total dissolved solids, corrosion potential (resistivity and saturation index), alkalinity, ammonia, sulfate and chloride.



#### 9.1.3 Landfill Gas

The parameters selected for monitoring have been determined based on CES experience with sub-surface landfill gas monitoring of putrescible landfills in the Sydney metropolitan area. CES propose to monitor sub-surface gas wells for:

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

Methane, carbon dioxide and oxygen concentrations will be measured using a Landfill Gas Analyser (LGA) which will be calibrated at the beginning and end of each work day using manufacturer supplied calibration gases.

Landfill gas will also be analysed for VOCs as part of the human health risk assessment.

### 9.2 LABORATORY

CES propose to use either Australian Laboratory Services (ALS) Pty Ltd or Labmark Pty Ltd (Labmark) as the primary and secondary 'check' laboratories for the soil and groundwater investigations. Both laboratories are NATA accredited for the above analyses.

Bio-Track Pty Ltd will be contracted for the ASS assessment.

# 9.3 ANALYTICAL METHODS

### 9.3.1 Soil

Soil samples will be analysed in accordance with ANZECC (1996) Guidelines for the Laboratory Analysis of Contaminated Soils using USEPA and APHA approved analytical methods as described in Table 5. The laboratory Practical Quantitation Limits (PQLs) are also summarised in Table 5.

The SPOCAS analysis will be undertaken utilising the procedure outlined in the ASSMAC (1998) manual.



# 9.3.2 Groundwater

The water samples will be analysed using analytical methods based on US EPA and APHA methods as described in Table 6. The corresponding laboratory PQLs are also provided in Table 6.

# 9.3.3 Landfill Gas

The gas samples will be analysed using analytical methods based on US National Institute of Occupational Health and Safety (NIOSH) methods 1003, 1300, 1301, 1500 and 1501. The laboratory PQL is 1 µg tube<sup>-1</sup>.



# 10 PROPOSED SITE ASSESSMENT CRITERIA

### 10.1 SOIL

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

#### 10.1.1 Aesthetics

Aesthetics relates to the generation of odours from the site and any discolouration of the soil as a result of contamination. Aesthetic issues will continually be addressed during the investigation and reported on the borehole logs.

### 10.1.2 Ecologically Based Investigation Levels

Potential ecological impacts have to be assessed for soils to be retained on site, which are not underneath buildings or slabs. To address potential ecological impacts of these soils, CES will compare the analytical testing results against the lower of the health based investigation levels a set of Ecological based Investigation Levels (EILs) that provides confidence that contaminant concentrations below these levels will not adversely impact specific flora proposed for the site.

Specific flora proposed for the site is not known therefore CES propose to adopt the interim urban Ecological Investigation Levels (EILs) as published in NEPC (1999), which are equivalent to the provisional Phytotoxicity-based Investigation Levels (PBIL) published in NSW EPA (1998). With respect to hydrocarbons, CES will adopt the ecologically based threshold concentrations as published in NSW EPA (1994) Guidelines for Assessing Service Station Sites.

The EILs are generally based on threshold levels for phytotoxicity or other impact to flora. As such, they are framed to protect the most sensitive environmental receptor. Both the NEPC EILs and the NSW EPA PBIL are provisional and only intended as a screening guide. Furthermore, the published levels specifically relate to sandy loams with a pH of between 6 and 8. If the proposed exposed soil does not fit this description, then field observations in conjunction with results of CEC, pH, clay content and organic content testing will be relied upon rather than the EILs.



A summary of the adopted EIL criteria is provided in Table 7.

### 10.1.3 Health-Based Soil Investigation Levels

To address potential health impacts at the site, CES will compare the analytical testing results against a set of Health Based Soil Investigation Levels (HIL) appropriate for the proposed landuse. That is, the HIL will be set at a level that provides confidence that contaminant concentrations below the HIL will not adversely affect human health.

It is understood that Area B will retain its existing recreational open space land use. Therefore, CES has adopted the following HIL criteria:

- NEPC (1999) Health Based Investigation Levels (HIL) recommended for exposure setting 'E' which includes recreational open space land use; and
- With respect to hydrocarbons (TPH and BTEX), the NSW EPA (1994) Threshold Levels.

For contaminants with no relevant Australian guidelines, CES will examine guideline levels from overseas which are appropriate for the future intended land-use (eg. USEPA Region 9 Preliminary Remediation Goals).

A summary of the soil assessment criteria is provided in Table 7.

### 10.1.4 Asbestos in Soil

The current EPA policy is that sites should not contain any Asbestos Containing Material (ACM) or asbestos fibres at the surface. For this project, CES propose that there must be no visible ACM and each soil sample collected must not contain any respirable asbestos fibres above the lower detection limit of the analytical method used by Australian Safer Environment and Technology Pty Ltd (ie 0.1 grams per kilogram).

#### 10.1.5 Acid Sulfate Soils

ASSMAC (1998) criteria were selected to identify the presence of Acid Sulfate Soils on the site. These guidelines provide a series of trigger levels or action criteria, above which an ASS management plan should be prepared and development consent obtained prior to excavation works (Table 8). The trigger levels are based on the percentage of oxidisable sulfur (or equivalent TPA, TAA) for broad categories of soil types. For projects that disturb more than



1000 tonnes of soil with  $\geq 0.03\%$  oxidisable sulfur or equivalent existing acidity, a detailed management plan and development consent will be required (Ahern *et al.*, 1998).

### 10.2 GROUNDWATER

Assessment criteria for groundwater will be derived from the ANZECC (2000) water quality guidelines.

Trigger values for marine water will be adopted for this study rather than freshwater guidelines, on the basis that the ultimate receiving system for groundwater at the site is the estuarine section of the Cooks River and ultimately Botany Bay.

The ANZECC (2000) water quality guidelines specify four sets of trigger values corresponding with different levels of protection for ecosystem conditions. Trigger values, derived using the statistical distribution method, relate to the protection of 99%, 95%, 90% and 80% of species in an aquatic ecosystem. Three "categories of ecosystem conditions" are developed in the guidelines. The guidelines advocate that the level of protection afforded to a particular ecosystem should be determined following consideration of site conditions in consultation with key stakeholders. The guidelines recommend that, in most cases, the 95% protection trigger values should be applied to "slightly to moderately disturbed" ecosystems. Consequently, with the 95% protection trigger values have been adopted. However, the ANZECC (2000) guidelines require that for chemicals which are bioaccumulative, such as mercury, that the 99 % protection trigger values be adopted. Therefore, the 99 % protection trigger value will be adopted for mercury.

In the absence of appropriate marine water levels, the 95% trigger values for freshwater will be utilised for o-xylenes. Additionally, ANZECC (2000) Low Reliability and Environmental Concern Levels (ECLs) will be utilised for TPH C<sub>6</sub>-C<sub>40</sub>. In the absence of any appropriate site assessment criteria for the remaining analytes detected, the EPA NSW (1994) *Guidelines for Assessing Service Station Site* threshold concentrations for "Waters – Protection of Aquatic Ecosystems" will be adopted for toluene, ethylbenzene and total xylenes. Assessment criteria for relevant parameters are summarised in Table 9.



# 10.3 LANDFILL GAS

EPA NSW (1996) specifies that a detection of methane above 1.25% v/v in sub-surface gas monitoring wells will require notification to EPA and an increase in the frequency of monitoring. This criterion will be adopted for the purposes of this investigation.



# 11 PROPOSED QUALITY CONTROL PLAN

Fieldwork will be undertaken by experienced staff in accordance with documented CES procedures as outlined in Section 7. Field and laboratory QA/QC requirements compliant with National Environmental Protection Council (1999) requirements are outlined below.

# 11.1 FIELD QA/QC PROGRAMME

Field QA/QC for this project consists of blind replicates, split samples, rinsate samples, trip spikes and trip blanks. A description of each of these samples and their proposed frequency of testing is provided below.

Rinsate samples are unlikely to be included in this investigation as the Geoprobe 6620DT drill rig utilises location specific core liners for the collection of soil samples. In addition, groundwater sampling will be undertaken using site specific tubing and equipment. However, a description of their collection and purpose has been provided below in the event that different sampling equipment becomes required.

# 11.1.1 Environmental Samples

Environmental samples or field samples are the representative samples of, groundwater or soil (in this case groundwater and soil) collected for analysis to determine aspects of their chemical composition.

### 11.1.2 Blind Replicate Samples

Blind replicate samples are provided by the collection of two environmental samples from the same location or successively from the same monitoring bore. These samples are preserved, stored, transported, prepared and analysed in an identical manner. As a minimum, the results of analyses on the blind replicate sample pair are assessed by calculating the Relative Percentage Differences (RPDs) between the results. The RPD is calculated as the difference between the results divided by their mean value and expressed as a percentage. If the RPD exceeds the value adopted for any analytes, additional investigation will be required, or justification provided for not conducting additional investigation.

One blind replicate will be collected for every ten environmental samples or one for each batch larger than five samples (Table 10). This equates to two blind replicates samples for this investigation.



# 11.1.3 Split Samples

Split samples provide a check on the analytical proficiency of the laboratories. Split samples are collected from the same location or successively from the same monitoring bore. Split samples must be taken from the same location as the blind replicate, thus becoming a triplicate sample. However, split samples are not taken as often as blind replicates. Split samples will generally be collected at a rate of one split sample for every 20 environmental samples or 5% of samples. For small batches split samples are collected subject to project requirements (Table 10). This equates to one split sample for this investigation

Spilt samples (triplicates) are preserved, stored, transported, prepared and analysed in an identical manner to environmental samples.

# 11.1.4 Rinsate (Equipment) Samples

Rinsate (equipment) blanks consist of pre-preserved bottles filled with laboratory-prepared water that has been passed over decontaminated field equipment. Rinsate blanks are prepared on site, labelled with a unique CES sample identification number and transported to the principle laboratory for analysis as regular environmental samples. The purpose of the rinsate blank is to assess the efficiency of decontamination procedures.

For inorganic compounds and semi-volatile organic compounds (SVOCs), rinsate water must consist of milli-Q water (distilled tap water passed through a resin de-ioniser). This water is unsuitable for the analysis of volatile organic compounds (VOC) due to the inclusion of volatiles in the milli-Q water. Only purged water is to be used for volatiles (VOC) rinsate blanks. This water is produced at the laboratory by purging spring water that has not been adulterated by VOCs as with tap water. Purged water is unsuitable for the production of rinsate samples for inorganics due to the presence of trace levels of inorganic compounds.

While the number of equipment blanks varies between projects, the following strategy is generally adopted (Table 10): a rate of one rinsate blank for each field collection (>5 samples). Rinsate sampling will be subject to project requirements for smaller batches (<5 samples).

Rinsate samples are not required if field equipment is dedicated for the specific sampling location.



# 11.1.5 Trip Blanks

Trip blanks consisting of pre-washed bottles containing distilled or de-ionised water and appropriate preservatives will be supplied by the analytical laboratory. The role of trip blanks is to detect potential contamination during sample transport. These samples reside in transport vessels during sampling activities and are not opened in the field. Trip blanks are analysed at the laboratory as regular samples or only for volatile organic compounds, as deemed appropriate.

One trip blank will be prepared for each field collection day as is the standard.

# 11.1.6 Laboratory Prepared Trip Spikes

Laboratory-prepared VOC spikes consisting of distilled, de-ionised water or sand spiked with known concentrations of BTEX should be included in QA/QC programmes where TPH and BTEX concentrations are being measured. Laboratory-prepared VOC spikes should be included at a rate of one per sample batch. These samples are to be submitted for BTEX analysis with results compared with the known additions. Generally, samples are spiked with concentrations of 10, 10, 10 and 30 ppm of benzene, toluene, ethylbenzene and total xylenes respectively. The purpose of these samples is to monitor VOC losses during transit.

Care will be taken to ensure that only freshly-prepared spiked samples are used. Spikes more than 2 days old at the time of receipt from the laboratory should be discarded. All trip spikes received will be checked for leakage or bubbles. Any spikes containing bubbles or any other defects will be discarded. Furthermore, only spikes delivered under laboratory COC will be accepted. COCs will be stored in the project file for reference.

### 11.2 LABORATORY QA/QC PROGRAMME

The reliability of test results from the analytical laboratories will be monitored according to the QA/QC procedures used by the NATA accredited laboratory. The QA/QC programme employed by ALS (the primary laboratory) will specify holding times, extraction dates, method descriptions, Chain of Custody (COC) requirements, analysis, PQLs and acceptance criteria for the results. Laboratory QA/QC requirements to be undertaken by ALS are based on NEPM requirements and are outlined below (NEPC, 1999).

# 11.2.1 Laboratory Duplicate Samples

Laboratory duplicates provide data on analytical precision for each batch of samples. Where required and in order to provide sufficient sample for analysis of laboratory duplicate, two



batches of samples are collected at the first site listed on the Chain of Custody form. This is done in order to ensure that sufficient sample is collected.

Laboratory duplicates are performed at a rate of one duplicate for batches of 6-14 samples with an additional duplicate for each subsequent ten samples.

# 11.2.2 Laboratory Control Samples

Laboratory control samples consist of a clean matrix (de-ionised water or clean sand) spiked with a known concentration of the analyte being measured. These samples monitor method recovery in clean samples and can also be used to evaluate matrix interference by comparison with matrix spikes. Laboratory control samples may be certified reference materials.

### 11.2.3 Surrogates

For organic analyses, a surrogate is added at the extraction stage in order to verify method effectiveness. The surrogate is then analysed with the batch of samples. Percent recovery is calculated.

### 11.2.4 Matrix Spike

A matrix spikes consist of samples spiked with a known concentration of the analyte being measured, in order to identify properties of the matrix that may hinder method effectiveness. Samples are spiked with concentrations equivalent to 5 to 10 times the PQL. Percent recovery is calculated.

### 11.2.5 Method Blanks

Method blanks (de-ionised water or clear sand) are carried through all stages of sample preparation and analysis at a rate of approximately 10%. Analyte concentrations in blanks should be less than the stated PQL. Reagent blanks are run if the method blank exceeds the PQL. The purpose of method blanks is to detect laboratory contamination.

# 11.3 DATA QUALITY OBJECTIVES (DQO) AND ACCEPTANCE CRITERIA

The QA/QC Data will be assessed against the Data Acceptance Criteria (DAC) provided in Table 11. If data does not meet the DAC then the following steps will be taken:

• Request that the laboratory re-check or even re-analyse the sample; and



- Inspect the sample for anomalies which may be causing the failure; and
- If necessary, undertake additional sampling and analyses; or
- Qualify data. For example, data may be used for screening purposes only or working PQLs may be raised.



# 12 REPORTING

The proposed monitoring programme outlined in this SAQP, including field and laboratory methods and results, will be reported in accordance with the requirements of guidelines adopted by NSW EPA.



### 13 REFERENCES

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National Environmental Health Forum (NEHF), 1998: *Health-Based Soil Investigation Levels*. National Environmental Health Forum Monographs, Soil Series No 1, 2<sup>nd</sup> edition, NEHF, 33pp.

Project ID: CES050706-BCC-02-F



# **TABLES**



Table 1: Proposed Sampling Locations				
Sample Location	Sampling Pattern	Location Rationale	Potential Contaminants of Concern for analysis	Method of Sample Collection
BHB100 series	Triangular Grid	Located on grid pattern across site.	General Suite (Table 2)	Boreholes
BH106	Targetted	Located towards south eastern corner of site. Installed by CES (2001).	General Suite (Table 2)	Groundwater well
BH107	Targetted	Located along northern boundary of site. Installed by CES (2001).	General Suite (Table 2)	Groundwater well
BH304	Targetted	Located towards eastern boundary of site. Installed by Golders (2001).	General Suite (Table 2)	Groundwater well
BH305	Targetted	Located towards centre of site. Installed by Golders (2001).	General Suite (Table 2)	Groundwater well
MWB101	Targetted	Located along western boundary of site.	General Suite (Table 2)	Soil and groundwater well
MWB102	Targetted	Located along central northern boundary of site.	General Suite (Table 2)	Soil and groundwater well
MWB103	Targetted	Located along central southern boundary of site.	General Suite (Table 2)	Soil and groundwater well
MWB104	Targetted	Located in south eastern corner of site.	General Suite (Table 2)	Soil and groundwater well
LGB101	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well
LGB102	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well
LGB103	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well
LGB104	Targetted	Located along southern boundary of site.	Gas monitoring	Soil and gas well



Table 2: Proposed Analytical Program				
Matrix	No. of Sampling Points	Potential Contaminants	Number of Environmental Samples to be Analysed	
Soil	48	General Suite	Metals and metalloids (72) TPH/BTEX (36) PAHs (36) OCPs (36) OPPs (24) VOCs (12) PAAHs (12) Phenols (12) Nutrients (12) Asbestos (18) SPOCAS - field (12) SPOCAS (6) Salinity indicators (5)	
Groundwater	10	General Suite	Metals and metalloids (10)  Major ions (10)  Nutrients (10)  TPH/BTEX (10)  PAHs (10)  VOCs (10)  PAAHs (10)  Phenols (10)  Salinity indicators (10)	



Table 3: Containers, preservation requirements and holding times – Soil				
Parameter	Container	Preservation	Maximum holding time	Colour code
Acid digestible metals and metalloids (As, Cd, Cr, Cu, Ni, Pb, Zn, Sn)	250 mL glass	Nil	6 months	Orange
Mercury	250 mL glass	4°C	28 days	Orange
TPH/BTEX	250 mL glass	4°C	14 days	Orange
PAHs	250 mL glass	4°C, zero headspace	14 days	Orange
OCPs/OPPs/PCBs	250 mL glass	4°C, zero headspace	14 days	Orange
VOCs, PAAHs, Phenols	250 mL glass	4°C, zero headspace	14 days	Orange
Nutrients	250 mL glass	4°C	7 days	Orange
Asbestos	Sealed plastic bag	Nil	Nil	Nil
SPOCAS	Sealed plastic bag	Frozen	Nil	Nil
Salinity indicators	Sealed plastic bag - min 1500g	Nil	Nil	Nil



Table 4: Containers, preservation requirements and holding times – Groundwater					
Parameter	Container	Preservative	Maximum	Colour	Field
	Volume (mL)		holding time	Code	Filtered
Metals and metalloids	125 mL Plastic	$HNO_3 / 4^{\circ}C$	6 months	Red	Yes
Anions	250 ml Plastic	None / 4°C	48 Hrs	Green	No
Cations	125 mL Plastic	HNO <sub>3</sub> / 4°C	7 days	Red	Yes
Nutrients	250 ml Plastic	$H_2SO_4 / 4^{\circ}C$	28 days	Purple	No
TPH (C <sub>6</sub> -C <sub>9</sub> )/BTEX/VOCs	4 x 43 mL Glass	HCl / 4°C	14 days	Orange	No
TPH (C <sub>10</sub> -C <sub>36</sub> )/PAHs	1000 mL Glass	None / 4°C	28 days	Orange	No
PAAHs/Phenols	1000 mL Glass	None / 4°C	28 days	Orange	No
Salinity Indicators	1000 mL	None / 4°C	48 Hrs	Green	No



Parameter	Unit	PQL	Method Based On
N	Tetals and Metalloid	ls in Soil	
Arsenic <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
Cadmiun <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
Chromium <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
Copper <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
Mercury <sup>2</sup>	mg kg <sup>-1</sup>	0.1	USEPA 7471A
Nickel 1	mg kg <sup>-1</sup>	1	USEPA 200.7
Lead <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
Zinc <sup>1</sup>	mg kg <sup>-1</sup>	1	USEPA 200.7
Total Petroleum F	Iydrocarbons (TPH	) and BTEX C	Compounds
C <sub>6</sub> -C <sub>9</sub> fraction	mg kg <sup>-1</sup>	2	USEPA 8015B
C <sub>10</sub> -C <sub>14</sub> fraction	mg kg <sup>-1</sup>	50	USEPA 8015B
$C_{15}$ - $C_{28}$ fraction	mg kg <sup>-1</sup>	100	USEPA 8015B
$C_{29}$ - $C_{36}$ fraction	mg kg <sup>-1</sup>	100	USEPA 8015B
Fotal C <sub>6</sub> -C <sub>36</sub>	mg kg <sup>-1</sup>		USEPA 8015B
Benzene	mg kg <sup>-1</sup>	0.2	USEPA 8021A
Гоlиепе	mg kg <sup>-1</sup>	0.5	USEPA 8021A
Ethylbenzene	mg kg <sup>-1</sup>	0.5	USEPA 8021A
n&p-xylene	mg kg <sup>-1</sup>	1	USEPA 8021A
o-xylenes	mg kg <sup>-1</sup>	0.5	USEPA 8021A
	Organics in So	il	
Polycyclic Aromatic Hydrocarbons	mg kg <sup>-1</sup>	0.5-1	USEPA 8270 SIM
Organochlorine Pesticides	mg kg <sup>-1</sup>	0.05-0.2	USEPA 8081A
Polychlorinated Biphenyls	mg kg <sup>-1</sup>	0.1	USEPA 8081A
	Asbestos		
Asbestos	-	-	Polarised Light Microscopy
2200	SPOCAS analy		
SPOCAS	% or mol H <sup>+</sup> tonne		Ahern <i>et al</i> (1998)
11	Salinity Indicate		A C2150 1005
bH Electrical Conductivity	pH units μS cm <sup>-1</sup>	0.01	AS2159:1995
	<u> </u>		AS2159:1995
Salinity	ppt	1	AS2159:1995
Resistivity	Ohms	1	AS2159:1995
Soluble sulfate	mg kg <sup>-1</sup>	10	AS2159:1995
Chloride	mg kg <sup>-1</sup>	10	AS2159:1995



Parameter	Unit	PQL	Method Based On
]	Metals in W	ater	
Arsenic	μg L <sup>-1</sup>	1	USEPA 200.8
Cadmium	μg L <sup>-1</sup>	0.1	USEPA 200.8
Chromium	μg L <sup>-1</sup>	1	USEPA 200.8
Copper	μg L <sup>-1</sup>	1	USEPA 200.8
Mercury	μg L <sup>-1</sup>	0.1	USEPA 7470
Nickel	μg L <sup>-1</sup>	1	USEPA 200.8
Lead	μg L <sup>-1</sup>	1	USEPA 200.8
Zinc	μg L <sup>-1</sup>	5	USEPA 200.8
Ma	ajor Ions in	Water	
Cations (Na <sup>+</sup> , K <sup>+</sup> , Ca <sup>2+</sup> , Mg <sup>2+</sup> )	mg L <sup>-1</sup>	1	USEPA 200.7
Anions (Cl <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , HCO <sub>3</sub> <sup>-</sup> , CO <sub>3</sub> <sup>2-</sup> )	mg L <sup>-1</sup>	1	APHA 2320
	Nutrient	ts	
Total Nitrogen	mg L <sup>-1</sup>	0.1	APHA 20 <sup>th</sup> Ed 4500
Ammonia	mg L <sup>-1</sup>	0.1	APHA 20 <sup>th</sup> Ed 4500 NH <sub>3</sub> -H
Total Phosphorous	mg L <sup>-1</sup>	0.1	USEPA 600/4-79-020
Total Petroleum	Hydrocark	ons (TP	H) in Water
C <sub>6</sub> -C <sub>9</sub> fraction	μg L <sup>-1</sup>	50	USEPA 8015B
C <sub>10</sub> -C <sub>14</sub> fraction	μg L <sup>-1</sup>	50	USEPA 8015B
C <sub>15</sub> -C <sub>28</sub> fraction	μg L <sup>-1</sup>	400	USEPA 8015B
C <sub>29</sub> -C <sub>36</sub> fraction	μg L <sup>-1</sup>	100	USEPA 8015B
В	TEX Comp	ounds	
Benzene	μg L <sup>-1</sup>	1	USEPA 5030/8260B
Toluene	μg L <sup>-1</sup>	1	USEPA 5030/8260B
Ethylbenzene	μg L <sup>-1</sup>	1	USEPA 5030/8260B
ortho-Xylenes	μg L <sup>-1</sup>	2	USEPA 5030/8260B
meta- and para-Xylenes	μg L <sup>-1</sup>	1	USEPA 5030/8260B
Organic	Contamina	nts in W	ater
Polycyclic Aromatic Hydrocarbons	μg L <sup>-1</sup>	0.5	USEPA 8270/EP032B
S	alinity Indi	cators	
рН	pH units	0.1	AS2159:1995
Electrical conductivity	μS cm <sup>-1</sup>	1	AS2159:1995
Salinity	ppt	1	AS2159:1995
Total dissolved solids	mg L <sup>-1</sup>	1	AS2159:1995
Resistivity	Ohms	1	AS2159:1995
Saturation Index	-	-	AS2159:1995
Alkalinity	mg L <sup>-1</sup>	1	AS2159:1995
Ammonia	mg L <sup>-1</sup>	0.01	AS2159:1995
Sulfate	mg L <sup>-1</sup>	0.1	AS2159:1995
Chloride	mg L <sup>-1</sup>	0.1	AS2159:1995



Table 7: Site Assessment Criteria – Soils (mg kg <sup>-1</sup> )								
Contaminant	HIL (Setting E)	EIL (Phytotoxicity)	Source					
Arsenic (total)	200	20	NEPC (1999) – Schedule (B1)					
Benzo(a)pyrene	2	-	NEPC (1999) – Schedule (B1)					
Cadmium	40	3	NEPC (1999) – Schedule (B1)					
Chromium (III)	24 %	400	NEPC (1999) – Schedule (B1)					
Copper	2000	100	NEPC (1999) – Schedule (B1)					
Lead	600	600	NEPC (1999) – Schedule (B1)					
Mercury (inorganic)	30	1	NEPC (1999) – Schedule (B1)					
Nickel	600	60	NEPC (1999) – Schedule (B1)					
Zinc	14 000	200	NEPC (1999) – Schedule (B1)					
Total PAHs	400	-	NEPC (1999) – Schedule (B1)					
TPH C <sub>6</sub> -C <sub>9</sub>	65	-	NSW EPA (1994)					
TPH C <sub>10</sub> -C <sub>40</sub>	1000	-	NSW EPA (1994)					
Benzene	1	-	NSW EPA (1994)					
Toluene	130	-	NSW EPA (1994)					
Ethylbenzene	50	-	NSW EPA (1994)					
Total Xylene	25	-	NSW EPA (1994)					
Aldrin + Dieldrin	20	-	NEPC (1999) – Schedule (B1)					
Chlordane	100	-	NEPC (1999) – Schedule (B1)					
DDT+DDD+DDE	400	-	NEPC (1999) – Schedule (B1)					
Heptachlor	20	-	NEPC (1999) – Schedule (B1)					
Polychlorinated Biphenyls	20	-	NEPC (1999) – Schedule (B1)					



Table 8: Action criteria based on ASS soil analysis									
Type of Ma	iterial	Action	Criteria	Action Criteria	Action Criteria if more than				
		1-1000 tonn	es disturbed	1000 tonnes	disturbed				
	Approx. clay	Sulfur trail	Acid trail	Sulfur trail	Acid trail				
Texture range <sup>1</sup>	content	% S oxidisable	mol H+/tonne	% S oxidisable	mol H+/tonne				
Texture range	(%<0.002 mm)	(oven-dry basis) eg	(oven-dry basis) eg	(oven-dry basis) eg	(oven-dry basis)				
		S <sub>TOS</sub> or S <sub>POS</sub>	TPA or TSA	S <sub>TOS</sub> or S <sub>POS</sub>	eg TPA or TSA				
Coarse Texture	≤5	0.03	18	0.03	18				
Sands to loamy sands	≥3	0.03	10	0.03	10				
Medium Texture									
Sandy loams to light	5-40	0.06	18	0.03	18				
clays									
Fine Texture									
Medium to heavy	≥40	0.1	18	0.03	18				
clays and silty clays.									
Source: Ahern et al. (1998a)	Table 4.4.								



Table 9: Su	immary of site assessment	criteria - groundwater		
Parameter	Criterion (µg L <sup>-1</sup> )	Source and Comments <sup>1</sup>		
	Metals and Metallo	ids		
Arsenic (V)	13	ANZECC 2000 (95 % freshwater)		
Cadmium	5.5	ANZECC 2000 (95 % marine)		
Chromium VI	4.4	ANZECC 2000 (95 % marine)		
Copper	1.3	ANZECC 2000 (95 % marine)		
Nickel	70	ANZECC 2000 (95 % marine)		
Lead	4.4	ANZECC 2000 (95 % marine)		
Zinc	15	ANZECC 2000 (95 % marine)		
Mercury (inorganic)	0.1	ANZECC 2000 (99 % marine)		
	Nutrients			
Nitrate	10 000	ANZECC 2000 <sup>6</sup>		
Ammonia	910	ANZECC 2000		
	TPH and BTEX			
TPH C <sub>6</sub> -C <sub>36</sub>	285	ANZECC 2000 <sup>5</sup>		
Benzene	700	ANZECC 2000		
Toluene	180	ANZECC 2000 <sup>2</sup>		
Ethylbenzene	5	ANZECC 2000 <sup>2</sup>		
m + p xylene	ID	ANZECC 2000 <sup>2</sup>		
o-xylene	350	ANZECC 2000		
Total xylenes	380	EPA NSW 1994 <sup>3</sup>		
•	Polycyclic Aromatic Hydr	ocarbons		
Fluoranthene	1	ANZECC 2000 <sup>2</sup>		
Phenanthrene	0.6	ANZECC 2000 <sup>2</sup>		
Anthracene	0.01	ANZECC 2000 <sup>2</sup>		
Benzo(a)pyrene	0.1	ANZECC 2000 <sup>2</sup>		
Napthalene	50	ANZECC 2000 (99%)		
	Organic Compound	ls		
Organochlorine Pesticides	Various	ANZECC 2000 <sup>2</sup>		
Polychlorinated Biphenyls	Various	ANZECC 2000 <sup>2</sup>		
Volatile Organic Compounds	Various	ANZECC 2000 <sup>2</sup>		
Dissolved methane	-	-		
		<u> </u>		

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

Note 2: ANZECC 2000 low reliability threshold in marine water.

Note 3: EPA NSW 1994 Guidelines for Assessing Service Stations.

Note 4: ID - insufficient data for guideline development.

Note 5: Addition of the combined detection limits

Note 6: ANZECC 2000 recreational waters guideline



Table 10: Frequency of Field QA/QC sampling									
Environmental samples  Blind replicates Split sample  Rinsate Blanks (if required)									
0 – 5	Subject to project requirements								
5 - 10	1	0	1						
10 – 15	1	1	1						
>15	10%	5%	1						



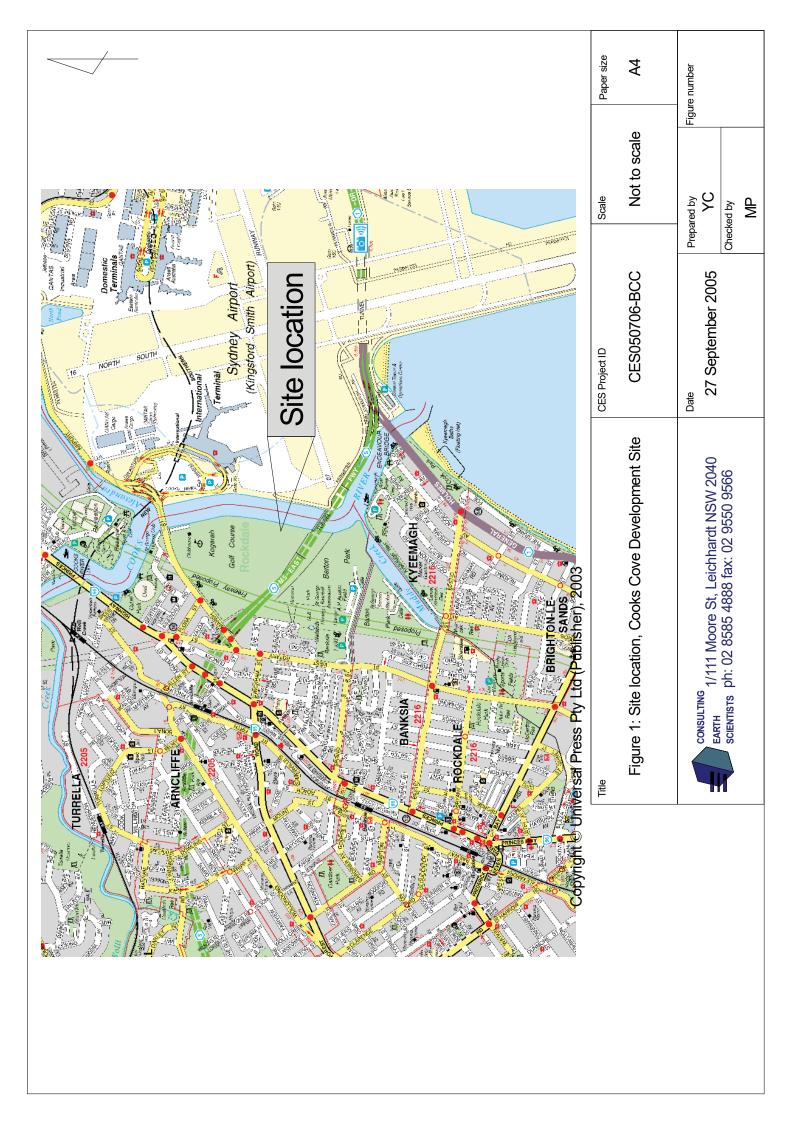
OA/OC Sample Type Method of Assessment Accentable Range								
QA/QC Sample Type	Method of Assessment	Acceptable Range						
	Field QA/QC							
Blind Replicates and Split Samples	The assessment of split replicate is undertaken by calculating the Relative Percent Difference (RPD) of the replicate concentration compared with the original sample concentration. The RPD is defined as:	The acceptable range depends upon the levels detected:  • 0 - 100% RPD (When the average concentration is < 5 times the PQL)  • 0 - 75% RPD (When the average concentration is 5 to 10 times the PQL)  • 0 - 50% RPD (When the average concentration is > 10 times the PQL)						
Laboratory-prepared Trip Spikes	The trip spike is analysed after returning from the field and the % Recovery of the known spike.	70% - 130%						
Blanks (Rinsate and Trip blanks)	Each blank is analysed as per the original samples.	Analytical Result < PQL						
	Laboratory QA/QC							
Laboratory Duplicates	Assessment as per Split Replicates.	The acceptable range depends upon the levels detected:  • 0 - 100% RPD (When the average concentration is < 4 times the PQL)  • 0 - 50% RPD (When the average concentration is 4 to 10 times the PQL)  • 0 - 30% RPD (When the average concentration is > 10 times the PQL)						
Surrogates  Matrix Spikes  Laboratory Control  Samples	Assessment is undertaken by determining the % Recovery of the known spike or addition to the sample.  C - A  Recovery = 100 x  B  Where: A = Concentration of analyte determined in the original sample; B = Added Concentration; C = Calculated Concentration.	Surrogates:  70% – 130%  Matrix Spikes:  70% - 130% (Organics)  80% - 120% (Inorganics)  LCS:  70% - 130% (Organics)  90% - 110% (Inorganics)						
		, , ,						

Australian Standard AS4482.1-1997 Guide to Sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds

Project ID: CES050706-BCC-02-F



### **FIGURES**





Aerial photograph sourced from © 2005 Google Earth: Image © Digital Globe.

Legend
Site Boundary
Area Boundaries

CES PROJECT ID	SCALE	S	SIZE	TITLE
CES050706-BCC	Approx. 1:8700		A4	Figure 2 Site Layout
DATE	PREPARED BY	CHECKE	D BY	CONSULTING
27 September 2005	YC	M	MP	EARTH 1/ 111 Moore St, Leichhardt NSW 2040 ph: 02 8585 4888 fax: 02 9550 9566



CES Project ID Figure 3: Proposed sample locations, Cooks Cove Development Site - Area B Title

Aerial photograph sourced from © 2005 Google Earth: Image © Digital Globe.

north to south.

CONSULTING 1/111 Moore St, Leichhardt NSW 2040 PERTH pt: 02 8585 4888 fax: 02 9550 9566

CES050706-BCC	Scale Approx. 1:4100	Paper size
Date 28 September 2005	Prepared by YC Checked by MP	Figure number



# **APPENDIX 1 Sample Field Data Sheets**

Project: Client

Northing:

EARTH SCIENTISTS

Elevation:

1/111 Moore Street Leichhardt NSW 2040 PH: (02) 8565 4888 FAX: (02) 9550 9560

DRILLING	INFO.		LITHOLOGY	SAMI	PLING INFO		SAMPLING INFORMATION FID/PID (ppm)		
th Method		Symbol		Sample ID	Type :	q) CIP(CIF 요 젊 요	75 buz)	WELL DETAI	
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#### PHOTOIONISATION DETECTOR (PID) DATA SHEET

Client:		CES Project Code:	
Project:		Location:	
Sampler (s):	' Signature(s):	Project Manager:	
PID manufacturer and model:		Serial no:	

Calibration gas type and concentration:	Lamp voltage:
Calibration date:	Calibration check and date:

Date	Location	Depth	Method	Duration	Background	Reading	gs (ppm)	Comments
ld/mm/yyyy	Details	m	(Note 1)	min.	ppm	Minimum	s (ppm) Maximum	
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Note 1: HS - Headspace method. SG - Ambient soil gas method.

CONSULTING EARTH SCIENTISTS

MONITORING WELL DEVELOPMENT FIELD DATA SHEET

CESO51107-ERM Rallyay Street, Coccinal Y. Carden CES Project Code: Location: Project Manager: Signature(s): EnviroRisk Management Illawirra Coke Company Y. Carden Cllent: Project: Sampler (5):

Well Development Record	ent Record		- 1	45.450.00	447. L. 47. Leave Thermorton	(season) development process)	see a see a seed act standes through development bu	orocess)
Dafe	Well ID	Development Method (2)	Standing Water Level (before/after)	Depth to Bottom of well (before/affer)	(L)	Description and comments (eg. Lateratery over 15)		
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Note I:	Summe Block: AIR =	Alt spareingfair ifft. N	Note I? B = Balter SB is Street Block: Atg = Alcsbarolndalr III; NUFT = Nitrogen gas sparging/iiii; PUMP = Pumping/over pumping	It; PUMP = Pumping/over pun	phig			
- land							•	

Page 4



Client:	Envirogurard		CES Project Code:	CES000102-EGD
	Erskine Park Landfill		Location:	Erskine Park Landfill
2703	Petrozzi	Signature(s):	Project Manager:	Petrozzi
BH ID:			Sample ID:	
Purging Date:	29-Mar-05		Sampling Date:	29-Mar-05

Wall Status

Wen Status			
Well damaged:	YES/NO	Well locked:	YESMO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater	YESMO
Comments:		.*	•
		• .	
Standing Water I evel (SWI)	(mBTOC)		•

Standing Water Level (SWL):

Well volume:

(L)

Water level after purging:

(mBTOC)

Water level at time of sampling:

(mBTOC)

Volume of water purged:

(L)

Well purged to dry?:

YES/NO

Purging equipment:

Pump/micro-Purging/Bailer/Foot valve

Sampling equipment:

Pump / Bailer / Foot valve

Purging Det		20	TICS	117	Eh	Town	Comments
Elapsed time (min)	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	р <b>Н</b> -	mV)	Temp.	Comments
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Groundwater field parameters at the end of purging to be marked "Field Measurements".



### SUBSURFACE GAS MONITORING FIELD DATA SHEET

Client:		CES Project Code:
roject:		Location:
ampier (s):	Signature(s):	Project Manager:
BH ID:	212.22.2.4	Monitoring Date / Time:

Well Status

Well damaged: Cement footing damaged:

Standing water, vegetation around monument: Water between PVC and protective casing:

YES/NO YES/NO YES/NO

YES/NO

Well locked: Vapour cap on PVC casing:

YES/NO YES/NO Well ID visible: Monument damaged: YES/NO

YES/NO

Comments:

Ambient air measurement (FID):

Length of air column in well (L):

Estimated air volume in well: Formation pressure:

Gas flow rate:

Initial vent: Well pressure after initial vent: ppm

(m estimated)

(L) (4.2L/m air in 50mm ID screen with gravel pack inside 110mm ID bornhole)

Nil / Initial pulse / Pulse  $\geq 5 \, \mathrm{s}$  / Continuous

(% 440L/hr) OR

- (% 3000L/hr)

kPa

Readings Cumulative	Maximum Vac	anno on Well	Recovery Time - For well	CH <sub>4</sub>	CO <sub>2</sub>	O <sub>2</sub>	FID	Comments
volume (L)*	(psi)	(kPa)	Recovery Time - For well vacuum to equilibrate to atmospheric pressure (min)	(%)	(%)	(%)	(ppm)	
Initial	-	•				,		
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<sup>\*</sup> Where one vacuum tank volume = 12 L

Unit conversions

1 kPa = 0.145 psi

1 psi = 6.90 kPa



## FIELD DATA SHEET: Landfill Surface Gas Surveys

					•	CES Project Code:
Client						Date:
Project:		,	Signature(s):			Project Manager:
Eampler (s):	<u> </u>		ognature(s).			
Wenther Conditions	and General C	omments:				
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Page 1 of

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Appendix 2
Tabulated QA/QC Data



#### A2 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PROGRAMME

#### A2.1 Field QA/QC Programme

Field QA/QC for the soil investigation consisted of thirty one blind replicates, nine split samples, nine trip blank, nine trip spike and one rinsate sample. Field QA/QC for the groundwater investigation consisted of four blind replicate, two split sample, three trip blank and three trip spike.

The number of samples collected during the soil and groundwater investigation is summarised in Tables A2-1 and A2-2.



Та	ble A2-1: Num	ber and Frequ	iency of QA/Q	C Samples (Duplicates)	
		Quantity			
Analytes	Total	Blinds	Splits	Recommended	Actual
	•		Soil		•
Metals	196	24	12	≥ 10 %	12.2
ivictars	190	24	12	≥ 5 %	6.1
ТРН	107	15	8	≥ 10 %	14.0
1111	107	13	0	≥ 5 %	7.4
BTEX	107	15	8	≥ 10 %	14.0
BIEA	107	13	0	≥ 5 %	7.4
РАН	105	15	6	≥ 10 %	14.0
TAIT	103	13	O	≥ 5 %	5.7
OC/OP/PCB	98	12	5	≥ 10 %	12.2
OC/OF/FCB	90	12	3	≥ 5 %	5.1
PAAH	42	5	2	≥ 10 %	11.9
РААП	42	3	2	≥ 5 %	4.8
Phenols	45	6	3	≥ 10 %	13.3
Phenois	43	6	3	≥ 5 %	6.7
VOC	43	5	3	≥ 10 %	11.6
VOC	43	3	3	≥ 5 %	7.0
Nutrients	53	6	2	≥ 10 %	10.7
Numents	33	U	2	≥ 5 %	3.8
	<del>-</del>	Gro	undwater		-
M 4 1	24	4	2	≥ 10 %	16.6
Metals	24	4	2	≥ 5 %	8.3
TDII	24	4	2	≥ 10 %	16.6
TPH	24	4	2	≥ 5 %	8.3
DTEV	24	4	2	≥ 10 %	16.6
BTEX	24	4	2	≥ 5 %	8.3
DAII	24	4	2	≥ 10 %	16.6
РАН	24	4	2	≥ 5 %	8.3
OC/OP/PCB	24	4	2	≥ 10 %	16.6
	24	4		≥ 5 %	8.3
VOC	22		2	≥ 10 %	16.6
VUC	22	4	2	≥ 5 %	8.3
Nīstei art-	24	4	2	≥ 10 %	16.6
Nutrients	24	4	2	≥ 5 %	8.3



Table A2	-2: Number aı	nd Frequency of Q	A/QC Samples (Dupl	icates)
QA/QA Sample	Analytes	Quantity	Freque	ncy
		QA/QC	Recommended	Actual
Rinsate Blanks <sup>1</sup>	All analytes	1	1 per sampling equipment	1 per sampling equipment
Trip Blanks	Volatiles	9 (sand) 3 (water)	1 D D - 4 - 1	1 per batch
Trip Spike	BTEX	9 (sand) 3 (water)	— 1 Per Batch	1 per batch

A description of each of the field QA/QC samples is provided in the following sections.

#### A2.1.1 Environmental Samples

Environmental samples are the representative samples of soil or groundwater collected for analysis to determine aspects of their chemical composition. Environmental samples are the original sample taken from a particular location and other samples are replicates or triplicates of the original.

#### A2.1.2 Blind Replicate Samples

Blind replicate samples are provided by the collection of two similar samples from the same location or successively from the same monitoring bore. These samples are preserved, stored, transported, prepared and analysed in an identical manner to environmental samples.

#### A2.1.3 Split Samples

Split samples provide a check on the analytical proficiency of the laboratories. Split samples are collected from the same location or successively from the same monitoring bore. Split samples must be taken from the same location as the blind replicate, thus becoming a triplicate sample. However, split samples are not taken as often as blind replicates. Split samples (triplicates) are preserved, stored, transported, prepared and analysed in an identical manner to environmental samples.



#### A2.1.4 Trip Blanks

Trip blanks consisting of pre-washed bottles containing distilled or de-ionised water and appropriate preservatives will be supplied by the analytical laboratory. The role of trip blanks is to detect potential contamination during sample transport. These samples reside in transport vessels during sampling activities and are not opened in the field. Trip blanks are analysed at the laboratory as regular samples or only for volatile organic compounds, as deemed appropriate. For soil sampling programmes, the trip blank consists of a laboratory-supplied sand blank containing acid-washed quartz sand.

#### A2.1.4 Laboratory-prepared Trip Spikes

Laboratory-prepared trip spikes consisting of distilled, de-ionised water or sand spiked with known concentrations of BTEX should be included in QA/QC programmes where TPH and BTEX concentrations are being measured. Laboratory-prepared trip spikes should be included at a rate of one per sample batch. These samples are to be submitted for BTEX analysis with results compared with the known additions. Generally, samples are spiked with concentrations of 10, 10, 10 and 30 ppm of benzene, toluene, ethylbenzene and total xylenes respectively. The purpose of these samples is to monitor VOC losses during transit.

Care will be taken to ensure that only freshly-prepared spiked samples are used. Spikes more than 2 days old at the time of receipt from the laboratory should be discarded. All trip spikes received will be checked for leakage or bubbles. Any spikes containing bubbles or any other defects will be discarded. Furthermore, only spikes delivered under laboratory COC will be accepted. COCs will be stored in the project file for reference.

#### A2.2 Laboratory QA/QC Programme

The reliability of test results from the analytical laboratories will be monitored according to the QA/QC procedures used by the NATA accredited laboratory. The QA/QC programme employed by the NATA registered laboratory specifies sample tracking procedures, methods of extraction, analysis, Practical Quantitation Limit (PQL) and acceptance criteria for results. Laboratory QA/QC procedures adopted by the laboratories used in this investigation are summarised below.

#### A2.2.1 Laboratory Duplicate Samples

Laboratory duplicates provide data on analytical precision for each batch of samples. Where required and in order to provide sufficient sample for analysis of laboratory duplicate, two batches of samples are collected at a site listed and marked "laboratory"



duplicate" on the Chain of Custody form. This is done in order to ensure that sufficient sample is collected.

#### A2.2.2 Standards

Calibration standards are prepared from individual certified materials, AR Grade or better reagents purchased as certified mixtures. Stock solutions are replaced every 6 months. Working standards are prepared at least every month from the stock solutions.

#### A2.2.3 Laboratory Control Samples

Laboratory control samples consist of a clean matrix (de-ionised water or clean sand) spiked with a known concentration of the analyte being measured. These samples monitor method recovery in clean samples and can also be used to evaluate matrix interference by comparison with matrix spikes. Laboratory control samples may be certified reference materials.

#### A2.2.4 Surrogates

For organic analyses, a surrogate is added at the extraction stage in order to verify method effectiveness. The surrogate is then analysed with the batch of samples. Percent recovery is calculated.

#### A2.2.4 Matrix Spike

A matrix spikes consist of samples spiked with a known concentration of the analyte being measured, in order to identify properties of the matrix that may hinder method effectiveness. Samples are spiked with concentrations equivalent to 4 to 10 times the PQL. Percent recovery is calculated.

#### A2.2.6 Method Blanks

Method blanks (de-ionised water or clear sand) were carried through all stages of sample preparation and analysis at a rate of approximately 10%. Analyte concentrations in blanks should be less than the stated PQL. Reagent blanks are run if the method blank exceeds the PQL. The purpose of method blanks is to detect laboratory contamination.

#### A8.3 DATA ACCEPTANCE CRITERIA

Data Acceptance Criteria (DAC) for this investigation are summarised in Table A9-3.



QA/QC Sample Type	Method of Assessment	Acceptable Range
- · · ·	Field QA/QC	-
Blind Replicates and Split Samples	The assessment of split replicate is undertaken by calculating the Relative Percent Difference (RPD) of the replicate concentration compared with the original sample concentration. The RPD is defined as: $ \frac{ X_1 - X_2 }{\text{Average}} $ Where: $X_1$ and $X_2$ are the concentration of the original and replicate samples.	The acceptable range depends upon the levels detected:  • 0 - 100% RPD (When the average concentration is < 5 times the LOR/EQL)  • 0 - 75% RPD (When the average concentration is 5 to 10 times the LOR/EQL)  • 0 - 50% RPD (When the average concentration is > 10 times the LOR/EQL)
Blanks (Rinsate and Trip Blanks)	Each blank is analysed as per the original samples.	Analytical Result < LOR/EQL
Laboratory-prepared Trip Spike	The trip spike is analysed after returning from the field and the % recovery of the known spike is calculated.	70% - 130%
	Laboratory QA/QC	
Laboratory Duplicates	Assessment as per Blind Replicates and Split Samples.	The acceptable range depends upon the levels detected:  • 0 - 100% RPD (When the average concentration is < 4 times the LOR/EQL)  • 0 - 50% RPD (When the average concentration is 4 to 10 times the LOR/EQL)  • 0 - 30% RPD (When the average concentration is > 10 times the LOR/EQL)
Surrogates  Matrix Spikes  Laboratory Control Samples	Assessment is undertaken by determining the percent recovery of the known spike or addition to the sample. $ \frac{C - A}{B} $ Where: A = Concentration of analyte determined in the original sample; B = Added Concentration; C = Calculated Concentration.	70% - 130% (General Analytes) 50% - 130% (Phenols) 60% - 130% (OP Pesticides)  If the result is outside the above ranges, th result must be < 3x Standard Deviation of the Historical Mean (calculated over past months)
Method Blanks	Each blank is analysed as per the original samples.	Analytical Result < LOR/EQL

CES Document Reference: CES130608-BP-AR QAQC Appendix

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RPD R	
t Sample	
and Split	
Replicate	
Blind	

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Sample ID		280408-12-KW	280408-13-KW	280 408-14-KW				29 0805-39-KW	290408-46-KW	2 90408-41-KW			010508-136-KW	010508-137-KW	010508-138-KW		
Location			BBH403						BBH409					BBH445			
Depth			1144						0.2.0.5					0.1.0.4			
Date			28 April 2008						29 April 2008					1 May 2008			
Laboratory		Envirolab	Earv irolab	ALS				Envirolab	Envirolab	M.S			Env irolab	Envirolab	ALS		
Parameter	PQL Un	Units Original Sample	Blind Replicate	Split Sample	Blind Replicate	Η,	Split Sample Average RPD	Original Sample	Blind Replicate	Split Sample	Blind Replicate Average RPD A	Split Sample Average RPD	Original Sample	Blind Replicate	Split Sample	Blind Replicate	Split Sample
Metals						1	11									1	
Arsenic	4 m	mgkg 7.3	5.8	11	6.55 N/A	23% N/A	9.15 40% N/A N/A	28 77	40	56	61 69% N/A N/A	69 38%	*> <	44	\$ 0	N/A N/A	N/A N/A
Chromium	- I	oks 6.1	52	4	2.65	16%		7 82	66	72	28%	+	7 17	7 17	3		-
Copper	l m		3.4	< \$	2.5	72%	1.6 N/A	160	150	133	9//9		1.9	2.3	9	2.1 19%	
Nickel	. m		1.9	<2	2.4	42%		3.8	4.3	3	4.05 12%		<1	<1	7	N/A N/A	N/A
Lead	e i	5.8	11	< 5	8.4	62%	5.8 N/A	290	360	268	325 22%	279 8%		5	œ œ	30%	10.5 143%
Macsin	0.1		× 0.1	<0.1	N/A	NA NA	1	0.49	850	0.3	+		<0.9	<0.1	- TO	+	N/A
TPH/BTEX																	l
TPH C6 - C9	H	mgkg <25	< 25	<10	N/A	N/A		<25	< 25	<10		N/A N/A	< 25	< 25	<10	N/A N/A	H
TPHC10 - C14	+		> >0	< 50	V/N	V/V	N/A N/A	< 50	08>	> >0	V/V	N/A N/A	× 50	> >0	<\$0	+	VX VX
THICLS - CZ8	+		< 100	<100	VNV	N/A		< 100	< 100	< 100	1	+	< 100	< 100	2100	N/A N/A	NA NA
Decrees	+		> 100	< 100	V.V	NA	ľ	> 100	> 100	001 ×	N/A	+	> 100 > 00 e	2010	<100	1	N/A
Tolugie	0.5 me	moke < 0.5	< 0.5	< 0.5	Y.N.	VN.	V/V V/V	< 0.5	<0.0	>0.5	N.X.	N/A N/A	< 0.5	<0.5	40.5	V/N V/N	VN VN
Ethylb enzene				<0.5	N/A	N/A	ľ.	<1	~	<0.5	N/A	H	-	<1	-0.5	N/A N/A	
meta- & para-Xykne	2 mg	vkg <2	<2	< 0.5	N/A	NA	<u></u>	<2	<2	<0.5	N/A N/A	_	<2	<2	40.5	N/A N/A	N/A N/A
ortho-Xykne	1 m	ekg < 1	< 1	< 0.5	N/A	NA	N/A N/A	< 1	< 1	< 0.5	N/A N/A	N/A N/A	<1	<1	<0.5	N/A N/A	N/A N/A
PAHS	ŀ						ŀ				ŀ	ŀ				ŀ	ŀ
Naphhakne	+		Ju	10 1	VIV	NA	1	<0.1	<0.1	<0.5	+	+	<0.1	<0.1	40.5	+	N/A
Accushithere	0.1	meke	ii ii	nt nt	N/A	N/A	ľ	100	130	500	K K K K K K K K K K K K K K K K K K K	NA NA	<0.1	207	50	NA NA	ł
Fluorene	H		nt	DI.	N/A	N/A		< 0.1	<0.1	< 0.5	L	N/A N/A	<0.1	< 0.1	40.5	N/A N/A	N/A
Phenanthrene		nt nt	nt	n	N/A	NA		0.1	0.3	< 0.5	-	0.1 N/A	< 0.1	< 0.1	40.5	_	N/A
Anthracene	0.1 mg	mg%g nt	nt	DI	V.V	V/V	N/A N/A	< 0.1	<0.1	<0.5	N/A N/A	N/A N/A	< 0.1	<0.1	40.5	N/A N/A	N/A N/A
Parent	t		ii ii	nt nt	N/A	N/A	ľ	50	00	90		+	<0.1	207	50		NA NA
Benzolakanthracene	ł		to to	100	N/A	N/A		003	0.3	505	1		- 01	501	0.5	ł	N/A
Chrysene		mg/kg nt	nt	nt	N/A	NA	N/A N/A	0.2	0.4	< 0.5	0.3 67%	H	< 0.1	< 0.1	40.5		N/A
Benzo(b)&(k)fluoranthene	+		nt	nt	N/A	N/A		0.5	9'0	nt		+	< 0.2	< 0.2	40.5		
Benzo(a)py sen e	+	9kg nt	nt	nt	V.V	N/A	1	0.3	0.3	< 0.5	03	+	< 0.05	< 0.05	40.5	1	NA NA
Discrete handharcene	GI GI	mg/kg mi	10	20 20	× × ×	V V	NA NA	0.2	0.7	5005	N/A N/A	N/A N/A	N 0 0	00.0	9 8	N/A N/A	NA NA
Barzolehijnevlene	+	2000 2000	nt	D)	×××	VN.	T	0.2	0.2	<0.5		+	10 >	<0.1	40.5		H
0CP																	
alpha-BCH	0.1 mg	vkg m	nt	pu	N/A	NA	F	<0.1	<0.1	< 0.05	N/A N/A	H	< 0.1	< 0.1	< 0.05	N/A N/A	
Hexachlorobergene	0.1 mg	mg/kg nt	nt	DI	N/A	N/A	N/A N/A	< 0.1	<0.1	< 0.05	N/A N/A		< 0.1	< 0.1	< 0.05	N/A N/A	
b-BHC	1	gkg nt	nt	DI,	V.V	N/A	1	< 0.1	<0.1	< 0.05	N/A	N/A N/A	< 0.1	< 0.1	< 0.05	N/A N/A	NA NA
Gamma-Dric (Lincolne)	0.1 0.1	days do	ni	DI	N/A	N/A	T	× 0.1	- CO.1	8000>	l	+	× 0.1	<0.1	0.00	1	ł
Hentachlor	t		1 0	Jul 10	N/A	V/V	ľ	100	×0.1	× 0.08	1	ł	< 0.1	<0.1	0000	V/N V/N	NA NA
Aldrin	0.1 mg	3kg nt	nt	DI.	N/A	N/A		< 0.1	<0.1	< 0.05		ŀ	< 0.1	< 0.1	< 0.05	N/A N/A	L
Heptachlor epoxide	0.1 mg	mg/kg nt	nt	nt	N/A	N/A		< 0.1	<0.1	< 0.05	N/A N/A		< 0.1	< 0.1	< 0.05		N/A
Chlordane - trans	+	mg/kg nt	nt	nt	V/V	N/A	1	< 0.1	<0.1	< 0.05	1	1	< 0.1	< 0.1	<0.05	N/A N/A	1
Chlordane - cis	0.1	mg/kg ni	lu n	10 10	VN	V/V	N/A N/A	×0.1	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	<0.00	N/A N/A	N/A N/A	V 0.1	× 0.1	×0.05	N/A N/A	N/A N/A
Dieldrin	H	2/Kg mt	nt	101	N.N.	ΝA	<u> </u>	<0.1	<0.1	< 0.05	+		0 >	<0.1	<0.05	<u> </u>	
4,4-DDE	0.1 mg	mg/kg nt	nt	101	N/A	N/A		<0.1	<0.1	0.1	N/A N/A		< 0.1	<0.1	0.1	N/A N/A	
4,4-DDD		nt nt	nt	n	N/A	NA		< 0.1	< 0.1	< 0.05			< 0.1	< 0.1	< 0.05	,	
Endrin	+	mg/kg nt	nt	nt	V/V	N/A	1	< 0.1	< 0.1	< 0.05	1	+	< 0.1	< 0.1	<0.05	1	V/N
Endosultan II	+	mg/kg ni	nt	18 19	V N	V V	1	×0.1	<0.1	<0.05	+	+	< 0.1	<0.1	<0.05	1	+
Endrin ancenyde	0.1	ON S	111	8 8	N/A	N/A	N/A N/A	100	100	5000	N/N N/N	N/A N/A	× 0.1	- 0.1 - 0.1	> 0.00	N/A N/A	NA NA
4.4.DDT	t	moke m	10	ul ul	N/A	N/A	ŀ	100	10%	×0.3	+		- (E)	×0.1	<0.0>		N/A N/A
Methoxychlor	0.1 me	100	n	nt	V/X	V/V	N/A N/A	>00	<0.1	< 0.2	K/N	N/A N/A	< 0.1	<0.1	<0.2	N/A N/A	VN VN
OPP							l										
Dimethoate	H	mg/kg nt	nt	nt	N/A	N/A	N/A N/A	< 0.1	<0.1	< 0.05	H	H	< 0.1	< 0.1	< 0.05	N/A N/A	N/A N/A
Diazinon			nt	nt	N/A	N/A		< 0.1	< 0.1	< 0.05			< 0.1	< 0.1	< 0.05		
Chlorpyrifos-methyl	+		nt	DE .	V.V	V/V	N/A N/A	< 0.1	<0.1	<0.00			< 0.1	<0.1	<0.05	N/A N/A	+
Ronning	0.1 me		100	10	N.V	N/A	N/A N/A	V0.1	×0.1	n n	N/A N/A	N/A N/A	× 0.1	<0.1	16 17	N/A N/A	N/A N/A
Chlorpyrifos	+	mg/kg nt	nt	10	N.V	N/A		<0.1	<0.1	< 0.05		NA NA	< 0.1	< 0.1	< 0.05	N/A N/A	N/A N/A
Ethion	0.1 m.		nt	nt	N/A	N/A	NA NA	< 0.1	<0.1	< 0.05	N/A N/A	N/A N/A	< 0.1	< 0.1	< 0.05	N/A N/A	N/A N/A
PCB Total Brib	10	and the same of th	***		Y.O.Y	YALK	NA	10/	10/	9	100	N/A N/A	10/	-	107	N/A N/A	N/A N/A
NOTES	100	50 X 03	=	=	V A	N.M.	N/A	1707	2.00.1	- 0.1	N/A INA	NA I WA	100 /	170.7	1000	N/M	NA.
MOTEUR																	

							_				_									
Sample ID		2804 08-12-K W	*	280 408-14-KW				29 0805-39-KW	290408-40-KW	296468-41-KW				010508-136-KW	010508-137-KW	010508-138-KW				
Location			BBH403						BBH409						BBH445					
Depth			1.1-1.4						0.2.0.5						0.1-0.4					
Date			28 April 2008						29 April 2008						1 May 2008					
Laboratory		Envirolab	Envirolab	ALS			-	Envirolab	Envirolab	ALS.				Envirolab	Envirolab	ALS				
Parameter	PQL Units	Original Sample	Blind Replicate	Split Sample	Blind Replicate Average RPD	*	Split Sample	Original Sample	Blind Replicate	Split Sample	Blind Replicate Average RP		Split Sample Average RPD	Original Sample	Blind Replicate	Split Sample	Blind Replicate Average RP	- V	Split Sample Average RPD	ē
Chroma	- June	3		3	N/A	N/A N/A	A NIA	3	***	***	NIA	NIA	N/A N/A	-	7	90/	NA	NIA.	NO.	ļ
Cumme (isopropylbenzene)	1 makg	10	nt	10	N/A	<u> </u>	N/A N/A	16	pl	n	N/A	N/A	N/A N/A	~		<0.5	N/A	N.Y	N/A N/A	<
n-Propylbertzene	1 mg/kg	pu	nt	μu	N/A		N/A N/A	pu	nt	nt	V/V	N/A		<1	<1	< 0.5		_		<
1, 3,5 - Trimethylbenzone	1 mg/kg	Dia.	nt	DI.	V/V	+	N/A N/A	Dif.	nt	nt	VN	N/A	1	>	>	<0.5	N/A	_	N/A	< :
Sec-outyloenzare	make	8 3	n 10	5 8	N/A	NA NA	NA NA	26 2	10	i i	N/A	N.A.	NA NA	7	7 5	505	V.V.	V.V.	NA AN	< <
tert-Buty lb enzene	1 mg/kg	10	nt	JU .	N/A		V/V V/V	)d	nt	nt	N/A	N/A		>		<0.5	N/A	N/A	//N N//	<
p-isopropyltoluene	1 mg/kg	pu	nt	μu	N/A			pu	nt	nt	V/V	N/A		<1	<1	< 0.5	,	_		ν.
n-Butylbenzene	1 mg/kg	m	nt	nt	N/A		N/A N/A	pt	nt	nt	N/A	N/A		< 1	<1	< 0.5	V/V	N/A	N/A N/A	5
2,2-Dichloropropane	1 mg/kg	10	nt	10 1	N/A	N/A	N/A N/A	16 1	nt	nt	V/N	N/A	NA NA	0	7	<0.5	N/A	N/A	NA NA	< :
1, 2-dientoropropane	make	8 1	10	8 8	V/V	t	AN NA	8 8	10	a la	V N	N.A.	+		7	505	V/V	V V V	N/A	< <
trans-13-Dichloromorene	meke	18	10	16	N/A		V/N V/I	18	DI.	ı	V/V	V.V	+	7 7	7	505	V/N	N.V	N.V.	
1,2-Dibromoethane	1 mg/kg	16	nt	ju	N/A		-	и	nt	nt	V/N	N/A	H			<0.5	V/V	_	N/N	<
Dichlorodifluoromethane	10 mg/kg	tot.	nt	nt	N/A	N/A N/A	VA N/A	pu	nt	nt	N/A	N/A		< 10	< 10	<.5	N/A	N/A )	N/A N/A	<
Chloromethane	10 mg/kg	m	nt	101	N/A		VA N/A	nt	nt	nt	N/A	N/A		< 10	< 10	<.5	N/A	N/A Y	N/A N/A	5
Vinyl chloride	10 mg/kg	ot	nt	ju :	N/A	+	N/A N/A	10	nt	nt	V/N	V/V	N/A N/A	01>	< 10	< > >	V/V	× × ×	N/A	< :
Bromometrane	10 mg/kg	E 1	10	6 1	N/A		VV VV	E 1	10	n i	N/A	N/A		01>	OI >	65	N/A	N.V	N/A	< -
Trichloroftsoromethane	10 ms/ke	5 8	10	5 16	N/A	NA NA	NA NA	E 16	10	n tu	N/A	K.N.	NA NA	0,0	> 10	67	N/A	V.N.	N/N	< <
1,1-Dichloroethylene	1 mgkg	ju ju	nt	nt	N/A		V/V V/	ju	nt	nt	N/A	N/A	N/A N/A		<1	<0.5	N/A	N/A Y	N/A N/A	V
trans-1,2-Dichloroethykne	1 mg/kg	nt nt	nt	DI.	N/A	N/A N/A	VA N/A	nt	nt	nt	N/A	N/A	N/A N/A	< 1	< 1	< 0.5	N/A	N/A Y	N/A N/A	<
1,1-Dichloroethane	1 mg/kg	pd	nt	16	V/V	VN	VN VN	pd	nt	nt	VN	V.V.	NA NA	nt	nt	<0.5	V/V	VN.	N/A	< :
1.1.1.Trichlorothane	meke	5 8	10	5 16	N/A	NA NA	NA NA	E 16	10	n tu	N.N.	K.N.	NA NA	7 -	7 0	<0.5	N/A	V.N.	N/N	< <
1,1-Dichloropropene	l mgkg	ju ju	nt	nt	N/A	N/A N.	V/V V/	ju	nt	nt	N/A	N/A	N/A N/A		<1	< 0.5	N/A	N/A Y	N/A N/A	V
Carbon tetrachloride	1 mg/kg	DI DI	nt	)d	N/A	Z/A	VA N/A	JG D	nt	nt	N/A	N/A	N/A N/A	-		<0.5	N/A	N/A	N/A N/A	<
1,2-Dichloroethane Trickloroethane	1 mg/kg	18 1	nt nt	15 15	N/A	NA NA	NA NA	16 10	nt	n n	V.V.V	N/A	N/A N/A N/A	~ ~	~ ~	<0.5	N/A	N/A	NO NO	< <
Divomomethane	1 mg/kg	16	nt	15	N/A		N/A N/A	16	nt	n t	N/A	N/A	N/A N/A	7 0	7 0	<0.5	N/A	N/A	N/A N/A	<
1,1,2-trichloroethane	1 mg/kg	ju ju	nt	nt	N/A	N/A N.	V/V V/	ju	nt	nt	N/A	N/A	N/A N/A		<1	< 0.5	N/A	N/A Y	N/A N/A	٧.
1,3-dichloropropane	1 mg/kg	nt nt	nt	u	N/A	N/A N/A	N/A N/A	ju ju	nt	nt	V/N	N/A	N/A N/A	>	>	<0.5	N/A	N/A	NA NA	<
Tetrachloroethere	1 mg/kg	16 1	nt	16 1	N/A	NA NA	NA NA	16 1	tu :	n i	N/A	N/A	N/A N/A	7	7	<0.5	N/A	N/A	N/A N/A	< -
1.1.1.2.Terrachlorosthane	make	5 2	10	5 2	N/A	+	1	8 8	111	ii ii	N/N	N/A	NA AN	7 1	7 5	505	V/V	N.W.	N/A	< <
1,2,3-Trichloropropane	1 mg/kg	10	nt	101	N/A	N/A N/A		10	pt	u	N/A	N/A	N/A N/A			<0.5	N/A	N/A Y	N/A N/A	<
1,2-Dibromo-3-chloropropane	1 mgkg	ot	nt	pt	N/A	N/A N/A	N/A N/A	Ju	nt	nt	N/A	N/A	N/A N/A	>	<1	< 0.5	N/A	N/A	N/A N/A	<
Hexachlorobutadiene	1 mg/kg	pd	nt	16	V/V	N/A	VN VN	pd	nt	nt	V/V	V.V.	NA NA	1	~	< 0.5	V/V	VN.	NA NA	< .
Chloroberzone Chloroberzone	mely s	6 1	nt	8 8	V/V		1	8 8	DI DI	of or	N/A	N/A				10 /	V/V	V N	NA NA	< <
Bromobenzone	1 makg	10	nt	10	N/A	<u> </u>	N/A N/A	16	lu lu	n	N/A	N/A	l.	~		<0.5	N/A	N.Y	N/A N/A	<
o-Chlorotoluene	1 mg/kg	jū.	nt	nt	N/A		N/A N/A	Ju	nt	nt	N/A	N/A	N/A N/A	>	>	<0.5	N/A	N/A	NA NA	<
4-chlorotoluene	1 mg/kg	ш	nt	Jú	N/A		-	1d	nt	nt	N/A	N/A	-			< 0.5		_	N/A N/A	5
1,3-Dich lorohenzene	mgkg	16 1	nt nt	16 1	N/A	N/A	NA NA	16 1	nt	nt or	V/X	Y X X	N/A N/A	~ ~	⊽ 5	<0.5	N/A	V.X.	NA NA	< <
1.2-Dich lorob an zene	meke	5 8	1 10	15	N/A	N/A	NA NA	100	ju	ju u	N/A	V.V	V/V V/V	7	7 🔻	× 0.5	V/V	V.V	N/N	< <
1,2,4-trichlorobenzene	1 mgkg	ju ju	nt	nt	N/A		V/V V/	ju	nt	nt	N/A	N/A	N/A N/A		<1	<0.5	N/A	N/A Y	N/A N/A	<i>y</i>
1,2,3-trichlorobenzene	1 mg/kg	m	nt	DI.	N/A		N/A N/A	jú	nt	nt	N/A	N/A	N/A N/A		× 1	<0.5	N/A	N/A Y	N/A N/A	<
Chlorotom	1 mg/kg	8 8	nt	10 10	N/A	Z Z	NA NA	12 12	nt	n n	V/V	V.V	< Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	0	0	<0.5	V V	N/A	N N	< <
Chlorodibromomethane	1 mg/kg	10	nt	ju	N/A	N/A N/A	//A N/A	10	nt	nt	N/A	N/A	N/A N/A	>		<0.5	N/A	N/A	//N N//	<
Bromoform	1 mg/kg	nt	nt	nt	NA	N/A N/A	N/A N/A	m	nt	nt	N/A	N/A	N/A N/A	<1>	<1	< 0.5	N/A	N.V.	N/V N/V	<
PAAH		1		1	1///	No.	1000	1		-	2000	NO	NO.	901 -		****	70.0		NO.	Ī,
E, +108	+	6 8	10	E 10	N/A	$\frac{1}{1}$	N/A N/A	E 18	10	10 10	N/A	K K K	NA NA	> 100	2007	× 180	N/A	V.V.	N/N	< <
2-Methyl-4-chlorophenoxyacetic acid		ш	nt	u	N/A		N/A N/A	ju	nt	nt	N/A	N/A		< 100	< 100	<100	N/A	N.A.	N/A N/A	5
2,4-DP (Dichloroprop)	-	nt	nt	nt	N/A		VA N/A	nt	nt	nt	N/A	N/A		< 100	< 100	< 100		_		ν,
2,40	+	DI.	nt	10	V/V	+	NA NA	nt	nt	nt	V/V	N/A	1	< 100	< 100	< 100		V/V	NA AN	< :
17 Co. 4 & Tairle loans de construction in contra	+	5 1	E 1	6 3	NA		VA VA	E 1	10	11 12	NIA	NA	N/A N/A	001 >	0017	0017	N/A	NIA	N/A N/A	< -
2.45-T	100 usks	8 8	1 10	5 16	N/A	NA NA	NA NA		u	u	N/A	N.A		< 100	001 /	881		N/A	NA NA	< <
Phenols	ł					ł							ł				1			1
Total Phenols	5 mg/kg	ut	nt	pt	N/A	N/A N/A	N/A N/A	u	nt	nt	NA	N/A	N/A N/A	\$	⋄	\$	N/A	N/A Y	N/A N/A	5
Nutrients	ı		•			ı						•	ł				٠			Ī
Ammonia as N Total Visidahi Niscosso		16 1	nt st		N/A	Т	+	16 1	nt or	t t	Y X X	V/N	+	u	n t	16 1			N N	< <
Nirthe as N	O.1 meke	86 16	n n	8 8	V.V	NA NA	+	E 16	n n	n n	N.A.	N/A	NA NA	n nt	n n	10 10	K K K	N/A	× × × ×	< <
Nirate as N	Ш		nt		N/A	П	H	nt	nt	nt	N/A	N/A	H	nt	nt	00		H	N/A N/A	
Total Phosphorous	Ш	101	nt		N/A	П	VA N/A	100	nt	nt	N/A	N/A		nt	nt	101			N/A N/A	<
NOTES																				

Signifies RPD > 50% where the average concentration exceeds (on times the EQL, or where the RRD > 75% where the average concentration is between 2-10 times the EQL, or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Results - Soil	
Sample RPD R	
licate and Split	
Blind Replic	

					,-	-				-				_		_		
Sample ID		0.60508-14-KW	060508-15-KW	060508-16-KW			070508-55-KW	070508-56-KW	07 0508-57-KW				280508-123-KW	2.88	28 0508-125-KW			
Location			AB H2 29					ABH204						ABH240				
Depth			8.0-5.0					0.1-0.4						0.1-0.4				
Date			6 May 2008		ı	_		7 May 2008						28 May 2008				
Laboratory		Envirolab	Envirolab	ALS		•	Envirolab	Envirolab	ALS.				Envirolab	Emirolab	ALS			
Parameter PQ	PQL Units	its Original Sample	Blind Replicate	Split Sample	Blind Replicate Average RPD	Split Sample Average RPD	Original Sample	Blind Replicate	Split Sample	Blind Replicate	a	Split Sample Average RPD	Original Sample	Blind Replicate	Split Sample	Blind Replicate	a	Split Sample Average RPD
Metak					1 1						H	1					H	
Arsenic	4 mg	mg/kg <-4	* * *	9	N/A N/A	N/A N/A	4>	<4	<\$>	NA	N/A	N/A N/A	4> <4	*>	<.5	N/A	N/A	NA NA
Cadmium 2	2 mg		1 0 1	⊽ 5	+	V - c		-		3.05	+	+	V ~	3.5	[>	N.V	+	NO NO
ogen	l mg		& _ ^	7 0	+	- VN		6.5	7	5.2	+		2 81	1.6	2 5 5	1.7		18 N/V
Vickel	1 mg			\$	ŀ	N/A			<25	-		H		1.1	× ×			N/A N/O
. I	1 mg/kg		1.2	42		1.1	6.6	16	6	12.95		9.45 109		2	<.5	2.75		N.)
inc	1 mg	/kg 3-6	12	28	24 100%	32		16	90	10.4		6.4 50%	5.3	3,3	\$ × 5	4.3	47%	53 NO
lercury 0.	0.1 mg		< 0.1	QE.]	1	VΝ		<0.1	< 0.1	N/A	NA	1	A < 0.1	× 0.1	< 0.1	N/A	1	N N
PH C6 - C0	ŀ		< 25	<10	ŀ	N/A N/A	>6.25	> 38	<10	V.N	V.N	N/A	1 < 25	> 35	< 10	V/N	V.N	/W
		mg/kg < 50	< 50	<90	N/A N/A	N/A N/A		08>	< 50	N/A	N/A	N/A N/A	V < 50	08>	< 50	N/A		UN NN
H C15 - C28 100			< 100	⊲00			< 100	<100	< 100	N/A			٧ < 100	<100	< 100	N/A		ON VA
HC29-C36 100	100 mg/kg	/kg < 100	< 100	<000⊳		Н	< 100	<100	< 100	N/A	N/A	N/A N/A	A < 100	<100	< 100	N/A	N/A N	N/A N/O
nzene 0.	0.5 mg/	/kg < 0.5	< 0.5	<0.2				< 0.5	< 0.2	N/A	_		Λ <0.5	< 0.5	< 0.2	N/A	N/A N	N/A N/O
luene 0.	+		< 0.5	QUS	+	t	< 0.5	<0.5	< 0.5	N/A	N/A	+	A <0.5	<0.5	< 0.5	N/A	+	ON V
nyloenzene	The same			5005		t		~	<0.5	N/A			· ·	-	505	N/A	+	N/A N/A
tho:Xylene	2	7 7	77/	<0.5	NA NA	KN KN	7 >	7 >	000	N/A		N/A N/A	7/	7 >	000	N/A	1	CN N/N
VIIs					ł	١						ł						
phthalene 0.	0.1 mg/kg	/kg < 0.1	< 0.1	<0.5	-	H	< 0.1	<0.1	< 0.5	N/A	N/A	N/A N/A	Α < 0.1	< 0.1	< 0.5	N/A	N/A N	N/A N/J
enaphthy lene 0.1			< 0.1	<0.5		1		< 0.1	< 0.5	N/A	N/A			< 0.1	< 0.5	N/A		UA NU
enaphthene 0.			<0.1	<0.5		1		<0.1	< 0.5	N/A			A <0.1	< 0.1	< 0.5	N/A		ON VA
orane 0	0.1 mg	/kg <0.1	100	500	NA NA	t	×0.1	0.0	500	NA 0	N/A	NA NA	V V (0)	100	5005	V 2	××××××××××××××××××××××××××××××××××××××	NA NA
hracne	l		×0.1	5005		H		<0.0	< 0.5	N/A		N/A N/A		<0.1	>0>	N/A	N.V.	CN V/
oranthene 0.1	H	mg/kg < 0.1	<0.1	<0.5	N/A N/A	N/A N/A	<0.1	0.3	<0.5	0.3		N/A N/A	Λ <0.1	< 0.1	<0.5	NA		NA NO
me 0.1			< 0.1	<0.5				0.3	< 0.5	0.3				< 0.1	< 0.5	N/A		NO NO
zo(a)anthracene 0.	+		< 0.1	<0.5	+	1		0.1	< 0.5	0.1				< 0.1	< 0.5	N/A		NO NO
	1		<0.1	QUS	+	+		0.2	< 0.5	0.2	1	+		<0.1	< 0.5	N/A	+	NA NO
2	ł		<0.00	500	+	t		t c	50 >	0.0		t		2007	5 U >	N/A	ł	N N
	+		<0.1	<0.5	+	t	<0.1	-00	< 0.5	0.1		H	V <0.1	00 V	< 0.5	N/A		CN NO
enz(a,h)anthracene 0.1	H	mg/kg <0.1	<0.1	<0.5	N/A N/A	N/A N/A		<0.1	<0.5	N/A	L	N/A N/A		<0.1	<0.5	N/A	L	UN NU
zo(gh;)perylene 0.1			< 0.1	<0.5		Н	< 0.1	0.1	< 0.5	0.1	N/A		A <0.1	< 0.1	< 0.5	N/A	N/A N	N/A N/O
d.	ŀ					ŀ					ŀ	ŀ						
	+	mg/kg < 0.1	< 0.1	<0.5	NA NA	+		nt	nt	N/A	1	+		<0.1	< 0.05	N/A	1	NA AN
0.1	+		< 0.1	SUD>	+	†		nt	16	N.V	1	+		<0.1	×0.00	N/A	N.V.	N/A
ma-BHC (Lindane)	t	me/ke <0.1	187	5005	N/A N/A	(		= 1	8 8	N/A	V.V	N/A N/A	V > 01	100	800	N/A	N/A	NA NA
			<0.1	<0.5	ŀ	H	nt	nt	18	N/A	ļ.			<0.1	< 0.05	N/A	N/A	N/A N/O
tachlor 0.1		/kg <0.1	< 0.1	<0.5				nt	10	N/A			Λ <0.1	<0.1	< 0.05	N/A		UN NN
			< 0.1	<0.5	N/A N/A	Н		nt	nt	N/A				< 0.1	< 0.05	N/A		N/A N/O
de			< 0.1	<0.5				nt	tu tu	N/A				< 0.1	< 0.05	N/A		
	+		<0.1	QUS	NA NA	+		nt	D.	N/A		NA NA		<0.1	<0.05	N/A		NA NO
ordative - dis (L.)	ł	mg/kg < 0.1	× 0.1	905	N/A N/A	N/A N/A		10	8 1	N/A	N/A	N/A N/A		100	<0.05 <0.05	N/A		NA NA
din 01	t		100	<0.5	NA NA	t	100	ii ta	5 %	N/A		N/A N/A	V <01	100	0000	N/A	N.A.	CN NN
DDE 0.	H	mg/kg <0.1	<0.1	<0.5		ŀ	nt	nt	pu	N/A		L	A <0.1	<0.1	< 0.05	N/A	N/A	NA NO
0.1 0.1			< 0.1	<0.5			nt	nt	DI.	N/A	,		A < 0.1	< 0.1	< 0.05	N/A	N/A N	N/A N/O
			< 0.1	<0.5				nt	tot.	N/A				< 0.1	< 0.05	N/A		N/A N/O
	+		< 0.1	<0.5	NA NA	†		nt	nt	N/A	1	+		<0.1	< 0.05	N/A	1	NA NA
drin agenyde (L.)	0.1 mg		<0.1	CW.5	+			nt	pl	V.V	N.V	N/A N/A		<0.1	>0.00	N.A	N/A	NA NA
dosultan sulphate 0.	O. I mg/kg		- CO.1	<0.0	N/A N/A	1		nt	16 1	N/A		+	V <01	100	<0.05	N/A	ľ	NA NO
ilhox whice	t	207	187	<0.5	NA NA	NA AN	ii d	ii ii	6 8	N/A	N/A	NA NA	V × 01	100	× 0.2	N/A	N/A	NA NA
d	l				l	l											-	-
sethoate 0.	Н		< 0.1	<0.05	Н		nt	u	μ	N/A	H			< 0.1	< 0.05	N/A	H	NA NV
			<0.1	<0.05			nt	nt	m	N/A				< 0.1	< 0.05	N/A		NA NA
norpyrics-methyl 0.1	0.1 mg		<0.1	40.05	NA NA	NA NA	nt	nt	bi	N.V	N/A	NA NA	A <0.1	<0.1	<0.05	N/A	N.V.	NA NA
nitroffice	+		187	40.05	+	t	10	= 1	6 3	N/A	N.A	t		100/	1 25	N/A		NA NA
lonpyrifes 0.1		mg/kg <0.1	<0.1	<0.05	N/A N/A	N/A N/A	nt	nt	pu	N/A		N/A N/A		<0.1	< 0.05	N/A	l.	CN V/
hion 0.			< 0.1	<0.05	H		nt	nt	pt	N/A	N/A		·	< 0.1	< 0.05	N/A	N/A N	N/A N/J
38																		
obil PCB u	U.I mg/kg	/kg	1007	-dui	N/A N/A	N/A N/A	101	na na	Б	NA	VN	N/A N/A	V	1707	1707	N.A	VV	N. V.
OLES																		

The continue   Conti	Sample ID		0 60508-14-KW	060508-15-KW	060508-16-KW			<u></u>	070508-55-KW	070508-56-KW	07 0508-57-KW				280508-123-KW	2.80508-124-KW	28 0508-125-KW	_			
This continue with the continue within the continue with the continue with the continue with the con	Location			AB1I2 29						ABH204						ABH240					
1   1   1   1   1   1   1   1   1   1	Depth			0.5-0.8						0.1-0.4						0.1-0.4					
1	Date			6 May 2 008						7 May 2008						28 May 2008					
1   1   1   1   1   1   1   1   1   1	Laboratory		Envirolab	Envirolab	ALS				Envirolab	Envirolab	ALS					Envirolab	ALS				
	Parameter		Original Sample	Blind Replicate	Split Sample	1 ₹ ⊢			Original Sample	Blind Replicate	Split Sample	Blind Rep	Η,	iii —	٩		Split Sample	Blind Re	Η,	Sam	ple RPD
	000					11	11	IJ					11	11					11	11	]
	yrene umene (is corcony Bernzene)	1 mg/kg	7 7	7 7	< 0.5	N/A		$\dagger$	nt	nt nt	15 15	N/A	N/N			7 7	<0.5	N/A	N/N	N/A N/A	N/N
	Propylbenzene	1 mg/kg	<1	<1	< 0.5	N/A		H	nt	nt	tot	N/A	NA			<1	< 0.5	N/A	NA	NA	N/A
	5.5-Trimethylbenzene	1 mg/kg		-	<0.5	N/A		+	nt	nt	pt	N/A	N/A			1	<0.5	N/A	N/A	N/A	V.N
	outylo erzene 2.4-Trimethylberzene	mg/kg	0		<0.5	V V	+	t	nt	nt	8 8	< < < > ×	V.V.		V V	V V	\$0°	< < <	V.X	N/A	< < 2
	t-Butylberzene	1 mg/kg	<1	< 1	< 0.5	N/A	Н	Н	nt	nt	DI.	N/A	N/A		Λ <1	>	< 0.5	N/A	N/A	N/A	N/A
	isopropylto hene	1 mg/kg	2.5	17	< 0.5	N/A	+	+	nt	10	pl	V/V	N/A	1		₹ 5	<0.5	N/N	N/A	N/A	N/A
	Sutylo enzene -Dichloron ron ane	me/ke	7		<0.5 <0.5	N/A		t	nt of	nt	15 15	< × ×	V.V.		· ·	V V	50°	< × ×	V.V	N/A	< × ×
	-dichloropropane	1 mg/kg			<0.5	N/A		t	nt	n	10	N/A	N/A		V	7 7	<0.5	N/A	N/A	N/A	N/A
	-1.3-Dichloropropene	Sy/Su I		1>	<0.5	N/A	N/A	_	nt	nt	100	V/N	N/A	N/A N/A	( ) V	<1	<0.5	N/A	N/A	N/A	N/A
	ms-1,3-Distribution of the Control o	I mg/kg		· ·	<0.5 <0.5 <0.5	N/A	N/N		n n	nt	16 16	×××	N/A	Z Z	· ·	~ ~	\$00×	××××××××××××××××××××××××××××××××××××××	N/N	N/A	××××××××××××××××××××××××××××××××××××××
	chlorodifluoromethane	10 mg/kg	< 10	<10	<.5	N/A	N/A	N/A N/A	nt	nt	10	N/A	N/A	N/A	V <10	< 10	< 2	N/A	N/A	N/A	N/A
	bromethane	10 mg/kg	< 10	<10	<.5	N/A	N/A	N/A N/A	nt	nt	DI.	N/A	N/A	N.A.	V < 10	< 10	<5	N/A	N/A	N/A	N/A
	nyl chloride	10 mg/kg	V V V	V V	\$ \$	NA	V.V	N/A N/A	nt	tu t	18 1	V/N	N/A	Z Z	A < 10	\ \ \ 10	\$ \$	N/A	N/A	N/A	YZ X
	hroefiane	10 mg/kg	< 10	<10	< < > < < < < < < < < < < < < < < < < <	N/A	N/A		n n	n n	E 16	N/A	N.V	N/A N/A	A < 10	× 10	2 \$ \$	N/A	N.V.	N/A	N/A
	chlorofluoromethane	10 mg/kg	< 10	<10	<.5	N/A	N/A		nt	nt	nt	V/V	N/A	N.A. N.A.	Λ <10	< 10	<>	N/A	N/A	N/A	N/A
	Dichloroethykne	l mg/kg	7.7	7	< 0.5	N/A	N/A	N/A N/A	nt	nt	16 1	V/X	N/A	NA NA	V .	77	<0.5	V/X	N/A	N/A	V/X
	Dichloroethane	l marks	7 .	7 -	<0.5	NA	NA	NA NA	nt	n o	5 15	V/V	N.V	N.A.	,	7 🗸	<0>	N/A	N.V	N/A	NA
	1,2-Dichloroethykene	1 mg/kg	<1	<1	< 0.5	N/A	N/A		nt	nt	nt	N/A	N.A	N/A N/A	Λ <1	<1	< 0.5	N/A	N/A	N/A	NA
	1-Trichloroethane	1 mg/kg		0	<0.5	N/A	× × ×	NA NA	nt	nt m	16 1	V.X	N/A	Z Z	V .	~ ~	<0.5	K K	N/A	N/A	Y X
1   1   1   1   1   1   1   1   1   1	bon tetrachloride	1 mg/kg		-	<0.5	N/A	N/A		n tu	nt	15	N/A	N/A	N/A	V	· · ·	<0.5	N/A	N/A	N/A	N/A
1   1   1   1   1   1   1   1   1   1	Dichloroethane	1 mg/kg	2.5	17	< 0.5	N/A	N/A	1	nt	10	pl	V/V	N/A	1		₹ 5	<0.5	N/N	N/A	N/A	N/A
	omomethane	I me/kg	7 0	7	\$00 ×	N/A		t	n n	n ti	E 16	N/N	N/A			7 🔻	<0.5	N/N	N/A	N/A	N.A
The control of the	2-trichloroethane	l mg/kg			< 0.5	NA	_	H	nt	nt	10	N/A	N/A		. I > V	<1	< 0.5	N/A	N/A	N/A	N/A
The control of the	dehloropropane	1 mg/kg	7.5	1>	< 0.5	N/A	N/A		nt	nt	to :	N/A	N/A		V .	2.5	< 0.5	N/A	N/A	N/A	N/A
1   1   1   1   1   1   1   1   1   1	2.Tetrachloroethane	l me/kg	7 .	7 -	×05	N/A	NA		nt	n	E 16	V/V	N.V		V V	7 77	<0.5	N.V	N.V	N/A	N/N
The control of the	22-Tetrachloroethane	1 mg/kg		- 1>	< 0.5	N/A	N/A		nt	nt	TIE .	N/A	N/A		. I > V	<1	< 0.5	NA	N/A	N/A	N/A
1   1   1   1   1   1   1   1   1   1	5-Trichloropiopane	1 mg/kg	7.7	1> 1	<0.5	N/A	N/A	1	nt	nt	16 1	V/X	N/A		V .	77	<0.5	V/X	N/A	N/A	Y.X
1   1   1   1   1   1   1   1   1   1	ach lorobutadiene	1 mg/kg	7 =	7 =	<0.5	N/A		t	n	n n	8 16	N/A	N.V.		7 7	7.7	<0.5	N/A	N.V.	N/A	N.V.
1   1   1   1   1   1   1   1   1   1	mocholoromethane	1 mg/kg	<1	<1	nt	N/A			nt	nt	pt	N/A	N/A		Λ <1	<1	pp	N/A	N.V.	N/A	N.A
1   1   1   1   1   1   1   1   1   1	orobenzene	1 mg/kg	7 7	-	< 0.5	N/A	N/A	t	ti ti	10 10	16 1	N/A	N/A	N N	~ ~	□ 7	<0.5	V X	N/A	N/A N/A	N.A.
1   might   1	hlorotoluene	1 mg/kg	< 1	<1	< 0.5	N/A	N/A	H	nt	nt	DI DI	N/A	N/A	H	V <1	<1	<0.5	N/A	N/A	N/A	N/A
1   mile   1   mile	ilorotoluene	1 mg/kg	1>	<1	< 0.5	N/A	N/A	H	nt	nt	ш	V/N	N/A		( > V	<1	<0.5	NA	N/A	N/A	N/A
1   mile   1   mile	-Dichloroberzene Dichloroberzene	gy,gw I	0	V V	<0.5	NA NA	V.N		nt	nt	10 10	V/V	N.A.	NA NA	V V	V V	<0.5	××××××××××××××××××××××××××××××××××××××	V.N	NA NA	Y X
1   mile   1   mile	Dichloroberzene	1 mg/kg	<1	<1	< 0.5	N/A	N/A		nt	nt	DI.	N/A	N/A	H	V <1	<1	<0.5	N/A	N/A	N/A	N/A
The control of the	4-trichloro benzene	1 mg/kg	7.5	1>	< 0.5	N/A	N/A	Ť	nt	nt	to :	N/A	N/A		V .	2.5	< 0.5	N/A	N/A	N/A	N/A
1   mile   1   mile	oroform	1 mg/kg	7 0	7 =	<0.5	N/A	ł	+	ii ii	n n	B 16	V/V	N/A		7 17	7 7	<0.5	N/A	N/A	N/A	N/A
1   1914   1915   191	modehloromethane	1 mg/kg			< 0.5	N/A			nt	nt	DI.	N/A	N/A		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	<1	<0.5	N/A	N/A	N/A	N/A
Note	to to di bro momelhane	Sy,Su	V 1	~ ~	<0.5	N/A	t	+	nt	nt to	16 15	VN	V X	1	V .	V \	<0.05	N/A	V V	N/A	N.V
1	AH	SW 6011	7	7	200	Val		1	nt	10	18	Val	WW		V	7	000	VW	WW	WW	Val
Note	DB	H	<100	< 100	< 100	N/A	N/A		nt	nt	nt	V/N	N/A	N/A N/A	A nt	nt	ju .	N/A	N/A	N/A	N/A
	mba esthol4ch byto nheno xvacetic acid	+	× 100 × 100	810	> Inc	N/N	N.A.	t	nt of	nt	10 10	V.V.	N.V	1	A http://doi.org/10.000	10 01	10 10	S S S	V.V	N/A	N.A.
100   wight   1   100   wight   1   100   1   100   1   1   1   1   1	DP (Dichloroprop)	H	<100	<100	< 100	N/A	+	t	n tu	n n	5 16	N/A	N/A	-	A nt	n	5 16	N/A	N/A	N/A	N/A
	Q	H	<100	< 100	< 100	N/A			nt	nt	DI.	N/A	N/A		A nt	nt	101	N/A	N/A	N/A	N/A
1   1   1   1   1   1   1   1   1   1	topyr 4.4.5-Trichloronhenoxy) monionic acid	+	010	001>	> 100	V V	+	$^{+}$	nt or	nt	8 8	< < 2	V X	+	A nt	10 10	8 8	< < > >	V.V.V	N/A	< < 2
1	5.T	Н	<100	< 100	< 100	N/A	Н	Н	nt	nt	8 18	N/A	N/A	Н	A nt	nt	10	N/A	N/A	N/A	N/A
mple         1.2         1.4         -20         1.3         15%         1.2         NA	nok al Phenols	5 me/kg	< 5	< 5	< >	V/N	F	F	nt	nt	ы	N/A	N/A	F	A <5	< >	0	N/A	NA	NA	NA
mpkg         1,2         1,4         -(3)         1,3         15%         1,2         1,2 </td <td>rrients</td> <td>╂</td> <td>=</td> <td></td> <td>:</td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td>] [</td>	rrients	╂	=		:					-											] [
mg/kg         c(a)         c(b)         (b)         NA	nonia as N I Kieldahl Nitrogen	+	1.2	200	§ <del>3</del>	1.3	1	1.2 N/A 190 S3%	nt	nt	n n	V.X	××××××××××××××××××××××××××××××××××××××	Z Z	A A	nt	10 10	N N	××××××××××××××××××××××××××××××××××××××	××××××××××××××××××××××××××××××××××××××	××××××××××××××××××××××××××××××××××××××
124 195 56, 125 1855, and and and and NA NA NA NA NA Bit and ANA NA	te as N	H	<0.1	<0.1	0.199	NA	Н	Н	nt	nt	16	N/A	N/A		A nt	nt	10	N/A	N/A	N/A	N/A
20 19 24 193 25 187 25 187 18 18 18 18 18 18 18 18 18 18 18 18 18	Ac as N	+	9.0	0.7	-01	99'0	15%	+	nt	nt	D)	N/A	N/A		A nt	nt	tu.	N/N	N/A	N/A	N/A
	al Phosphorous	10 mg/ng	0.7	19	67	19.5	220	72 18%	nt	nt	n	N.V	N.A		V Di	nt	DI	N/A	V.V	N/A	× ×

Blind Replicate and Split Sample RPD Results - Soil	

- [	-	-	-			L						L			Ī		
Sample ID		13.0508-286-KW	130 508-287-KW	130508-288-KW	_		150508-352-KW	150 508-353-KW	1505 08-3 54-KW				150508-385-KW	1505 088-386-KW 1505 08-3 87-KW	-KW		
Location			ABH275		_			ABH291		_				ABID 84			
Depth			0.8-1.2		_			0.1-0.5						1.3-1.6			
Date			13 May 2008		_	<u> </u>		15 May 2008		_				15 May 2008			
Laboratory		Envirolab	Envirolab	ALS			Envirolab	Envirolab	ALS				Envirolab	Envirolab			
Parameter	PQL Units	Original Sample	Blind Replicate	Split Sample	Blind Replicate	Split Sample Average RPD	Original Sample	Blind Replicate	Split Sample	Blind Replicate	o d	Split Sample	Original Sample	Blind Replicate Split Sample	W	Blind Replicate Split Sample	mple
Metals					1 1					1 1	łŀ	JL			-	1 1	
Arsenic	4 mgkg	**	**	\$ \$	VX VX	NA NA	**	**	\$ \$	Z Z	NA NA	N.A.	* * *	< > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > < < > <  <	××××××××××××××××××××××××××××××××××××××	N/A N/A	< <
Chromium	1 meks	7 🗸	7 🗸	<2		l	7 22	91	<2		ŀ	N.A	5		1.55		967%
Copper	1 mg/kg	<1	<1	< 5			22	2.7	< 5			N/A	1.7		1.55	Н	112%
Nickel	1 mgkg	1	1	<22		+	1.9	41	<2	1.65 30	30% 1.9	N/A	13	<u>e</u>	1.3	+	****
Zing	meke	33	13	\$ \$	2.4 92%	t	Z 12	3 19	13 40	ŀ	35% 13.5	7%	57.7	15.2	20.5	44% 25.5	4%
Mercury	0.1 mekg	< 0.1	< 0.1	< 0.1		l	< 0.1	< 0.1	< 0.1	N.V.		N/A	< 0.1		N/A		N/A
TPH/BTEX																	
TPH C6 - C9	25 mg/kg	101	101	jú	H	H	< 25	<25	<10	H	H	N/A	DI.	m m	N/A	H	N/A
TPHCIO-C14	1	pi	pi	pl	NA NA	NA NA	08 >	< 50	< 50	N/A N/A	N/A N/A	NA NA	pl	DI DI	N/A	N/A N/A	N/A
TOHOUS CIS	+	E 1	E 1	E 1			807	80 80	001 >			NIA	E 1	E 1	V/W		NA
Bergene	$^{+}$	80%	80%	× 0 3		ł	80%	807	>0.0		+	V.V	<b>1</b> 10 10 10 10 10 10 10 10 10 10 10 10 10		N/A		N/A
Toluene		<0.5	<0.5	< 0.5		l.	< 0.5	<0.5	< 0.5			N/A	16		N/A		N/A
Ethylbenzene	1 mg/kg	<1	<1	< 0.5	N/A N/A		<1	<1	< 0.5		N/A N/A	N/A	lu lu		N/A		N/A
meta- & para-Xylene	2 mg/kg	< 2	< 2	< 0.5	N/A N/A	N/A N/A	< 2	< 2	< 0.5	N/A N/	N/A N/A	N/A	nt	nt nt	N/A	N/A N/A	N/A
ortho-Xylene	l mg/kg			< 0.5	N/A N/A	N/A N/A	< 1	\ 	< 0.5	N/A N/A	N/A N/A	N/A	nt	m m	N/A	N/A N/A	N/A
PAIIS					2000	200			8.00	100	200	200		-	1///	200	200
Account hithylene	0.1 meke	38 3	38 3	8 2	l	ł	×0.1	50.1	<0.5	t	t	N/A	10 10	36 3	N.N.	N/A N/A	N/A
Acemphibene		ju ju	ju ju	16			< 0.1	<0.1	<0.5			N/A	10		N/A		N/A
Fluorene	0.1 mg/kg	pt	pt	pt	N/A N/A	N/A N/A	< 0.1	< 0.1	< 0.5	N/A N/A	N/A N/A	N/A	nt		N/A	N/A N/A	N/A
Phenanthrene	0.1 mg/kg	10	Dit .	ut	N/A N/A		<0.1	<0.1	<0.5		V/N	N/A	10		V/V	N/A N/A	V/V
Fluorenthan	U.I mg/kg	36 1	36 1	26 3	N/A N/A	NA NA	× 0.1	207	<0.5	N.V. V.N.	N/A N/A	N/A	56 15	86 3	N/A	N/A N/A	N/A
Pyrene		100	100	161	N/A N/A	N/A N/A	< 0.1	<0.1	<0.5		V/N V/	N/A	16	1 16	N/A	N/A N/A	N/A
Benzo(a)anthracene	L	16	10	16		l.	< 0.1	< 0.1	< 0.5		H	N/A	pu	161	N/A		N/A
Chrysene		30	DE DE	nt	H		< 0.1	< 0.1	< 0.5			N/A	u		N/A		N/A
Berzo(b)ek(k)Huoranthene	0.2 mg/kg	10	10	10	N/A N/A	NA NA	<0.2	<0.2	Dit	N/A N/A	N/A N/A	N/A	Di		N/A	N/A N/A	N/A
Indexed apprene	+	8 8	8 8	E 18	+	+	501	>0.00	<0.5	+	+	N/A	E 18	10 10	N.A.	+	N/A
Dibenz(a,h)anthracene	0.1 mg/kg	ju	ju	DI.	N/A N/A	NA NA	< 0.1	<0.1	<0.5		N/A N/A	N/A	)d		N/A	N/A N/A	N/A
Berzo(g,h,i)pery lene		ju	ju	Ju	N/A N/A	N/A N/A	< 0.1	< 0.1	< 0.5	N/A N/S	N/A N/A	N/A	u		N/A	N/A N/A	N/A
OCP	ŀ	=	=		ŀ	ŀ		i		ŀ	ŀ			-		ŀ	
alpha-BCH Hencelstoochennen	0.1 mg/kg	10 1	10 1	16 1	N/A N/A	NA NA	10 1	16 1	16 1	N/A	N/A N/A	N/A	16 1	10 1	N/A	N/A N/A	N/A
headening contents	t	5 1	5 1	15 15	ł	t	5 10	18 18	5 1	+	$\frac{1}{1}$	N/A	5 7	5 7	N/A	ł	N/A
gamma-BHC (Lindane)		100	100	pt			100	ju	10			N/A	10		N/A		N/A
4-BHC	0.1 mg/kg	ju	pu	pu			pu	ju	pt		N/A N/A	N/A	pu	pt pt	N/A	N/A N/A	N/A
Heptachlor	0.1 mg/kg	nt	nt	pt	N/A N/A		Dil.	nt	nt			N/A	DI	m m	N/A	N/A N/A	N/A
Aldrin	0.1 mg/kg	pt	pt	pt	NA NA	VN VN	pt	pt	pt	N.V.	N/A N/A	NA NA	pt	nt	N/A	V/N V/N	V.V
Heptachior epoxide	+	16 1	16 1	16 1	N/A N/A	+	16 1	16 1	16 1	1	N/A N/A	N/A	16 1	16 1	N/A	+	N/A
Chlordane - cis	0.1 meke	16 16	16 16	5 18		VN VN	5 18		5 18	l.	l.	V/V	5 16	1 8	V/V	N/A N/A	V/V
Endosulfan alpha	0.1 mg/kg	DI.	DI.	DI DI			pt	pt	lu lu			N/A	u	pt pt	N/A	N/A N/A	N/A
Dieldrin		10	DI.	ti.			DI.	Til.	10			N/A	10		N/A		N/A
4+DDD	O.1 meke	16 16	15 15	16 16	N.A. N.A.	NA NA	15 15	15 15	15 15	× × × ×	NA NA	N N	16 16	10 10	××××××××××××××××××××××××××××××××××××××	NA NA	< < > ×
Englin	L	18	18	18			18	188	16	L		N/A	18		V/V	N/N N/N	N/A
Endosulfan II	0.1 mg/kg	Ju	DI.	DI DI	N/A N/A	N/A N/A	pt	pt	lu lu	N/A N/	N/A N/A	N/A	u	pt pt	N/A	N/A N/A	N/A
Endrin aldehy de	0.1 mg/kg	ut	ut	nt	N/A N/A		nt	nt	nt		N/A N/A	N/A	nt	m mt	N/A	N/A N/A	N/A
Endosultan sulphate	+	10 1	10 1	16 1		+	10 1	16 1	16 1			N/A	16 1	10 1	N/A		V X
Methoxychlor	l	5 6	5 6	5 16			5 16 16	5 16	6 16			N.V	E 16		V.N		V.V
OPP	0																
Dimethoate		ju	ju	ju			u	ju	ш		H	N/A	ju	nd nd	NA	N/A N/A	N/A
Diszinon	+	pt	pt	pt	NA NA	NA NA	16	16	pt	1	1	N/A	nt nt		V/V	N/A N/A	N/A
Chicapyrios-metryi	U.I mpkg	36 3	36 3	26 3			36 3	56 3	36 3			N/A	26 10	56 3	N/N		N/A
Fenindian	+	5 20	5 20	5 10	NA NA	VN VN	5 20	5 2	6 10	N VN	N/A N/A	V.V.	5 10	5 8	V.N	N/N N/N	N/A
Chlorpyrifos	0.1 mg/kg	pt	pt	pt	H	H	pt	DI.	pt	H	H	N/A	D)	m	N/A	H	N/A
Ethion	0.1 mg/kg	pt	DI.	Dif	N/A N/A	N/A N/A	Dif	DE .	pt	N/A N/A	N/A N/A	N/A	nt	m m	N/A	N/A N/A	N/A
PCB Total Brit	odlesse 10			1	N/A N/A	NG NG				NA	V. N. V.	N/A		3	V/A	N/A N/A	N/A
NOTES									1			-					

u-1		THE PER WATER	AND MEN SON THE	Andrews Age of the Party	_		THE NAME OF PERSONS	TALL LAN SPECIAL	The same of the sa				AND AND OPPOSE	TALL YOU GENERAL	TAXAB BOOK ON AND A		
T adultion I		La transportation IV II	ABILLYS	LOUGHOUS GOIN II			DANGERON	ABIDS	TOTO DESCRIPTION AND ADDRESS OF THE PARTY OF				I O GORGO OGGA KA H	ABIDSA	TORONOO AN AL		
normor.					_	•											
Depth			0.8-1.2		_			0.1-0.5						1.3-1.6			
Date			13 May 2008		_			15 May 2008						15 May 2008			
Laboratory		Envirolab	Envirolab	ALS			Envirolab	Envirolab	ALS				Envirolab	Envirolab	ALS		
Parameter	PQL Units	Original Sample	Blind Replicate	Split Sample	Blind Replicate Average RPD	Split Sample O Average RPD	Original Sample	Blind Replicate	Split Sample	Blind Replicate Average RPI	W V	Split Sample Average RPD	Original Sample	Blind Replicate	Split Sample	Blind Replicate S Average RPD Aven	Split Sample Average RPD
VOC											H				-		
Styrene Commune (sommont) ben some)	1 mgkg	7	7 7	< 0.5	N/A N/A	N/A N/A	16 1	16 3	16 3	Y X X	NA NA	N/A	16 1	16 1	16 3	N/A N/A N/A	V X X
n-Propylenzene	1 make	7 7		<0.5	N/A N/A	L	1 10	8	8	V.N	N/A N/A	N/A	8 8	5 2	1 2	N VN	VN V
1,3,5-Trimethylbenzene	1 mg/kg	<1	<1	< 0.5			pu	DI.	ut	N/A			nt	nt	DI DI	N/A	A N/A
sec-butylbenzene	1 mg/kg	0	-	<0.5	N/A N/A		16	nt	nt	V.X	N/A N/A	1	ju :	10	nt	N/A N/A N/A	V/V
1,24-1rimetryloenzene	mgkg	V 1	0.5	<0.5	N/A N/A	NA NA	16 1	18 1	18 1	NA	+	N/A	16 1	16 1	16 1	VIX	A NA
b-ison coviolatine	meke	7 7	7 7	<0.5	NA NA	VN VN	8 8	8 8	5 10	N.V			8 88	5 10	8 8	V.N	VN V
n-Butylbenzene	1 mg/kg			< 0.5	N/A N/A	<u> </u>	ju	10	101	N.A	N/A N/A		101	ju	DI DI		A NA
2,2-Dichloropropane	1 mg/kg	<1		< 0.5	N/A N/A	N/A N/A	pd	nt	nt	N/A			m	pt	nt	N/A	A N/A
1,2-dichloropropane	1 mg/kg	-		< 0.5	N/A N/A	N/A N/A	Til.	m	nt	N/A	_		ш	10	nt	N/A N/A N/A	N/A
cis-1,3-Dichloropropene	1 mg/kg	1	V 1	< 0.5	N/A N/A	NA NA	18 1	10 1	16 1	N/A	NA NA	N/A	ш	16 1	10	NA NA NA	V NA
Tans-1,5-Denomorphism	1 mg/kg	7	v 1	< 0.5	N/A N/A	N/A	10 1	10 10	10	N/A			10 10	10	6 1		N/A
Dichlorodiffuoromethane	ł	01 ×	×10	5 5	N/A N/A	VX	1	18	8 8	N/A	N/A N/A		8 18		8 18	N NN	N/A
Chloromethane	10 mg/kg	< 10	< 10	< >	N/A N/A	NA NA	ju	pu	p	N/A	N/A N/A	N/A	u	nt	n	N/A N/A N/A	A NA
Vinyl chloride	10 mg/kg	< 10	< 10	<\$	N/A N/A	NA NA	ш	10	101	N/A	N/A N/S	L	100	DI	101	N/A N/A N/S	A N/A
Bromomethane		< 10	<10	<\$	N/A N/A	NA NA	ju	nt	nt	N/A	N/A N/A	_	In	)u	nt	N/A N/A N/	A N/A
Chlorochane	10 mg/kg	< 10	< 10	<\$	N/A N/A	NA NA	nt	nt	nt	N/A	N/A N/A	N/A	DI.	nt	nt	N/A N/A N/A	A N/A
Trich loso fluoromethane	+	< 10	<10	<5	N/A N/A		Til.	nt	nt	V.V	N/A		m	pt	nt	NA NA	A NA
1,1-Dichloroethylene	meke			< 0.5	N/A N/A	NA NA	to .	pt	pt	N/A	N/A N/A	N/A	ot	pt	pt	NA NA	V.V.
1 1-Dichlorouthane	1 make	V V	7	< 0.5	N/A N/A	VN VN	26 2	88 3	8 3	N/A	N/A N/A	NA NA	28 27	25 25	88 3	N N N N N N N N N N N N N N N N N N N	N/A
cis-12-Dichloresthylene	1 meke	7 7	7 0	<0.5	N/A N/A	VN VN	11 12	1 2	11 12	V.N	N/A	N/A	6 8	E 10	11 12	N. A.N.	VN V
1,1,1-Trichloroethane	1 mg/kg			< 0.5	N/A N/A	N/A N/A	n	10	15	N/A	NA NA	N/A	14	141	10	N/A N/A N/S	A N/A
1,1-Dichloropropene	1 mg/kg	<1	<1	< 0.5	N/A N/A	N/A N/A	ju	pu	nt	N/A	N/A N/J	N/A	pu	nt	pt	N/A N/A N/	A N/A
Carbon tetrachloride	1 meks	1	~	< 0.5	N/A N/A	NA NA	16	pt	p	N/A	N/A N/A	N/A	TO TO	pt	pd	N/A N/A	A NA
Trichlomethene	1 meke	V V	7	<0.5	NA NA	V V V	10 10	16 17	16 17	N/A	N/A N/A	N.V.	16 16	10 10	10 10	Z Z Z	N/A
Dibromomethane	1 mg/kg			< 0.5	N/A N/A	N/A N/A	ju	pu	p	N/A	N/A N/A	N/A	u	nt	n	N/A N/A N/A	A NA
1,1,2-trichloroethane	1 mg/kg	<1		< 0.5	N/A N/A	N/A N/A	pd	nt	nt	N/A	N/A N/A	N/A	m	pt	nt	N/A N/A N/S	A N/A
1,3-dichloropropane	1 mg/kg	<1	<1	< 0.5	N/A N/A	N/A N/A	DI.	ju.	tot	N/A	NA N/	N/A	m	ut	jul	N/A N/A N/A	A N/A
Tetach lorothene	I mgkg	V 1	V 1	< 0.5	NA NA	NA NA	10	ju :	DI .	VIV	NA NA	N/A	DI .	ju	10	NA NA NA	V NA
1.12.2-Temehorethane	Swam I	7	7 0	500		1	8 8 8	8 8	5 8	N/A		ł	8 8	5 12	5 8	N/A	NA NA
1.2.3-Trichloromorane	1 meke	7 7		< 0.5	N/A N/A		5 18	8 18	8 8	Y.N		H	8 8		1 18		N/A
1,2-Dibromo-3-chloropropane	1 mg/kg	<1	<1	< 0.5	N/A N/A	N/A N/A	pd	DI	DI	N/A	N/A N/A	N/A	m	Dt	DI DI	N/A N/A N/S	A N/A
Hexachlorobutadiene	1 mg/kg		-	< 0.5	N/A N/A		nt	nt nt	DI.	N/A	_		m	ju	nt nt	N/A	A N/A
Bromocholoromethane	1 mg/kg			DI.	NA NA		pt	nt	nt	N.V.	N/A	N/A	nt	pt	nt	NA AN	V/V V
Chloro berizene	S William I	7	V \	×0.5	NA NA	VX VX	16 1	16 2	16 17	N/A	NA NA	N/A	16 3	16 1	16 10	V2 V2	N/A
o-Chlorotolame	SO S	77 V	7 .	<0.5	N/A N/A	NA NA	8 8 8	3 25 3	8 8	N/A	N/A N/A	N/A	8 88 8	55 10	1 1 1 1	NA AN	N/A
4-chlorotoluene	1 mg/kg			< 0.5	N/A N/A		ju	10	101	N/A	N/A N/A	N/A	101	ju	DI DI	NA NA NA	V/N V
1,3-Dichlorobenzene	1 mg/kg	<1	> 1	< 0.5	N/A N/A	N/A N/A	ju	pd.	DI.	N/A	N/A N/A	N/A	nt	jú	nt	N/A N/A N/A	A N/A
1,4 Dich lorobenzene	1 mg/kg	1	7	< 0.5	NA NA	NA NA	pd .	nt	te.	Y.V	NA NA	N/A	pt	nt	nt	NA NA	V.V.
1,2-DKB to contracts	maks	V /	V \	< 0.5	N/A N/A	NA NA	100	88 3	8 2	N/A	N/A	N/A	88 3	26 2	88 3	NA NA NA	NA NA
1,2,3-trich lorob enzene	1 moks	7 7	· ·	< 0.5	N/A N/A		100	100	1 16	NA	N/A N/S	N/A	E 16	5 16	100	NA NA NA	N/A
Chloroform	1 mg/kg	<1	1	< 0.5	N/A N/A	N/A N/A	pd pd	pd	nt	N/A	N/A N/A	N/A	pu	u	pt	N/A N/A N/A	A N/A
Bromodichloromethane	mgkg			< 0.5	NA NA	NA NA	to .	pt	pt	V.V.	N/A N/A	N/A	ot	pt	pt	NA NA	V.V.
Bromoform	ngkg	V V	7	< 0.5	1	1	8 8	88 8	8 8	N/A	N/A N/A	N/A	8 8	25 25	88 8	N/A	NA NA
PAAH	0																
2,4-DB	H	ju	10	nt	N/A N/A		μ	m	m	N/A	NA NA	N/A	nt	nt	m	H	A N/A
Dicamba	100 ug/kg	18 1	18 1	16 1	N/A N/A	NA NA	18 1	18 1	16 1	N/A	N/A N/A	N/A	18 1	18 1	18 1	NA NA NA	N/A
2-Methyl-4-chlorophenoxyacetic acid	ł	36 1	8 1	18 18		N/A	18 18	38 1	8 1	N/A		+	88 1	36 3	88 1	N/A	N/A
24D	+	16	18	16		N/A	15 15	15 15	15	N.N.	l.	H	18	16	: 15	N/A	N/A
Triclopyr	100 ug/kg	pd	nt	nt	N/A N/A	N/A	nt	n	nt	N/A	N/A N/A	N/A	n	nt	m	N/A N/A N/A	A N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	+	10	ш	m	+	N/A	ы	DE DE	DI	N/A	N/A N/A	+	M	Di	DI DI	N/A	N/A
Z,4,5-T	100 ug/kg	100	16	D)	N/A N/A	NA NA	100	10	DI,	××	N/A N/A	N/A	150	nt	16	NA NA	A NA
Total Phenols	5 mg/kg	161	10	ш	N/A N/A	N/A N/A	16	160	16	N/A	N/A N/A	NA	ш	10	16	N/A N/A N/A	N/A
Nutrients																	
Ammonia as N	H	ju	DI.	nt	П	N/A	μ	m	m	N/A	H	H	nt	nt	m	N/A	N/A
Total Kjeldahl Nitrogen	30 mg/kg	16 1	16 1	16 1	N/A N/A		16 1	16 1	16 1	Y X	N/A N/A	NA NA	16 1	16 1	16 1	NA NA NA	NA NA
Nirale as N	t	8 8	8 8	10	Ť	N/A	8 8	8 8	6 16	N.V		$^{+}$	8 88	5 10	8 8	V/V	V/V V
Total Phosphorous	10 mg/kg	Jul Di	pu	nt		N/A	pu	DI.	ut	N/A			nt	nt	DI DI	N/A	A N/A
NOTES																	
Relative Percentage Difference (RPD) is calculated	as the absolute value of the																

Blind Replicate Sample RPD Results - Soil

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Sample ID			280408-19-KW	280408-20-KW			290408-32-KW	290508-33-KW			290408-51-KW	290408-52-KW		
Location			BB	BBH413			BBH	BBH416			BBI	BBH408		
Depth			1.0	1.0-1.3			0.1-0.3	-0.3			1.2-1.4	1.4		
Date			28-A	28-Apr-08			29-AI	29-Apr-08			29-A	29-Apr-08		
Laboratory			Envi	Envirolab			Envir	Envirolab			Envirolab	rolab		
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate Average R	eplicate RPD	Original Sample	Blind Sample	Blind Replicate Average R	plicate	Original Sample	Blind Sample	Blind Replicate Average RI	plicate
Metals														
Arsenic	4 0	mg/kg ma/ka	ti ti	ti ti	Y X	V X	> 22	91	6/N	32% N/A	8.4	6.5	5.65 N/A	30% N/A
Chromium	. –	mg/kg	11 11	ii ti	N/A	N/A	2.6	7.7	8.7	23%	2.1	2.5	2.3	1.7%
Copper	-	mg/kg	nt	nt	N/A	N/A	24	25	24.5	4%	\ \	· ·	N/A	N/A
Nickel Cond		mg/kg	t t	t i	V X	× ×	3.5	7.2	5.85	46%	~ ~	- -	××-	××××××××××××××××××××××××××××××××××××××
Zinc	-	mg/kg	11 12	ii tii	N/A	X.X	59	65	75 29	10%	3.1	2.5	2.8	21%
Mercury	0.1	mg/kg	nt	nt	N/A	N/A	0.22	0.2	0.21	10%	< 0.1	< 0.1	N/A	N/A
TPH/BTEX														
TPH C6 - C9	25	mg/kg	< 25	< 25	V/V	V/V	nt	H	V/V	N/A	nt	nt	N/A	N/A
TPH C10 - C14	00	mg/kg ma/ka	< 100	< 100	N/A	N/A	nt nt	E E	N/A	N/A	nt	nt	N/A	N/A
TPH C29 - C36	100	mg/kg	> 100	<100	N/A	N/A	nt	11	N/A	N/A	nt	nt	N/A	N/A
Berzene	0.5	mg/kg	< 0.5	< 0.5	N/A	N/A	nt	TIT.	N/A	N/A	nt	nt	N/A	N/A
Toluene	0.5	mg'kg	< 0.5	< 0.5	N/A	N/A	nt	Ħ	N/A	N/A	nt	nt	N/A	N/A
Ethylbenzene	- (	mg/kg	~ 5		N/A	N/A	ti ii	# 1	N/A	N/A	nt	nt	N/A	N.A.
meta- & para-Aytene ortho-Xylene	7 -	mg/kg mo/kg	7   >	7   \	K K K	< < <	ii ii	2 12	< < <	X X	nt	nt nt	× × ×	× × ×
PAHs		0												
Naphthalene	0.1	mg/kg	nt	nt	N/A	N/A	nt	TIS.	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Acenaphthylene	0.1	mg/kg	nt	nt	N/A	N/A	nt	担	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Acenaphthene	0.1	mg/kg ma/kg	ti ti	ti ti	N/A	N/A	ti ti	# 1	N/A	V X	<0.1	0.0	N/A	N/A
Phenanthrene	0.1	ma'ka	1 11	11	N/A	N/A	ı	12	N/A	N/A	< 0.1	< 0.1	Z/X	X/X
Anthracene	0.1	mg/kg	nt	nt	N/A	N/A	nt	11	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Fluoranthene	0.1	mg/kg	nt	nt	N/A	N/A	nt	Ħ	N/A	N/A	<0.1	< 0.1	N/A	N/A
Pyrene	0.1	mg/kg	ti it	t t	N/A	V.X.X	t t	# 1	V.V.V	N/A	< 0.1	× 0.1	K/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N	V.X.
Berkot a)anunacene Chrysene	0.1	mg kg	n ti	11 11	N/A	V/N	11 11	11 11	××××××××××××××××××××××××××××××××××××××	V V	<0.1	× 0.1	N/A	X X
Berzo(b)&(k)fluoranthene	0.2	mg/kg	nt	nt	N/A	N/A	nt	H	N/A	N/A	< 0.2	< 0.2	N/A	N/A
Benzo(a)pyrene	0.05	mg'kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	< 0.05	< 0.05	N/A	N/A
Indeno(1,2,3-ed)pyrene	0.1	mg/kg	nt	nt	N/A	N/A	nt	H	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Berzo(a,h.i) pervlene	0.1	mg/kg mg/kg	1 11	11 11	N/A	×××	11 11	= =	××××××××××××××××××××××××××××××××××××××	V V	< 0.1	× 0.1	N/A	X X
OCP														
alpha-BCH	0.1	mg'kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Hexachlorobenzene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
D-BHC (Tindona)	0.0	mg/kg mg/kg	ii ii	ii ii	V/V	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
d-BHC	0.1	mg/kg	1	t	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	Z/X	×/×
Heptachlor	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Aldrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Heptachior epoxide	0.1	mgkg	ti ti	nt nt	V/V	N/A	< 0.1	0.0	N/A	V V	× 0.1	0 0 0	N/A	V V
Chlordane - cis	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endosulfan alpha	0.1	mg'kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Dieldrin	0.1	mg/kg	t i	н :	N/A	V X	< 0.1	< 0.1	K/Z/	V.V.	< 0.1	< 0.1	K/X	K/A
44DD	0.0	maka	i i	ii ta	V/V	N/A	< 0.1	× 0.1	N/A	N/A	<0.1	× 0.1	N/A	N/A
Endrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endosulfan II	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Endrin aldehyde	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
A A D D T	0.0	modea	<b>=</b> 1	i i	N/A	N/A	× 0.1	<0.1	N/A	N/A	×0.1	V 0.1	N/A	N/A
Methoxychlor	0.1	mg/kg	i ti	i ti	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
OPP														
Dimethoate	0.1	mg/kg	nt	nt	N/A	N/A	<0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Diazinon	0.1	mg/kg	nt	nt i	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlopyrios-nethyi Romei	0.1	mg/kg me/ke	ă ă	i ii	XXX	× × ×	× 0.1	× 0.1	× × ×	K X	<0.1	× 0.1	X X	X X
Fenitrothion	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Chlopyrifos	0.1	mg/kg	nt	nt	V/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Ethon	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	NA	< 0.1	< 0.1	N/A	N/A
Total PCB	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
NOTES:														

Sample ID			280408-19-KW	280408-20-KW			290408-32-KW	290508-33-KW			290408-51-KW	290408-52-KW		
Location			BBH	BBH413			BBI	BBH416			BBH408	1408		
Depth			1.0-	1.0-1.3			0.1	0.1-0.3			1.2-1.4	1.4		
Date			28-A <sub>I</sub>	28-Apr-08			29-A	29-Apr-08			29-A	29-Apr-08		
Laboratory			Envir	Envirolab			Envi	Envirolab			Envirolab	olab		
Parameter	PQL	Units	Original Sample	Blind Sample	Blind R	Blind Replicate	Original Sample	Blind Sample	Blind Replicate	plicate RPD	Original Sample	Blind Sample	Blind Replicate	plicate
VOC														
Styrene		mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	1	Į,	N/A	N/A
Cumene (isopropylbenzene)	1	mg/kg ma/ba	n n	n n	A'N	N/A	nt	11 11	V V	N/A	V V	v .	V V	N/A
1,3,5-Trimethylbenzene	-	mg/kg	n n	ш	N/A	N/A	i ti	: 12	N/A	N/A	~ ~		N/A	N/A
sec-butylbenzene	_	mg/kg	nt	nt	N/A	N/A	nt	11	N/A	N/A	· ·	· ·	N/A	N/A
1,2,4-Trimethylbenzene	-	mg'kg	nt	nt	N/A	N/A	nt	TI .	N/A	N/A	V	7	N/A	N/A
n-isopropyltoluene	-	mg/kg mg/kg	H H	n n	X X	X X	n n	E 12	V V	X X	7 7	7 7	X X	X X
n-Butylbenzene	-	mg/kg	nt	nt	N/A	N/A	nt	П	N/A	N/A	<1	-1>	N/A	N/A
2,2-Dichloro prop ane	- -	mg/kg	ut	nt	N/A	N/A	nt	H	N/A	N/A	7	V	N/A	N/A
1,2-dichloropropane cis-13-Dichloropropene	1	mg/kg me/ko	10 10	n n	V X/X	N/N	n n	= =	V V	V N	V V	v v	V X X	N/A
trans-1,3-Dichloropropene	-	mg/kg	ш	i ii	N/A	N/A	i ti	: 12	N/A	N/A	7	7	N/A	N/A
1,2-Dibromoethane	-	mg/kg	nt	nt	N/A	N/A	nt	耳	N/A	N/A	\ \	>	N/A	N/A
Dichloro difluo romethane	01	mg/kg	nt	nt	N/A	N/A	nt	Ħ	N/A	N/A	<10	<10	N/A	N/A
Chloromethane Vinel chloride	0 0	mg/kg ma/ka	nt	n to	N/A	N/A	nt	2 1	V V	N/A	× 10	< 10	V V	N/A
Bronomethane	01	mg/kg	i	ī	N/N	N/A	ii ii	: 12	N/A	X/X	<10	< 10	N.A.	N.A.
Chloroethane	10	mg/kg	nt	nt	N/A	N/A	nt	H	N/A	N/A	< 10	< 10	N/A	N/A
Trichlorofluoromethane	01	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	< 10	<10	N/A	N/A
1,1-Dichloroethylene	1	mg/kg	tu ti	t i	Y X	Y/X	t ii	= 1	V/A	Y X	\ \ \	V 1	V.X	e e
Lans-1, z-Dichloroethane	1	me/kg	10	111111111111111111111111111111111111111	X X	XXX	ii ii	= =	V.V	X X	ju ju	7 18	XXX	X X
cis-1,2-Dichloroethylene	-	mg/kg	nt	nt	N/A	N/A	nt	担	N/A	N/A	\ \	· 1>	N/A	N/A
1,1,1-Trichloro ethane	-	mg'kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	\ \	· · ·	N/A	N/A
L.I-Dichloropropene	-	mg/kg mg/kg	t t	t t	Z Z	Y X	t t	2 1	V X	V X	V V		e e	V S
1.2-Dichlorocthane	-	me/ke	III III	11 11	N.V.	N/A	ii ti	= =	N/A	X.X	7		NA NA	N/A
Trichloroethene	_	mg'kg	nt	nt	N/A	N/A	nt	H	N/A	N/A	· ·		N/A	N/A
Dibromonethane	-	mg'kg	nt	nt	N/A	N/A	nt	Ħ	N/A	N/A	~		N/A	N/A
1,1,2-trchloroethane	1	mg/kg	11 11	11 11	K/N	N/A	t ti	# 1	N/A	N/A	7	· ·	V X	V X
Tetrachloroethene	-	mg/kg	i	ī	N/N	N/A	ii ii	: 12	N/A	X/X	7 7	7 .	N.A.	N.A.
1,1,1,2-Tetrachloroethane	-	mg/kg	nt	nt	N/A	N/A	nt	耳	N/A	N/A	\ \	>	N/A	N/A
1,1,2,2-Tetrachloroethane	-	mg'kg	nt	nt	N/A	N/A	nt	H	N/A	N/A	1	7	N/A	N/A
1.2-Dibromo-3-chloropropane	1	mg kg mo/ko	n tu	i ti	X/X	X/X	nt nt	11 11	K.V.	× × ×	7	7 V	K K	K X
Hexachlorobutadiene	_	mg'kg	nt	n	N/A	N/A	nt	H	N/A	N/A	- I >		N/A	N/A
Bromocholoromethane	-	mg/kg	nt	nt	N/A	N/A	nt	111	N/A	N/A	>	< l	N/A	N/A
Chloro benzene	-	mg/kg	nt	Ħ	Y X	Y/X	n i	= 1	N/A	Y X	\ \	V 1	V.A	K K
bromocenzence o-Chlorotoluene	1	mg kg mo/ko	ii ti	i ti	X X	X X X	nt nt	2 2	K.V.	× × ×	7	7 V	X X	< × ×
4-chlorotoluene	-	mg/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	<1	<1	N/A	N/A
1,3-Dichloro benzene		mg/kg	nt	nt	N/A	N/A	nt	Ħ	N/A	N/A	7	7	N/A	N/A
1,4-Dichloro benzene	-	mg/kg mo/ko	n tu	ii ii	K K	X/X	nt nt		V X	4 × ×	\ \ \	· ·	V V	× × ×
1,2,4-trichlorobenzene	-	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	· ·		N/A	N/A
1,2,3-trichlorobenzene		mg/kg	11 11	12 1	Z Z	< < < < > < < < < < > < < < < < < < <	t	2 1	V/V	××××××××××××××××××××××××××××××××××××××	₹ ₹	~ \	V X	× × ×
Bromodichloromethane	-	mg/kg mg/kg	11 11	i	N/A	N/A	ii ii	= =	N/A	N/A	7 🗸	7 .	N/A	N/A
Chlorodibromomethane	_	mg/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	>	>	N/A	N/A
Bromotom	-	mg/kg	nt	nt	N/A	N/A	nt	Ħ	N/A	V.V	<1	V	V.V	N/A
2.4-DB	100	ug/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
	001	ng/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	001	ug/kg	ti ti	ti ti	V/N	N/A	001 ×	001 V	V/X	N/A	ti ti	ti ti	V ×	N/A
2.4-Dr (Dieniorophop)	001	ug/kg	11 11	11 11	X/X	N/A	× 100	× 100	N/A	N/A	11 11	11 11	NA NA	N/A
Triclopyr	100	ug/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A	nt	nt	N/A	N/A
2-(2,4,5-Trichlorophenoxy) propionic acid	90 8	ug/kg	nt tr	t t	N/A	N/A	> 100	× 100	N/A	N/A	nt	t ti	N/A	N/A
Phenols	201	ng/ ng	1	1	*****	1727			*****	4727		1	4754	100
Total Phenols	5	mg/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	nt	nt	N/A	N/A
Nutrients				•										
Anmonia as N Total Kieldahl Nitmaen	30	mg/kg ma/ka	nt nt	ti ti	V X	V X	t t	= =	e e	N/A	n n	ti ti	e z	V.X
Nitrite as N	0.1	mg/kg	n n	n n	N/A	N/A	ii ii	: 2	N/A	N/A	n n	nt in	N/A	N/A
Nitrate as N	0.5	mg/kg	Ju	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
Total Phosphorous NOTES:	I O	mg/kg	DI.	ĭ	N/A	N/A	nt	Ħ	N/A	N/A	nt	nt	N/A	N/A

Signifes RPD > 50% where the average concentration exceeds ten times the EQL, or where the RPD > 75% where the average concentration is between £-1 0 times the EQL, or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

	l
Soil	l
ults -	l
Res	l
RPD	l
Sample	
Replicate	
Blind F	

Part								aa	1443			BBI	1433		
Property	Location			BBI	1443			aa	7447						
Part	Depth			0.4	0.5			0.1	-0.4			0.1	0.3		
Protection   Pro	Date			30-A	9108			30-A	pr-08			1-M <sub>1</sub>	ry-08		
Part	Laboratory			Envi	rolab			Env	rolab			Envi	rolab		
1   1   1   1   1   1   1   1   1   1	Parameter	PQL	Units	Original Sample	Blind Sample	Blind F Average	teplicate RPD	Original Sample	Blind Sample	Blind R Average	eplicate RPD	Original Sample	Blind Sample	Blind R Average	plicate RPD
1   1   1   1   1   1   1   1   1   1	detals		margen	8	-	8 3	Š	v	- 7	v	V)N	9	10	56	765.9
1   1   1   1   1   1   1   1   1   1	Schium	± c	mg/kg	5.5	*/	5.5 V/N	N/A	٥ -	*/	c V/N	V/N	91	(3)	6/N	0000 N/A
The control of the co	hromium	-	mg/kg	8.8	4.6	6.7	63%	7.8	5.8	8'9	29%	61	14	16.5	30%
1   1   1   1   1   1   1   1   1   1	opper	-	mg/kg	П	6.3	8.65	54%	98	40	63	73%	99	41	53.5	47%
1   1   1   1   1   1   1   1   1   1	ickel	-	mg/kg	1>	1.2	1.2	N/A	2.4	1.8	2.1	29%	12	9'9	9.3	58%
The control of the	cad	- -	mg/kg	9.1	8.6	8.85	6%	48	30	39	46%	011	091	135	3.7%
Column   C	mc	- [	mg/kg	2.1	8.4	525	120%	980	19	73.5	34%	0.0	180	185	5%
1	DHATT	0.1	IIIK/NB	100	- W.I	WW	IWA	0.44	0.1.2	0.17	3370	100	0.20	0.373	1.378
Column   C	PH C6 - C9	2.5	marka	u	nt	ΝΆ	N/A	u	н	N/A	V/N	u	nt	N/A	N/A
Column   C	PH C10 - C14	50	marka	10	nt	N/A	N/A	111111111111111111111111111111111111111	: 15	N/A	V/N	10	ii ii	V/A	N/A
Column   C	PH C15 - C28	100	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
1	PH C29 - C36	100	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
Solvine Solvin	enzene	0.5	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
1   1   1   1   1   1   1   1   1   1	oluene	0.5	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
1   1   1   1   1   1   1   1   1   1	hylbenzene	-	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
Column	eta- & para-Xylene	2	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
The color	tho-Xylene	-	mg/kg	nt	nt	N/A	N/A	nt	ıı	N/A	N/A	nt	nt	N/A	N/A
Column	VHs														
1	phthalene	0.1	mg/kg	< 0.1	< 0.1	V/V	V/V	nt .	ш	V/V	V/V	nt	nt	N/A	V/V
Column   C	compunitiene	0.1	mg/kg	-0.1 -0.1	< 0.1	N/A	N/A	11 11	<b>#</b> 1	N/A	N/A	11	11 11	N/A	N/A
1	companience	0.1	mg/kg	<0.1	< 0.1	V/N	V.V	ii ti	= =	V.V	V.V	11 10	11 11	V.V.	V/N
1	enanthrene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
Secondary   Color   Table   Color	thracene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	ш	N/A	N/A	ut	nt	N/A	N/A
Column   C	oranthene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
Characterist	cne	0.1	mg/kg	1.0>	< 0.1	Y.Y	N/A	nt i	p 1	V.A	A/A	u	nt	N/A	N/A
Continue   Column	nzo(a)antinacene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	E 1	E 1	NA	N/A	10 11	n i	NA	N/A
Secondaria   Colorado   Colorad	rzo(b)&(k)fluoranthene	0.2	marka	< 0.2	< 0.2	Z X	Z N	= =	1 11	XX	V/N	ji ji	nt ut	X.X	V/V
Name	rzo(a) pyrene	0.05	mg/kg	< 0.05	< 0.05	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
The contribution   Column	leno(1,2,3-ed)pyrene	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
No. 1   No.	penz(a,h)anthracene	0 0	mgkg	< 0.1	< 0.1	N/A	N/A	10 11	ti ti	N/A	N/A	10 11	nt ==	N/A	N/A
Clinical	next grist per yiene	170	HIG/AS	110	, W.I.	WW	WW	H	=	WW	WW	=	Ш	TA'V	INT
Columbia	sha-BCH	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Climina   Climina   Climina   Climina   Climina   Na   Na   Climina   Climina   Climina   Na   Climina	exachlorob enzene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Column   C	3HC	0.1	mg/kg	ut	nt	N/A	N/A	< 0.1	1.0>	N/A	V/N	1.0>	< 0.1	N/A	N/A
Columbia	nnna-BHC (Lindane)	0.1	mg/kg	ut	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Control	BHC	0.0	mg/kg	TI T	n	Y X	V.X	< 0.1	< 0.1	V.X	V X	< 0.1	× 0.1	V.X	V/V
Colored   Colo	pacinor	0.0	mg/kg	H 1	11 11	N/A	N/A	× 0.1	< 0.1	N/A	V/N	< 0.1	< 0.1	N/A	N/A
1	1	0 0	mg/kg	111	nt nt	X X X	V V/2	< 0.1	< 0.1	× × ×	V/N	< 0.1	< 0.1	× × ×	V V
1   1   1   1   1   1   1   1   1   1	lordane - trans	0.1	me'ko	: 10	nt	N/A	N/N	< 0.1	< 0.1	N/A	N/N	< 0.1	< 0.1	K/A	N/A
O	lordane - cis	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
O	dosulfan alpha	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	V/V	< 0.1	< 0.1	N/A	N/A
1	eldrin	0.1	mg/kg	nt	nt	N/A	N/A	<0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	V/V
	+DDE	0.1	mgkg	10 12	10 11	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	> 0.1	N/A	N/A
	din	100	mg/kg	u u	nt	N/A	N/A	< 0.1	<01	V.V	N/A	<01	> 0	N/A	N/A
Orange   O	dosulfan II	0.1	me/kg	10	nt	N/A	N/A	< 0.1	<0,1	N/A	V/N	<0,1	< 0.1	V/A	N/A
O	drin aldehyde	0.1	mg/kg	Ju	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
O	dosulfan sulphate	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Columbia	+DDT	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Control   Cont	ethoxychlor	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Columbia	44	-		1	1	NI/A	4//4	101	0.0	V//V	VIV.	0.0	9	A17.4	V// V
Control   Cont	menoare	0 0	mg/kg	ii ti	nt nt	X X X	V/V	< 0.1	< 0.1	V V/V	V/N	< 0.1	< 0.1	× × ×	V V
0   mg/kg   ni   ni   NA   NA   0   0   0   0   0   0   0   0   0	lomvrifos-methyl	0.1	me/ko	ju ju	nt	N/A	N/N	< 0.1	< 0.1	N/A	N/N	< 0.1	< 0.1	K/A	N/A
O   mg/kg   nt   nt   NA   NA   c01   c01   NA   NA   c01	onnel	0.1	mg/kg	u	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
0   mg/kg   nt   nt   NA   NA   0   0   0   0   0   0   0   0   0	nitrothion	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
0.1 mg/kg nt nt nt NA NA < 0.1 < 0.1 NA NA < 0.1 < 0.1	ılonpyrifos	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	V/V	< 0.1	< 0.1	N/A	N/A
	hion	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
	tal PCB	0.1	and free												

Signifies RPD > 50% where the average concentration exceeds ten times the EQL, or where the RPD > 75% where the average concentration is between 2-10 times the EQL, or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

# Blind Replicate Sample RPD Results - Soil

Sample ID			300408-89-KW	300408-90-KW			300408-101-KW	300408-102-KW			WM-951-805010	010508-157-KW	_	
Location			BBH443	443			BBI	BBH442			ВВН433	433		
Depth			0.4-0.5	0.5			0.1	0.1-0.4			0.1-0.3	0.3		
Date			30-Apr-08	r-08			30-A <sub>1</sub>	30-Apr-08			1-May-08	y-08		
Laboratory			Envirolab	olab			Envi	Envirolab			Envirolab	olab		
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate	eplicate RPD	Original Sample	Blind Sample	Blind Replicate	aplicate RPD	Original Sample	Blind Sample	Blind R	Blind Replicate
VOC					9				90				9	
Styrene	- -	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	ju ,	nt	N/A	N/A
Cunene (Isopropyrbenzene) n-Propylbenzene	-	mg/kg me/kg	ii ii	H H	K K	X X	ă ă	= =	× × ×	X X	H H	H 18	KX XX	×××
1,3,5-Trimethylbenzene	_	mgʻkg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	nt	nt	N/A	N/A
sec-butylbenzene	- -	mg/kg	ti ti	ti ti	N/A	N/A	n n	Ħ	V/N	N/A	n n	t t	K/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N	N/A
tert-Butylbenzene	-  -	mg/kg	n n	ш	N/A	N/A	ii ii	= =	N/A	N/A	ш	ii ti	N/A	N/A
p-isopropyltoluene	-	mg/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	nt	nt	N/A	N/A
n-Butylbenzene	-	mg/kg	t t	12 12	< × ×	< × ×	t t	22 1	× ×	Z Z	t t	12 13	e s	Z Z
1,2-dichloropropane	-	ga'km mg'kg	ш	ш	N/A	N/A	ii ii	= =	N/A	N/A	ii ti	ii ti	N/A	N/A
cis-1,3-Dichloropropene	_	mg/kg	nt	nt	N/A	N/A	nt	ĮĮ.	N/A	N/A	nt	nt	N/A	N/A
trans-1, 3-Dichtoropropene	-	mg/kg me/ke	n n	n n	V Z	< < < × × ×	i ii	면면	< <	< < < ×	n n	ii ii	< < < × × ×	< < <
Dichloro difluo romethane	10	mg/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	nt	nt	N/A	N/A
Chloromethane	01	mg/kg	nt	nt	N/A	N/A	nt	Ħ	N/A	N/A	nt	nt	N/A	N/A
Vinyl entoride Bromomethane	0 0	mg/kg ma/kg	ii ii	H H	K K	X X	i ii	= =	× × ×	X X	H H	H 18	KX X	×××
Chloro ethane	10	mg/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	nt	nt	N/A	N/A
Trichlorofluoromethane	01	mg/kg	nt	nt	N/A	N/A	nt	Ħ	N/A	N/A	nt	nt	N/A	N/A
L,I-Dichloroethylene	-	mg/kg ma/ka	nt tr	nt to	V X	V V	nt nt	11 11	K X X	V.X	nt nt	nt nt	V X	V.N
1,1-Dichloro ethane	_	mg/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	nt	nt	N/A	N/A
cis-1,2-Dichloroethylene	-	mg/kg	nt	nt	N/A	N/A	nt	Ħ	N/A	N/A	nt	nt	N/A	N/A
1,1,1-1richloroethane	-	mg/kg mg/kg	n n	n n	V X	K X	i ii	2 2	× ×	X X	nt nt	ii ii	V V	X X
Carbon tetrachloride	_	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
1,2-Dichloro ethane	- -	mg/kg	nt .	n n	V.N.	N/A	n n	12 1	N/N	N/A	nt	t i	N/A	N/A
Dibromonethane	_	mg/kg	nt	nt	N/A	N/A	nt	: 1:	N/A	N/A	nt	nt	N/A	N/A
1,1,2-trichloroethane	_	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
Tetrachloroethene	-	mg kg me/kg	ii ii	H H	K K	X X	i ii	= =	× × ×	X X	H H	H 18	KX XX	×××
1,1,1,2-Tetrachloroethane	-	mg/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	nt	nt	N/A	N/A
1,1,2,2-Tetrachloroethane	-	mgkg	nt tu	n n	V V	V V	nt nt	11 11	N/A	N/A	nt nt	n n	V V	N/A
1,2-Dibromo-3-chloropropane	_	mg/kg	nt	nt	N/A	N/A	nt	III	N/A	N/A	nt	nt	N/A	N/A
Hexachlorobutadiene		mg'kg	nt	nt	N/A	N/A	ti i	벋	N/A	N/A	nt	nt	N/A	N/A
Chlorobenzene	-	mg/kg	ш	1 1	N/A	N/A	ii ii	: 12	N/A	N/A	ii ti	i	N/A	N/A
Вгопобепдене	-	mg/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	nt	nt	N/A	N/A
o-Chlorotoluene	-	mg/kg ma/ka	1 1	10 11	V N	V X	11 11	2 7	V/X	V/X	11 11	1 1	K/N	V X
I,3-Dichlorobenzene	-	mg/kg	n n	n n	N/A	N/A	n n	: 12	N/A	N/A	ii ii	ii ii	N/A	N/A
1,4-Dichloro benzene		gy/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	V/N	N/A
1,2-Dichlorobenzene	-	mg/kg mo/ko	ti ti	n n	V X	V V	n n	2 2	K K	4 × ×	n tu	ii ii	V V	4 × ×
1,2,3-trichlorobenzene	_	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
Chloroform Bromodichloromothene	-	mg/kg ma/ka	11 11	10 10	V X	Z Z	11 11	2 1	₹×X	V X	11 11	12 12	e e	₹ ×
Chlorodibromomethane	_	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
Bronoform	-	mg/kg	nt	nt	N/A	N/A	ш	Ħ	N/A	N/A	nt	nt	N/A	N/A
2,4DB	100	ug/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
Dicamba	100	ug/kg	nt	ut	N/A	N/A N/A	ta i	Ħ	N/A	N/A	tu 1	tu i	N/A	N/A
2-Methyl 4-chlorophenoxyacetic acid 2.4-DP (Dichloroprop)	100	ug/kg ug/kg	n n	n n	e e	e e	nt nt	EF	e e	N N	nt nt	n n	e e	N/A
2,4-D	100	ug/kg	ıt	ш	N/A	N/A	11	12	N/A	N/A	ш	nt	N/A	N/A
Triclopy	00 00	ug/kg	nt	nt	N/A	N/A	nt	世	N/A	N/A	nt	nt	V/N	N/A
	100	ug/kg	i ti	ii ti	N/A	N/A	m m	: ::	N/A	N/A	11 11	ш	N/A	N/A
r nenois Total Phenois	5	mg/kg	<>	\$	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
Nutrients														
Anmonia as N Total Kieldahl Nitrogen	3.0	mg/kg me/ke	t t	ti ti	V × ×	e e	830	1.7	1.75	36%	ti ti	t ti	e e	<
Nitrite as N	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Nitrate as N Total Phoenhorous	0.5	mg/kg mo/ko	nt to	nt to	v v	v v	6.91	1.5	140	24%	nt nt	n n	v v	< < < > ×
NOTES:	2	94 Min	=	=	COAC .	T KINI	200	A STATE OF THE STA	AL.	11.00	=	=	CAL	UAT

nd - Result is below the laboratory Estimated Quantitation Limit.

\* BQL increased due to matrix interference
N/A - not applicable.

BQLD

Signfes RPD

Signifies RPD > 50% where the average concentration exceeds ten times the EQL, or where the RPD > 75% where the average concentration is between 2-5 times the EQL, or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Full							_				_				
Part	Sample ID			00 U2008-5 /-N. W.	000208-38-KW			W N-677-80 C071	120508-250-NW			WA-C17-90 C071	W N-017-905071		
Professory   Pro	Location			ABH	215			ABH2	265			ABH	211		
Property	Depth			0.7	6.0			0.9-1	.1			1.0-1	.2		
	Date			6-Ma	y-08			12-Ma	y-08			12-Ma	y-08		
Part	Laboratory			Envirolab	ALS			Envirolab	ALS			Envirolab	ALS		
1   1   1   1   1   1   1   1   1   1	Parameter	PQL	Units	Original Sample	Split Sample	Blind Rep Average	olicate RP D	Original Sample	Split Sample	Blind Rej Average	dicate	Original Sample	Split Sample	Blind Re Average	plicate
1   1   1   1   1   1   1   1   1   1	als	4	wa/pa	5.9	К	3.9	A/N	4 >	\$ \	V/A	V/N	4.	\$ >	A/N	V/N
	mium	- 2	mg/kg	\   	> ▽	N/A	N/A			N/N	N/N		<	V/A	V/N
1   1   1   1   1   1   1   1   1   1	mium	-	mg/kg	2.7	3	2.85	%11	· ·	<2	N/A	N/A	97	2	8.1	22%
1   1   1   1   1   1   1   1   1   1	per		mg/kg	I > :	\$	N/A	N/A	1.2	< 5	1.2	N/N	⊽ :	<\$	N/A	V/V
1   1   1   1   1   1   1   1   1   1	191	-	mg/kg mg/kg	0. 4.	2 4	0.1	XXX	7 7	7 × ×	××××××××××××××××××××××××××××××××××××××	N/A	7 -	<5	V/W	K K
1   1   1   1   1   1   1   1   1   1		-	mg/kg	3	\$	3	N/A	2.1	< 5	2.1	N/A	2.1	<>	2.1	N/A
1   1   1   1   1   1   1   1   1   1	cury	0.1	mg/kg	< 0.1	<0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A	0.14	< 0.1	0.14	N/A
1	IMPTEX														*****
1	C6-C9	67	mg/kg		n to	1 1	n t	10 10	2 1	N/A	N/A	n to	nt nt	N/A	V/V
The control of the co	CIO-CI#	000	mg/kg mg/kg		= 1	E T	H H	H 1	= 1	N/A	N/A	H T	H 1	V/V	V/N
1   1   1   1   1   1   1   1   1   1	C29 - C36	100	me/ko		ıı tu	11	11	ı tu		N/A	N/A	nt	nt	N/A	N/A
1   1   1   1   1   1   1   1   1   1	cene	0.5	mg/kg		ıt	t	ti	tu tu	면	N/N	N/N	nt	nt	V/X	V/V
1   1   1   1   1   1   1   1   1   1	ene	0.5	mg/kg		nt	nt	nt	nt	ш	N/A	N/A	nt	nt	N/A	N/A
1   1   1   1   1   1   1   1   1   1	benzene	-	mg/kg		nt	nt	nt	nt	щ	N/A	N/A	nt	nt	N/A	N/A
No. 11   No. 12   N	& para-Xylene	2	mg/kg		ti	nt	nt	tu	벋	N/N	N/A	nt	nt	V/A	N/A
The color of the	e-Xylene	-	mg/kg		III	ш	n	III	Ш	N/A	N/A	nt	III	N/A	N/A
Column	thalene	0.1	mg/kg	nt	nt	nt	nt	nt	ш	V/N	V/N	nt	nt	V/V	V/N
The continue of the continue	aphthylene	0.1	mg/kg	nt	nt	nt	nt	nt	Ħ	N/A	N/A	nt	nt	V/A	N/A
Column	phthene	0.1	mg/kg	nt	nt	nt	nt	nt	ш	N/A	N/A	nt	nt	N/A	N/A
Column   C	ene	0.1	mg/kg	nt :	t i	ti 1	t i	ti ii	2 1	V X	e :	ti i	nt :	V/X	V/X
Column	nurene	0 0	mg/kg mo/ko	ii ii	H to	E T	i i	n n	2 12	ž ž	× × ×	ii ii	nt	× × ×	K K
1   1   1   1   1   1   1   1   1   1	mthene	0.1	mg/kg	ii ii	= =	1 11	1 11	i ti	: ::	N/A	N/A	m m	н	V/A	V/V
Mathematical Control of the part of the	9	0.1	mg/kg	nt	nt	nt	nt	nt	Ħ	N/A	N/A	nt	nt	V/A	N/A
No. 1,	o(a)anthracene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Column	cene Anna chart	0.1	mg/kg	nt	ti i	ti i	ti i	nt .	럳	ĕ×.	e :	tu :	nt	V/X	V S
No.	A DASC (A JURIO) antificities	200	mg/kg mo/ko	ii ti	i ta	i 1:	i t	i ta	# #	N/A	N/A	ii ta	ii ta	V/V	X/A
No.	(2,2,3-cd) pyrene	0.1	mg/kg	nt	ııı	n n	n n	ııı	: 12	N/N	N/A	nt	nt	N/A	N/A
Particle	z(a,h)anthracene	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Column   C	(g.h,i)perylene	0.1	mg/kg	nt	nt	nt	nt	nt	II	N/N	N/N	nt	nt	N/A	V/N
Column   C	BCH	0.1	mo/ko	u	tu	u	u	tu	ţ	N/A	N/A	nt	ut	A/N	A/N
Chickey   Chic	hiorobenzene	0.1	mg/kg	11 12	ii ti	1 11	1111	11 12	=======================================	N/A	N/A	ni ii	m tu	V/N	V/V
Column   C	0	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1   1   1   1   1   1   1   1   1   1	a-BHC (Lindane)	0.1	mg/kg	nt	nt	nt	nt	nt	Ħ	N/A	N/A	nt	nt	N/A	N/A
The control of the co	3	0.1	mg/kg	nt	ĮĮ.	벋	nt .	n .	벋	V.X	V.Z	n	n	V.Z	V/X
Company   Comp	chior	0.0	mg/kg ma/ka	ii ii	H 1	i ii	i i	E 1	e e	V/V	V/V	H H	nt m	X/X	V/N
0.1         mySg         rr		0.1	mg/kg	11 12	ii tii	1 11	1 11	1111		N/N	V/V	nt nt	nt m	V/N	V/N
Column   C	dane - trans	0.1	mg/kg	nt	nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1	dane - cis	0.1	mg/kg	nt	nt	nt	nt	ut	nt	N/N	N/A	nt	nt	V/V	V/V
Columbia	altan alpta	0.0	mg/kg ma/ka	n to	nt nt	n n	n to	nt u	E 1	K/N	A/A	nt	nt	N/A	A/N
1   1   1   1   1   1   1   1   1   1	DE	0.1	mg/kg	11 12	ii tii	1 12	1 11	1111		N/N	V/V	nt nt	nt m	V/N	V/N
1	DD	0.1	mg/kg	nt	nt	nt	nt	nt	II	N/A	N/A	nt	nt	N/A	N/A
	u	0.1	mg/kg		nt	nt	nt	nt	Ħ	N/A	N/N	nt	nt	V/A	N/A
The color   The	sulfan II	0.1	mg/kg		nt	nt	nt	nt	Ħ	N/A	N/A	nt	nt	V/A	V/A
No.	n aldenyde	0.1	mg/kg		10 10	n n	n n	11 11	E 1	N/A	N/A	n n	10 10	N/A	N/A
O	DT	0.1	me/kg		i ti	nt nt	nt m	i ti	1 12	N/A	V/N	nt m	nt	V/V	V/V
O   mg/kg   sid	oxychlor	0.1	mg/kg		nt	nt	nt	nt	nt	N/A	N/A	nt	nt	N/A	N/A
O   1   100   0   1   100   0   1   100   0						-	-	•							
Secretary   O, 1	ethoate	0.0	mg/kg	ti ti	# #	ti ti	t ti	ti ti	12 1	K/N/N	N/A	ti ti	nt to	N/A	Y X
O	monitor-methol	0.0	mg/kg	nt in	= ta	i ti	i t	i to	= 1	N/A	V/V	i 1	H to	V/V	N/A
3 0.1 mg/kg nt nt nt nt nt nt nt NN	iel	0.1	mg/kg	1 11	Ħ	ı	1	п	12	V/N	××z	н	ш	V/Z	V/X
8 0.1 mg/kg nt	rothion	0.1	mg/kg	nt	nt	nt	nt	nt	Ħ	N/A	N/A	nt	nt	V/A	N/A
0.1 mg/kg ni	pyrifos	0.1	mg/kg	nt	nt	nt	nt	nt	ш	N/A	N/A	nt	nt	N/A	N/A
1.0	п	0.1	mg/kg	nt	nt	nt	nt	nt	щ	V/V	N/A	nt	nt	N/A	V/V
	PCB	0.1	mo/ka	nt	nt	nt	nt	nt	ш	N/N	N/A	nt	nt	V/V	V/N

NOTION:

Meaning Difference (RPD) is calculated as the shoulter value of the difference between original and replicate samples divided by the averages and expressed as a percentage.

Meaning the control of the state of the sta

Location Depth			ABH215	316		1	ABI	ABH265			AB	ABH211		
Depth		_		617			70							
Part.			0.7-0.9	63			0.5	0.9-1.1			1.6	1.0-1.2		
Date			6-May-08	80~		1	12-N	12-May-08	1		12-M	12-May-08		
Laboratory			Envirolab	ALS		1	Envirolab	ALS	1		Envirolab	ALS		
	PQL	Units Or	Original Sample	Split Sample	Blind Replicate	plicate RPD	Original Sample	Split Sample	Blind R Average	Blind Replicate	Original Sample	Split Sample	Blind Replicate	plicate RPD
VOC														
tyrene imene (isomonylbenzene)	- -	mg/kg mo/ko	t t	tu tu	e e	< < < ×	t t	EE	e z	e e	tu tu	ti ti	e e	N/A
Propylbenzene	-	mg/kg	nt	nt	N/A	N/A	nt	H	N/A	N/A	nt	nt	N/A	N/A
,3,5-Trimethylbenzene	- -	mg/kg	nt	nt	N/A	N/A	nt	Ħ	N/A	N/N	nt	nt	N/A	N/A
sec-butylbenzene 1.2.4-Trimethylbenzene	-	mg/kg mg/kg	nt nt	m m	X X	X X	n n	H H	N/A	K K K	ii ii	n n	K/X	N/A
rt-Butylb enzene	_	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
-isopropyltoluene	-	mg/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	nt	nt	N/A	N/A
Butylbenzene	- -	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	V/V	N/A
2,2-Dichloropropane	-	mg/kg me/kg	nt nt	n tu	NA NA	NA NA	nt		N/A	A/N	nt nt	nt nt	K/X/X	K/N
is-1.3-Dichloropropene	-	mg/kg	1 11	1111	N/A	N/A	ii ii	n tu	N/A	A/N	ii ti	ii ti	V/N	N/A
ans-1,3-Dichloropropene	-	mg/kg	nt	nt	N/A	N/A	nt	111	N/A	N/A	nt	nt	N/A	N/A
,2-Dibromoethane	-	mg/kg	nt	nt	ΝΆ	N/A	nt	111	N/A	N/A	nt	nt	N/A	N/A
ichlorodifluoromethane	+	mg/kg	nt	nt	N/A	N/A	nt	Ħ	N/A	N/A	nt	n	V/A	V/V
Zincl chloride	0.0	mg/kg	ii ii	# T	V.N	××××××××××××××××××××××××××××××××××××××	E 1	= =	V.V	K X X	ii ta	n n	K/X/X	X X X
ronomethane	H	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
hloroethane	H	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	V/A	N/A
richlorofluoromethane	01	mg/kg	ti i	ti ti	AN X	AN N	ti ii	H 1	N/A	e s	ti 1	ti ii	V/A	V/V
1Dienoroenyene	- -	mg/kg	ii ii	# T	V.N	××××××××××××××××××××××××××××××××××××××	E 1	= =	K/N	K X X	ii ta	n n	K/X/X	X X X
1-Dichloroethane	-	mg/kg	nt	nt	N/A	N/A	nt	111	N/A	N/A	nt	nt	N/A	N/A
is-1,2-Dichloroethylene	-	mg/kg	nt	nt	ΝΆ	N/A	nt	111	N/A	N/A	nt	nt	N/A	N/A
I.I. I-Trichloroethane	- -	mg/kg	10 11	# #	N/A	V.V.	ti ti	ı u	V/A	Y X X	H I	11 11	N/A	N/A
arbon tetrachloride	-	mg/kg	ii ii	111	N/A	N/A	ii ii	: 12	N/A	N/A	111	ii tii	N/A	N/A
2.Dichloro ethane	_	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
nchloroethene	-	mg/kg mg/kg	n to	n tu	N/A	N/A	nt	2 2	N/A	V N	10 10	10 10	V V	V V
1,2-trichloroethane	_	mg/kg	n	ıı	N/A	N/A	nt	: #	N/A	N/A	ıı	n n	N/A	N/A
1,3-dichloropropane	_	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
etrachloroethene	-	mg/kg me/kg	nt	ii ii	V V	V V	n ta	e ta	V V	e e z	10 10	ii ii	< < ×	< < <
1,2,2-Tetrachloroethane	L	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
,2,3-Trichloropropane	_	mg/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	nt	nt	N/A	N/A
L,2-Dibromo-3-chloropropane	- -	mg/kg	t t	12 1	V N	V.V.	t	= 1	N/A	e N	t	t t	V/A	V/V
ronocholoromethane	-	mg/kg	ii ii	1 11	N/A	N/A	11 11	1 11	N/A	N/A	1 11	11 11	V/N	N/A
hlorobenzene	_	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
romobenzene	_	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
Chlorotoluene	-	mg/kg mo/ba	n n	n t	N/A	NA NA	nt	H	N/A	N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/	nt nt	nt nt	V N	V/V
1.3-Dichlorobenzene	-	mg/kg	1 11	1 11	N.A	N.A.	ii ti	: 12	N/N	ΥN	1 11	1 11	V/N	N/A
4-Dichlorobenzene	_	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
2-Dichlorobenzene	_	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
2.2.4-trichlorobenzene	-	mg/kg me/ke	nt	nt nt	V V	V V	nt nt	2 2	A'X	e e z	n n	nt nt	< × × ×	4 × ×
hloroform	L	mg/kg	n	ii ii	N/A	N/A	n	! #	N/A	V/N	ш	n	N/A	N/A
romodichloromethane	-	mg/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	nt	nt	N/A	N/A
hlorodibromomethane	- -	mg/kg	ti ti	ti ti	N/A	N/A	11 12	Ħ	N/A	K N N	ti ti	t t	Y/X	V/V
AAH		IIIS/AS	=	Ē	Val	Val	=		WAI	Visi	=	=	Vivi	Visit
,4-DB	100	ug/kg	nt	nt	N/A	N/A	nt	111	N/A	N/A	nt	nt	N/A	N/A
icamba Mathal A obsessbancecennic noid	001	ug/kg	n t	n n	N/A	N/A	ti ti	Ħ	N/A	N/A	n n	ti ti	V/N	N/A
A-DP (Dichloroprop)	100	ug/kg	11 11	1111	N/A	N/A	ii ii	= =	N/A	K/N	111111111111111111111111111111111111111	11 11	V/V	N/A
4-D	100	ug/kg	nt	nt	N/A	N/A	nt	щ	N/A	N/A	nt	nt	N/A	N/A
nclopyr	001	ug/kg	nt	ıı	N/A	N/A	nt	Ħ	N/A	N/N	nt	nt	N/A	N/A
4.5-Tremorophenoxy) propionic acid	001	ug/kg ng/kg	ii ti	# #	KN N	K K	n n	= =	N/A	K'N	i ii	ii ii	K/X/X/	V/V
henols														
otal Phenols	5	mg/kg	nt	nt	N/A	N/A	nt	ш	N/A	N/A	nt	nt	N/A	N/A
(utrients	50	malla	***	*	VX	V/N	7	7	V.N	V.N	7	ī	V/N	N/N
Total Kjeldahl Nitrogen	30	mg/kg	ıı ıı	ii ii	N/A	N/A	ii ii	= =	N/A	N/A	ii ii	ii ii	N/A	N/A
Nitrite as N at nt ng/kg nt nt N/A N/A	0.1	mg/kg	nt	nt	N/A	N/A		ш	N/A	N/A	nt	nt	N/A	N/A
utrate as N	0.5	mg/kg	t ti	12 12	V X	V.X	11 11	12 1	N/A	e X	ti ti	ti ti	V/N	V/V
OTES:	0.7	III WAY	III	=	VAI	V/AI	III	111	WW	WW	III		INCA	WUN

Relative Description Difference (RPD) is calculated as the aboute value of the difference between original and replicate samples divided by the average and "Relative Description Definition of Landing Definition of Landing Definition of Landing Definition Definition of Landing Definition of Landing Definition Definitio

Location			ABH738	330			ABH247	247			ABH248	1248		
Denth			TOTAL	629										
mds.c			0.1-0.5	.5	ı		0.1-0.4	0.4	ı	ı	1.0-1.1	11		
Date			6-May-08	y-08			7-May-08	y-08			8-May-08	9-08		
Laboratory			Envirolab	olab			Envirolab	olab			Envirolab	olab dalo		
Parameter	PQL	Units	Original Sample	Blind Sample	Blind R	Blind Replicate	Original Sample	Blind Sample	Blind R	Blind Replicate	Original Sample	Blind Sample	Blind R Average	Blind Replicate
fetals				3		J L								
reenic	+ 0	mg/kg	* -	* -	N/A	N/A	10 10	ii ii	N/A	N/A	* - \	* - \	N/A	N/A
hromium		me/ke	3.5	1.4	2.45	%98	ii ti	1 11	N/A	V/X		· ·	-	V/A
opper	-	mg/kg	2.3	>	2.3	N/A	nt	nt	N/A	N/A	<1	>	N/A	N/A
lickel	-	mg/kg	-	1>	-	N/A	nt	nt	N/A	N/A	<1	-	N/A	N/A
cad	1	mg/kg	3.3	1.7	2.5	64%	nt	nt .	N/A	V/X	1.1		1.1	N/A
inc	0.1	mg/kg mo/ko	, A	8.6	S/N	% N/A	nt nt	n n	N/A	K/N	< 0.1	<0.1	26.7 VA	82% V/A
PHARTEX		9, 9.												
PH C6 - C9	2.5	mg/kg	nt	nt	N/A	N/A	< 25	< 25	N/A	N/A	nt	nt	N/A	N/A
PH C10 - C14	50	mg/kg	nt	nt	N/A	N/A	< 50	< 50	N/A	N/A	nt	nt	N/A	N/A
PH C15 - C28	001	mg/kg	nt	nt	V/X	K/N	<100	< 100	N/A	V/V	nt	nt	V/A	V/A
PH C29 - C36	001	mg/kg	ti i	nt :	N/A	V.V	001>	001 >	N/A	V/A	ii ii	nt i	N/A	N/A
elizene	0.0	mg/kg	E 1	11 11	N/A	V/V	50 >	507	V/V	V.V	E 1	E 1	N/A	N/A
thybenzene	C.0	me/kg	i ta	ii tu	X X	K K	- A	CO.	N/A	K A	i t	i t	N/A	N/A
neta-& para-Xvlene	2	me/kg	12	i ti	V/V	ς×.	< 2	< 2	N/A	Ϋ́	i ii	: 12	N/A	N/A
rtho-Xylene	-	gy/gm	nt ii	nt n	N/A	N/A		 - -	N/A	N/A	nt n	i ti	N/A	N/A
AHs														
Japhthalene	0.1	mg/kg	nt	Ju	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
cenaphthylene	0.1	mg/kg	nt .	nt	Y.X	V.X	< 0.1	-0.1	V.V.	V.V.	nt .	nt	N/A	N/A
Localphucine	0.1	mg/kg mo/ko	n ti	nt n	N/A	N/A	< 0.1	< 0.1	N/A	N/A	ii ii	ii ti	N/A	N/A
henanthrene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	V/N	nt	nt	N/A	N/A
nthracene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	ν/ν	nt	nt	N/A	N/A
luoranthene	0.1	mg/kg	11 11	nt nt	N/A	N/A	< 0.1	V 0.1	N/A	N/A	11 11	<b>H</b> 1	N/A	V/A
circo(a)anthrisene	0.1	me/ke	i ti	u tu	K.X	K K	< 0.1	< 0.1	N/A	V.N	i 1:	i t	N/A	N/A
hrysene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
erzo(b)&(k)fluoranthene	0.2	mg/kg	nt	ıu	N/A	N/A	< 0.2	< 0.2	N/A	N/A	nt	nt	N/A	N/A
erzo(a)pyrene	0.05	mg/kg	nt	10	N/A	N/A	< 0.05	< 0.05	N/A	N/A	nt nt	ii ii	N/A	N/A
ibenz(a,h)anthracene	0.1	me/ke	ii ti	ii tii	V/V	K/N	< 0.1	< 0.1	N/A	V.X	11 11	1 11	N/A	V/A
enzo(ghi)perylene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
CP					1111	1111			****	1000			****	1714
pha-BCH	0.1	mg/kg	10 10	10 10	N/A	N/A	< 0.1	< 0.1	N/A	N/A	ii ii	10 10	N/A	N/A
EXACTION DE CIZETE	0.1	mg/kg mg/kg	ii ti	II tu	X X X	× × ×	< 0.1	< 0.1	N/A	× × ×	ii ti	ii ii	V/V	V/V
amma-BHC (Lindane)	0.1	me/kg	nt m	ju ju	XX	Z X	< 0.1	< 0.1	N/A	S X	ii ii	ii ti	V.V	V/V
-BHC	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	<0.1	N/A	N/A	nt	nt	N/A	N/A
reptachilor	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
ldrin	0.1	mg/kg	nt	nt	V/X	K/N	< 0.1	< 0.1	N/A	V/V	nt	nt	V/A	V/A
leptachlor epoxide	0.1	mg/kg	nt ut	nt	N/A	N/A	< 0.1	<0.0	N/A	N/A	ti ti	n ti	N/A	V/V
holordane - cis	0.1	mg/kg	111111111111111111111111111111111111111	n u	N/A	V/N	< 0.1	< 0.1	N/A	N/A	11 11	1 11	N/A	V/V
ndosulfan alpha	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
ieldrin	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
A-DDE	0.1	mg/kg	12 1	t i	N/A	N/A	< 0.1	<0.1	N/A	N/A	12 1	ti ti	N/A	N/A
ndin	0.1	me/kg	nt m	ju ju	XX	Z X	< 0.1	< 0.1	N/A	S X	ii ii	ii ti	V.V	V/V
ndosulfan II	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
ndrin aldehyde	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
ndosulfan sulphate	0.1	mg/kg	nt	nt	V/X	ν×.	< 0.1	< 0.1	N/A	V/X	nt	nt	V/A	V/A
A-DDI	0.0	mg/kg	nt nt	nt nt	N/A	V.V.	< 0.1	< 0.1	N/A	V/V	nt nt	ii ii	N/A	N/A
Teuroxycinoi PP	150	III A A B		w	Val	VAN	100 1	100	VAI	VAI	1	=	VAV	V/V
imethoate	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
iazinon	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
thlorp yrifos-methyl	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
onnel	0.1	mg/kg	nt	nt	V/X	K/N	< 0.1	< 0.1	V/V	V/N	nt	nt	V/V	V/V
entronnon	0.1	mg/kg	10 10	10 10	N/A	N/A	< 0.1	< 0.1	N/A	N/A	ii ii	ii ii	N/A	N/A
thion	0.1	mg/kg	nt ii	ii tii	N/A	N/A	< 0.1	< 0.1	N/A	N/A	ii ti	i ti	N/A	V/V
CB														
otal PCB	0.1	and leave												

- Result is below the laboratory Estimated Quantitation Limit.

\* EQL increased the to matrix interference

slicable.

BOLD Signifies RPD > 50% where the ave

Signifies RPD > 50% where the average concentration exceeds ten times the EQL or where the RPD > 75% where the string consentation is between 2-0 times the EQL or where the RPD > 100% where the average concentration is between 2-5 times the EQL.

# Blind Replicate Sample RPD Results - Soil

Sample ID			060508-23-KW	060508-24-KW			070508-98-KW	070508-99-KW			080508-106-KW	080508-107-KW		
Location			ABH238	238			ABH247	247		•	ABH	ABH248	T	
Depth			0.1-0.5	0.5			0.1-0.4	1.4			1.0-1.1	1.1	ı	
Date			6-May-08	y-08			7-May-08	80-4		•	8-Ma	8-May-08		
Laboratory			Envirolab	olab		ļ	Envirolab	olab			Envi	Envirolab	ı	
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate	plicate RPD	Original Sample	Blind Sample	Blind Replicate	Blind Replicate	Original Sample	Blind Sample	Blind Replicate	eplicate RPD
VOC														
Styrene Cumana (icommon diameters)		mg/kg	tit	ti ti	V/N	V/A	ti ti	ti ti	N/A	N/A	t	ti ti	N/A	V/X
n-Propylbenzene	-	mg/kg	n	i ti	V/V	N/A	n n	i ti	N/A	N/A	n ii	n	N/A	V/V
1,3,5-Trimethylbenzene		mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
sec-burytbenzene	-	mg/kg me/ke	i i	i i	N/A	N/A	i ti	i i	N/A	N/A	ii ii	nt nt	N/A	N/A
tert-Butylb enzene	_	mg/kg	nt	nt	N/A	N/A	nt ii	ıı	N/A	N/A	nt	nt	N/A	N/A
p-isopropyltoluene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
n-Butylbenzene	_	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	V/V
2,2-Dichloropropane	-	mg/kg mg/kg	n n	in in	N/A	N/A	n tu	n n	N/A	N/A	n n	nt	N/A	K/X
cis-1,3-Dichloropropene		mg/kg	ii ii	i ti	N/A	N/A	i ii	ii ii	N/A	N/A	n ii	nt	N/A	N/A
trans-1,3-Dichloropropene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	V/V
L'2-Dibromoethane	_ 91	mg/kg	11 11	10 10	N/A	N/A	11 11	11 11	N/A	N/A	11 11	ti ti	N/A	V/V
Chloromothane	0.1	mg/kg mg/kg	E 1	i i	V/V	< ×××	E 1	i i	N/A	N/A	E 1	ii ii	N/A	K/N
Vinyl chloride	10	mg/kg	11 11	ii ii	N/A	N/A	1 11	n n	N/A	N/A	11 11	ıı	N/A	N/A
Bromomethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroethane	01	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	V/V
1 nehlorottuoromethane	0.1	mg/kg ma/ka	ii ii	ii ii	N/A	N/A	n n	i i	N/A	N/A	ti ti	n	N/A	K/N
trans-1,2-Dichloroethylene	-	mg/kg	11 11	ii ii	N/A	N/A	1 11	n n	N/A	N/A	11 11	ıı	N/A	N/A
I,I-Dichloroethane	-	mg/kg	nt	nt	N/A	V/V	nt	nt	N/A	N/A	nt	nt	N/A	N/A
cis-1,2-Dichloroethylene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1-Trichloro ethane	-	mg/kg	t i	ti ii	N/A	N/A	ti ii	t i	N/A	N/A	t i	tu :-	N/A	V/A
Carbon tetrachloride	-	mg/kg me/ke	i i	i i	N/A	N/A	i ti	i i	N/A	N/A	ii ii	nt nt	N/A	N/A
1,2-Dichloroethane	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/N
Trichloroethene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Dibromomethane	-	mg/kg	t i	ti ii	N/A	N/A	ti ii	t i	N/A	N/A	t i	ju :-	N/A	V/A
1.3-dichloropropane	-	mg/kg mo/ko	ii ti	1 12	N/A	X X	= 1	ii ti	N/A	N/A	i i	ii ii	N/A	N/A
Tetrachloroethene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,1,2-Tetrachloroethane	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,1,2,2-Tetrachkoroethane	-	mg/kg	t i	ti ii	N/A	N/A	ti ii	t i	N/A	N/A	t i	ju :-	N/A	V/A
1.2-Dibromo-3-chloropropane	-	mg/kg mo/ko	ii ti	1 12	N/A	X X	= 1	ii ti	N/A	N/A	i i	ii ii	N/A	N/A
Hexachlorobutadiene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Bromocholoromethane	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	V/V
Chlorobenzene	-	mg/kg	t i	ti ii	N/A	N/A	ti ii	t i	N/A	N/A	t i	ju :-	N/A	V/A
Dromoenzene o-Chlorotoluene	-	mg/kg me/ke	i i	i i	N/A	N/A	i ti	i i	N/A	N/A	ii ii	nt nt	N/A	N/A
4-chlorotoluene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/N
1,3-Dichlorobenzene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
L,4-Dichlorobenzene	- -	mg/kg	ti .	nt	N/A	V :	nt	nt	N/A	N/A	n t	nt	N/A	N/A
1,2-Dienioto benzene	-	mg/kg me/ke	i i	i i	N/A	N/A	i ti	i i	N/A	N/A	ii ii	nt nt	N/A	N/A
1,2,3-trichlorobenzene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chloroform	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	V/V
Sronodicho romethane Chloro dibromomethane		mg/kg me/ke	ii ii	ii ii	A/A	N/A	ii ii	n n	K X	N/A	nt nt	n n	N/A	K/X
Bromoform	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
PAAH														
2,4-DB Disamba	001	ug/kg 11e/ke	ti ti	ti ti	₹ Z	< × ×	ti ti	ti ti	N/A A/A	×××	ti ti	ti ti	V X	V/V V/A
2-Methyl-4-chlorophenoxyacetic acid	100	ug/kg	ii ii	ii ti	N/A	N/A	ii ii	ii ti	N/A	N/A	n n	ut ut	N/A	N/A
2,4-DP (Dichloroprop)	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Z,4-D Triclony	001	ug/kg no/ko	n n	ii ii	< × ×	V X	ii ii	n n	e z	V Z	n n	ju ju	N/A	< × ×
2-(2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2,4,5-T	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Phenols Total Phenols	5	ma/ka	ta	pt	V/N	V/N	ţ	pt	V/V	V/V	ju	tu	V/V	4/2
Nutrients		p												
Anmonia as N	П	mg/kg	nt	nt	V/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Total Medani Mirogen Nitrite as N	0.1	mg/kg mg/kg	n n	H H	N/A	N/A	n n	H H	K/N	N/A	E E	E E	N/A	N/A
Nitrate as N	П	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	V/V
Total Phosphorous	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A	nt	nt	N/A	N/A
NOTES:														

NOTES:

not a Redow the linkerstory Estimated Quantitation Limit.

\*\*FQU increased due to munita interference

NA\*\* not applicable.

NA\*\* not applicable.

NA\*\* not applicable.

NA\*\* not applicable.

On the RPD > 5994, where the average concentration is between 2.0 times the EQL, or where the RPD > 75% where the average concentration is between 2.5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Part	Depth   Sept   Parameter   Depth   Sept   Parameter   Depth   Sept   S		AMR1	12   13   14   14   14   14   14   14   14	Blind Rep   Av crage   No	Heate   R P D   R P	AMII)  (0.1-4  Environment Sample  (2.4)  (2.4)  (3.7)  (4.1)  (4	1103   14,2   14,2   14,2   14,2   14,2   14,2   14,2   14,2   14,3	Blind Rep	
Particulary	Date         RAMP-168           Date         RAMP-168           Laboratory         Ferrenable           Amounteer         PQ1         Units         Coriginal Sample           4         mg/54         C-4         C-4           1         mg/54         C-1         C-4           1         mg/54         C-1         C-1           1         mg/54         M-1         M-1           1         mg/54	8	0.440	10   10   10   10   10   10   10   10	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	RPD	9-Ma Pandy Sample Original Sample <-4 <-4 <-4 <-4 <-4 9-7 13 9-7 13 9-7 13 9-7 13 9-7 13 9-7 13 9-7 14 15 9-7 16 17 9-7 17 9-7 18 18 19 19 19 19 19 19 19 19 19 19	40.2 rotato Blind Sample    String   Sample	Blind Rep	
Part	Parameter   Parameter   Parameter   Parameter   Parameter   Pol.   Parameter   Pol.   Parameter   Pol.   Pol.   Parameter   Pol.   Po		S-MAy	Alb   Billid Sample	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Heal to   Re P   D   D   Re P   D   D   Re P   D   D   Re P   D   D   D   D   D   D   D   D   D	P. Ma.	Mind Sample	Hind Rep   Rep	Refe
Table   Tabl	Laboratory   Parameter   Parameter   Parameter   Page   Links   Original Sample	5	Pavlen   P	Math	Bilind   Rep   R	Hear fe   Hear	Fant Original Sample   < 4   < 1   57   57   50   50   50   50   50   50   50   50	State   Sample	Blind Rep   Rep	Ref t   R   R   P   P   R   P   R   P   P   R   P   P
The continue   The	Parameter   PQL   Units   Original Sample		Original Sample	Shind Sample	Blind Rp   A   C   C   C   C   C   C   C   C   C	Rep D   Rep	Original Sample  ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	Blind Sumple	Bilind Rep   Average	Hate   R P D
	1   mg/kg   <4   mg/kg   <4   mg/kg   <4     mg/kg   <4       mg/kg   <4		1   1   1   1   1   1   1   1   1   1	C   C   C   C   C   C   C   C   C   C	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	N   N   N   N   N   N   N   N   N   N	C   C   C   C   C   C   C   C   C   C	0   0   0   0   0   0   0   0   0   0	N. A.	N   N   N   N   N   N   N   N   N   N
	1   mg/kg   1/2     1		4	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	X X X X X X X X X X X X X X X X X X X	X X X X X X X X X X X X X X X X X X X	2 C C C C C C C C C C C C C C C C C C C	7.4 7.3 7.3 7.3 7.3 7.4 7.4 7.4 7.4 7.4 7.4 7.4 7.4 7.4 7.4	N   N   N   N   N   N   N   N   N   N	N   N   N   N   N   N   N   N   N   N
	1   10   10   12   12   13   14   14   15   15   15   15   15   15		13   16   17   17   17   17   17   17   17	1   2   2   2   2   2   2   2   2   2	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	8 2 2 3 2 3 2 3 2 3 2 3 3 2 3 3 3 3 3 3	C C C C C C C C C C C C C C C C C C C	7.1.2 7.1.2 12.00 12.00 	6.95 8 8 8 31.07 8 31.07 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	19%   19%
	1   mg/kg   2.17     2   mg/kg   2.17     1   mg/kg   2.17     1   mg/kg   11		16   16   17   18   19   19   19   19   19   19   19	18   18   18   18   18   18   18   18	1. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	S   S   S   S   S   S   S   S   S   S	113 950 960 (401) 14 (41) 15 (10) 16 (10) 17 (10) 18 (10)	7.3 1200 1200 3.4 5.0.1 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 8 1015 1075 1075 N/A A N/A N/	19%   19%
	1 mg/kg		7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0   0   0   0   0   0   0   0   0   0	2 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$\frac{1}{2}\frac{1}\frac{1}{2}\f	950 950 950 950 950 950 950 950 950 950	12.04 12.04 3.4 0.11 1.02 1.03 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04	10   10   10   10   10   10   10   10	100%   19%   19%   NA   NA   NA   NA   NA   NA   NA   NA
1   1   1   1   1   1   1   1   1   1	1   100 kg kg   1.2		(100   100	2 1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	\$\begin{array}{c ccccccccccccccccccccccccccccccccccc	N N N N N N N N N N N N N N N N N N N			X   X   X   X   X   X   X   X   X   X	19%   N   N   N   N   N   N   N   N   N
1   1   1   1   1   1   1   1   1   1	10   10   10   10   10   10   10   10		19	2.53 2.63						N
1	2.5		C   E   E	\$20 00 00 00 00 00 00 00 00 00 00 00 00 0						
	100   100		(5) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	(5) (5) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7	\[     \leq \leq \leq \leq \leq \leq \leq \			E E E E E E E E E E E E E E E E E E E		
1   1   1   1   1   1   1   1   1   1	100 mg/ss   m   m		C   C   C   C   C   C   C   C   C   C	000   000	\[     \leq \leq \leq \leq \leq \leq \leq \			* * * * * * * * * * * * * * * * * * * *		
	1   10   10   10   10   10   10   10		(100 ) (1	100   003   003		N N N N N N N N N N N N N N N N N N N		* * * * * * * * * * * * * * * * * * * *	X X X X X X X X X X X X X X X X X X X	X X X X X X X X X X X X X X X X X X X
1   1   1   1   1   1   1   1   1   1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		N N N N N N N N N N N N N N N N N N N			X X X X X X X X X X X X X X X X X X X	N N N N N N N N N N N N N N N N N N N
1   1   1   1   1   1   1   1   1   1	1   1   10,55   10   11   11   11   11   11   11		\$ 0.00   \$ 0	(6)3 (1)3 (1)3 (1)3 (1)3 (1)3 (1)3 (1)3 (1		NA N	H H H H H H H H H H H H H H H H H H H	* * * * * * * * * * * * * * * * * * * *		
1	1   1   1   1   1   1   1   1   1   1		V   V   V   V   V   V   V   V   V   V	C   C   C   C   C   C   C   C   C   C			11 11 11 11 11 11 11 11 11 11 11 11 11	# # # # # # # # # #	X X X X X X X X X X X X X X X X X X X	
1   1   1   1   1   1   1   1   1   1	1 mg/kg   nt		\$\frac{\circ}{2}\$	<pre></pre>	N N N N N N N N N N N N N N N N N N N	NA N	nt nt nt nt nt nt	E H H H H H H	N/A N/A N/A N/A N/A	
1   1   1   1   1   1   1   1   1   1	1 mg/kg   11		100000000000000000000000000000000000000	1 V V V V V V V V V V V V V V V V V V V	X X X X X X X X X X X X X X X X X X X		nt nt nt nt	H H H H H H	N N N N N N N N N N N N N N N N N N N	
1	0.1   mg/kg   nt		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	001   001	N N N N N N N N N N N N N N N N N N N	N N N N N N N N N N N N N N N N N N N	nt nt nt nt	世 祖 祖 祖 祖	V/X X X X X X X X X X X X X X X X X X X	
Column	0.1   mg/kg   nt		10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	V   V   V   V   V   V   V   V   V   V	N N N N N N N N N N N N N N N N N N N	N N N N N N N N N N N N N N N N N N N	n n n	1 11 11 11 11	N/A N/A N/A N/A N/A	
Column   C	0.1 mg/s/s   nt		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	N/A N/A N/A		nt nt	1 1 1 1 1	N/A N/A	N N N N N N N N N N N N N N N N N N N
1   1   1   1   1   1   1   1   1   1	0.1 mg/s2		0 0 0 0	<pre></pre>	N N N N N N N N N N N N N N N N N N N	N N N N N N	nt	2 2 1	N/A N/A	N N N N N
1   1   1   1   1   1   1   1   1   1	0.1 mg/kg   nt		0 V V V V V V V V V V V V V V V V V V V	0.1 0.0 0.1 0.0 0.1	N/A N/A N/A	N N N N	nt	12 1	V/N /N	N N N N
1   1   1   1   1   1   1   1   1   1	0.1 mg/sg   161		< < 0.1 < 0.1 < 0.1		N/A	X X X			V/N	Z Z Z
1   1   1   1   1   1   1   1   1   1	Compared		<0.1	< 0.1	VA	X/A	ti ii	E 1	V/18	WW.
1   1   1   1   1   1   1   1   1   1	Comparison			107	N/A		ii ii	2 12	X X X	
Mail	0.1 mg/kg   nt		<0.1	< 0.1	N/A	N/A	nt ::	111	N/A	N/A
NA   NA   NA   NA   NA   NA   NA   NA	0.12 mg/kg   ni		< 0.1	< 0.1	N/A	N/A	nt	Ħ	V/A	N/A
Columbia   Columbia	97070		< 0.2	< 0.2	V/X	V/N	ti ti	12 1	e s	V.V
Columbid   Columbid	O		<0.1	< 0.1	V.N	N/A	ii ti	: t:	V/A	N/A
1	10   mg/kg   nt	N/A N/A	< 0.1	< 0.1	N/A	N/A	nt	ш	N/A	N/A
No.   1   1   1   1   1   1   1   1   1	Col.   200   10   10   10   10   10   10   1	N/A N/A	< 0.1	< 0.1	N/A	N/A	nt	nt	N/A	N/A
Columbia   Columbia	Company   Comp	ŀ	1	17	V//V	V//V	9	0.7	V17.V	V/1/4
1   1   1   1   1   1   1   1   1   1	dues) 0.1  dues) 0.1  by the control of the control	+	11 12	H M	×××	N/A	<0.1	< 0.1	X X X	N/A
1	dane) 0,1  dane) 0,1  dane) 0,1  de 0,1  de 0,1  de 0,1  de 0,1	N/A N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
1	66 60 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		ut	nt	N/A	V/V	< 0.1	<0.1	V/V	V/V
1	ke 0.1		= 1	10 10	N/A	N/A	0.0	× 0.1	N/N	N/A
Columbia   Columbia	de 0.1 0.1 0.1 0.1	N/A N/A	ii tii	11 12	V/V	N/A	<0.1	< 0.1	V/X	Y/X
1	0.1	N/A N/A	ııı	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
Columbia   Columbia	0.1	N/A N/A	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
1	0.1		tu 1	nt	< ×	V/V	< 0.1	< 0.1	× :	V/V
No.   No.	John males at		III tu	nt	V V	N/A	< 0.1	< 0.1	4/X	N/A
0.1   mg/kg   nt   nt   nt   nt   nt   nt   nt   n	4,4DDE nt nt nt	N/A N/A	111	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
1	1	N/A N/A	Ħ	nt	N/A	N/A	< 0.1	< 0.1	V/V	V/A
	mg/kg nl	1	11 11	10 10	N/A	N/A	0.0	× 0.1	N/N	N/A
1	ng/kg nt	<u>.</u>	Ħ	i ii	V/V	N/A	< 0.1	< 0.1	Y/X	N/A
	ate 0.1 ng/kg nt	l,	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
			ш	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
	1	N/A N/A	ut	nt	√×	ΝŅ	< 0.1	< 0.1		Ϋ́N
NA   NA   NA   NA   NA   NA   NA   NA	mg/kg nt	H	tu.	u	N/A	N/A	<0.1	<0.1	A/N	N/A
mg/kg   mi   mi   N/A   N/A   mi   mi   N/A   N/A   col   col   N/A   N/A   mi   mi   n/A   N/A   col   col   N/A   n/A   mi   mi   mi   mi   mi   mi   mi   mi   m	mg/kg nt		nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
	mg/kg nt	+	ut	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
V   V   V   V   V   V   V   V   V   V	mg/kg nl	+	10 11	10 10	N/A	N/A	0.0	× 0.1	N/N	N/A
100   100   101	mg/kg nt	+	e to	i ta	V.N	N/A	0 0 0	<0.1	V/A	N/A
V/N	mg/kg nt		nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
	PCB						97	100		

Control   Cont	Location   Date   Dat	NH122.2 LS-6.7 MA4-48 NH24-48	Pillente   RP D	May-(Virol)	Blind Sample	Blind Re   No. 10	<del>                                    </del>	0.1.4 (9.Mg   Panyis   Panyis	1113  40.2  40.2  40.1	Billied Rept	R P D
Part	Paper   Pape	Nay-488 Nay-488 Nin-489 Nin-48	Piliate	Ned.7	Blist d Sampte	Blind   No or age   No or ag	Tall	0,141  P.MA  P.MA  Original Sample  III  III  III  III  III  III  III	12 11 11 11 11 11 11 11 11 11 11 11 11 1	Billind Rept	RPD   RPD
Part	Parameter         Parameter         I Jahor atory           I colspan         PQL         Lukin         Original Sum           I colspan         T         T         T           I colspan <th>Wite-State A Complete A Complete</th> <th>  Piletee                                    </th> <th>Wirolab</th> <th>  Billind Sample                                      </th> <th>  Blind Rc   Average   NA   Average</th> <th>15 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</th> <th>P. MAA P. MAA P.</th> <th>Hind Sample — Hind Sample — Hi</th> <th>  Blind Repl                                      </th> <th>  RPD   RPD</th>	Wite-State A Complete	Piletee	Wirolab	Billind Sample	Blind Rc   Average   NA   Average	15 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	P. MAA P.	Hind Sample — Hi	Blind Repl	RPD   RPD
Particulary   Color	Date           Date           Promoter         PQ1         Units         Original Sample Samp	May-88 Initiodals Simple  Initiodals Billind Simple  Initial S	Red   Red	virolab	Blind Sample	Blind Rg   A renge   Rg   A renge	Tall	P.Ma. Environment of the continue of the conti	Outh by Blind Sample Blind Sample II	Hilled   Repl.	R   R   R   R   R   R   R   R   R   R
Particular   Par	Labor atory         PQ1         (nis         Original Sample and Parameter           respect plenement         1         mg/kg         mt           respect plenement	Piled Sample  Biled Sample  III III III III III III III III III I	Piliate     Piliate   Piliate     Piliat	virolab	Blind Sample	Blind   Re   Average   A	Tall	Environ   Envi		Billed Rept   Average   N   A   Average   N   A   A   A   A   A   A   A   A   A	R   R   R   R   R   R   R   R   R   R
Transfer   Property	parameter         POD.         Units           stopency (between)         1         mg/ks	Blind Sumple			Blind Sample	Blind   R   A   C   C   C   C   C   C   C   C   C	જ	Original Sample	Hillad Sample   Hills   Hills	Blind Repl.	R   R   R   R   R   R   R   R   R   R
1   2   2   2   2   2   2   2   2   2	1 mg/kg	N								N N N N N N N N N N N N N N N N N N N	X X X X X X X X X X X X X X X X X X X
1   10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	1   1   1   1   1   1   1   1   1   1	N							** ** ** ** * * * * * * * * * * * * * *	**************************************	
1   10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	Image	N   N   N   N   N   N   N   N   N   N			V V V V V V V V V V V V V V V V V V V		\(\) \(\) \(\) \(\) \(\) \(\) \(\) \(\)	***************************************	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	N N N N N N N N N N N N N N N N N N N	
1   24   24   25   25   25   25   25   25	Markey   Markey   1   mg/kg	N N N N N N N N N N N N N N N N N N N								X X X X X X X X X X X X X X X X X X X	
1   2   2   2   2   2   2   2   2   2	1   1995   199	N   N   N   N   N   N   N   N   N   N							* * * * * * * * * * * * * * * * * * * *	X X X X X X X X X X X X X X X X X X X	
1   2   2   2   2   2   2   2   2   2	Image   Imag	N N N N N N N N N N N N N N N N N N N								X X X X X X X X X X X X X X X X X X X	
1   1   1   1   1   1   1   1   1   1	1 mg/85	NA MARKET NA NA MARKE							12 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
1   10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	Control         1         mg/kg           Control         1         m	N   N   N   N   N   N   N   N   N   N					N N N N N N N N N N N N N N N N N N N	H H H H H H H H H H H H H H H H H H H	* * * * * * * * * * * * * * * * * * * *		
1   10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	1   1995   199	N N N N N N N N N N N N N N N N N N N					N N N N N N N N N N N N N N N N N N N	11 H H H H H H H H H H H H H H H H H H	* * * * * * * * * * * * * * * * *		
1   10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	Implies   Impl	N   N   N   N   N   N   N   N   N   N									
Column   C	Interference		N N N N N N N N N N N N N N N N N N N					nt nt nt nt			
Column	In the Part	NA N	N N N N N N N N N N N N N N N N N N N				N N N N N N N N N N N N N N N N N N N	nt nt nt nt			
No.	Intersection   10 mg/kg   10 mg	NA   NA   NA   NA   NA   NA   NA   NA	N/A	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	X X X X X X X X X X X X X X X X X X X	N N N N N N N N N N N N N N N N N N N	nt nt nt			
The control of the markey of t	Interest	NA N	NA N	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		N N N N N N N N N N N N N N N N N N N	N N N N N	nt nt			N N N N N N N N N N N N N N N N N N N
The contribution   The contrib	The control of the	N/N  H H H N/N  N/N  N/N  N/N  N/N  N/N	N N N N N N N N N N N N N N N N N N N	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			NA NA NA	12 1	H H H H H H	N N N N N N N N N N N N N N N N N N N	N N N N N N N N N N N N N N N N N N N
1	10   10   10   10   10   10   10   10		N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A				N/A N/A		11 11 11 11 11 11 11 11 11 11 11 11 11	N/A	NA N
1   1   1   1   1   1   1   1   1   1	10   10   10   10   10   10   10   10	nt N/A nt N/A nt N/A nt N/A nt N/A nt N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		N/A	1 11	11 11 11 11	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	
1   1   1   1   1   1   1   1   1   1	1 mg/84   1 mg	nt N/A nt N/A nt N/A nt N/A nt N/A	NN	<u></u>	~ ~ ~ ~ ~ ~ ~ ~	× × × × × × × × × × × × × × × × × × ×		111111111111111111111111111111111111111	2 2 2	N/A N/A N/A N/A N/A N/A N/A N/A	
the controlled between the part of the controlled between the contro	Delta control conclusion   1 mg/kg	nt N/A nt N/A nt N/A nt N/A nt N/A	N/A		□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	N/A N/A N/A N/A	N/A	nt	п	N/A N/A N/A N/A N/A N/A	
Mathematic   1   mark	Implies   Impl	A/N tu	K K K K K K K K K K K K K K K K K K K	7 7 7 7 7 7 7	7 7 7 7 7	N N N N	N/A	nt	H	N N N N N N N N N N N N N N N N N N N	
1   10   10   10   10   10   10   10	Interception   Inte	THE THE	Z X X X	7 7 7 7 7 7	7 7 7 7 7	N/A N/A	N/A	10 10		N/N N/N N/N N/N N/N	
1   1   1   1   1   1   1   1   1   1	1 mg/84   1 mg		N/A	2 2 2 2	777	N/A	V.V	111111111111111111111111111111111111111	1 11	N/A N/A	N/A N/A N/A N/A
1   marked   1	Interesting   I mg/kg	nt N/A	<td>⊽⊽⊽</td> <td>7 7</td> <td></td> <td>N/A</td> <td>nt</td> <td>nt</td> <td>N/A N/A</td> <td>N N N N N</td>	⊽⊽⊽	7 7		N/A	nt	nt	N/A N/A	N N N N N
1   10,000   1	1   100,000	N/A	A17.4	7 7	7	Y S	N/A	tu i	= 1	X/X	NA NA
1   mg/kg   mg   mg   mg   mg   mg   mg   mg	1 mg/85	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	N/A			N/A	V.N	111111111111111111111111111111111111111	= =		N/A
conditional controlled         1 mg/s         mm         mm         NA         NA         C 1         C 1         NA         <	Interventment   Implies   Interventment   Implies   Im	nt N/A	N/A	-1>		N/A	N/A	nt	н	N/A	VI/V
1   mg/sg   mg   mg   mg   mg   mg   mg   mg	Implies   Impl	nt N/A	V/N		~	N/A	N/A	nt	Ħ	N/A	U.V.
1   mg/kg   state	In the location   In the lets	K/X	N/A	7 7	7 7	N/A	N/A	10	= =	V/X	N/A
1   mg/kg   mi	Interpretation   1 mg/kg   Interpretation   Inter	nt N/A	N/A	· ·	~	N/A	N/A	nt	nt	N/A	N/A
1   200, 200, 200, 200, 200, 200, 200, 20	1   10   10   10   10   10   10   10	N/A	V/N		V 1	N/A	N/A	tu 1	ti 1	K/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N/N	N/A
1   1995   1   1   1995   1   1   1995   1   1   1   1   1   1   1   1   1	1 mg/kg   1 mg	A/N in	N/A	7 🗸	7 7	N/A	N/A	m tu	= =	N/A	N/A
1   mp/kg   m   m   m   m   m   m   m   m   m	1 mg/kg	nt N/A	N/A	· ·	~	N/A	N/A	nt	ш	N/A	N/A
1   10   10   10   10   10   10   10	1   199, 56	N/A	N/A	7	7	N/A	N/A	nt	H	V/V	N/A
1   1   1   1   1   1   1   1   1   1	1 mg/62	A/X tu	V V	7 7	V V	N/A	N/A	nt nt	H F	Y X	N/A
between 1 might of mid	1 mg/kg   1 mg	nt n/A	N/A	- V	7	N/A	N/A	11	: 12	N/A	N/A
Debatomen   1 mg/kg	1 mg/kg   1 mg	nt N/A	N/A	· ·	~	N/A	N/A	nt	ш	N/A	N/A
1   1   1   1   1   1   1   1   1   1	1   100	KZ Z	××××××××××××××××××××××××××××××××××××××	7.7	⊽ √	V/N	V/A	11 11	H 1	× ×	V 2
1   1   1   1   1   1   1   1   1   1	1 mg/kg	A/N	N/A	7 🗸	7 7	N/A	N/A	ii ti	: 11	N/A	N/A
1 mg/kg	1 mg/kg   1 mg	N/A	N/A	~	· ·	N/A	N/A	nt	щ	N/A	N/A
1   1   1   1   1   1   1   1   1   1	mg/kg	V/X N	V X	V .	V V	N/A	N/A	11 11	2 2	Y X	V/V
1 mg/kg   st   st   st   st   st   st   st   s	1 mg/kg	nt N/A				N/A	N/A	nt	п	N/A	N/A
100 ugkg	100 ug/ks   1-00	nt N/A		7 7		N/A	N/A	nt nt	н	N/A	N/A
100 ugykg   C100   C100   NA NA NA   NA NA NA NA NA NA NA NA NA NA NA NA NA	100 up/kg						100		!	4	4
blockeep   100 aggs   C   C   C   C   C   C   C   C   C	100   100		H	nt	nt	N/A	N/A	nt	н 1	N/A	N/A
100 uugsg	100   100	A/N 001 / V	V/V	u u	ii ii	N/A	N/A	ii ti	2 2	X/X	N/A
100   100	100   ugk.g   <   100   ugk.			nt	nt	N/A	N/A	nt	п	N/A	N/A
100   100	richlorophenoxy) propionic acid 100 ug/kg <  100 ug/kg <  100 ug/kg <		1	nt	nt	N/A	N/A	nt	벋	N/A	N/A
5   mp/kg   25   c  100   c  100   N/A   N/A   n   n   n   n   N/A   N/A   n   n   n   n   n   n   n   n   n	100 ug/kg	V/N 001 v	V V	nt	nt	N/A	V/V	ju tu	E E	V/V	V/V
No.	Phenols	< 100 N/A	N/A	nt	nt	N/A	N/A	nt	н	N/A	N/A
NA   NA   NA   NA   NA   NA   NA   NA	Total Discording	YAN	VIX	3/	3/	VIV	V//V	**	1	VIV	N/A
NA   O.5   mg/kg   2.5   2.5   O/5   nt   nt   NA   NA   nt   nt   nt   nt   nt   nt   nt   n	0	ni NA	N/A	2	2	WA	N/A	Ħ	п	N/A	N/A
dimper         30         mg/Mg         3.20         2.70         3.7%         n         n         n         NA         NA         n         n         n           0.1         mg/Mg         <0.1	s N 0.5 mg/kg	2.5 2.5	%0	nt	nt	N/A	N/A	nt	ш	N/A	N/A
0.5 mg/kg < 0.1 (0.7 mg/kg 1.20 7.2 86 80% ni ni ni NA NA ni	ditrogen 30 mg/kg		H	щ	nt	N/A	N/A	nt	ш	N/A	N/A
10	0.1 ng/kg			nt nt	li ti	< × ×	< × ×	n n	e e	e e	V 2
	ng/kg		20%	nt ii	ii ii	N/A	N/A	ut	: 12	N/A	N/A

NUTS.

A statistic because the Description of the shoulder value of the difference between original and replicate samples divided by the average and expressed as a personings.

In contrast the bedown the district persons of the statistic persons

- Soil
Results
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8

Location			ABI	ABH262			ARF	ABH260		
							!			
Depth			1.7	1.7-1.9			9.0	8.0-9.0		
Date			12-M	12-May-08			12-M	12-May-08		
Laboratory			Envi	Envirolab			Envi	Envirolab		
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate	plicate RP D	Original Sample	Blind Sample	Blind Replicate Average RPI	eplicate RPD
letals		and fee	,	,	N/A	N/N	7	7	V/N	N/A
admium	2	mg/kg	· -	·	N/A	N/A	7 7		N/A	N/A
hromium	-	mg/kg	1.5	1.6	1.55	%9	- V	>	N/A	N/A
opper		mg/kg	2.9	32	3.05	%01	⊽ 7	= 7		VX X
Ickel	-	mg/kg mg/kg	- 4	2.4	3.45	N/A 61%	7 🗸	- 67	I.3	XX XX
inc	-	mg/kg	12	26	61	74%	6.1	3.4	2.65	81%
lereury	0.1	mg/kg	< 0.1	< 0.1	N/A	N/A	< 0.1	< 0.1	N/A	N/A
PH C6 - C9	36	mo/ko	ņ	bl	N/A	N/A	< 25	>6>	VΝ	N/A
PH C10 - C14	20	mg/kg	1 11	11 11	N/A	N/A	< 50	< 50	N/A	N/A
PH C15 - C28	100	mg/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A
PH C29 - C36	100	mg/kg	nt	nt	N/A	N/A	< 100	< 100	N/A	N/A
enzene	0.0	mg/kg	= 1	= 1	N/A	N/A	< 0.5	< 0.5	V.X	V/V
thybenzene	-	mg/kg mg/kg	1 1	1 11	N/A	N/A	×1×	- A-1	N/A	N/A
teta-& para-Xylene	2	mg/kg	nt	nt	N/A	N/A	< 2	< 2	N/A	N/A
rtho-Xylene	1	mg/kg	nt	nt	N/A	N/A	<1	>	N/A	N/A
AHs						1111				
aphthalene	0.1	mg/kg	= 1	1 1	V/N	V/V	×0.1	0 0	V X	V/V
consplitte	0.1	mg/kg mo/ko	i t	i t	K/N	N/A	0 < 0.1	0 0 0	K/N	N/A
uorene	0.1	gy/gm	ii ii	ii ii	N/A	N/A	<0.1	< 0.1	N/A	N/A
henanthrene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
nthracene	0.1	mg/kg	E 1	E 1	V/X	V/V	× 0.1	V 0.1	Z Z	V.V
NOTE TO A STATE OF THE STATE OF	0.1	mg/kg	ii ti	ii ti	V/N	V/V	<0.1	< 0.1	Z X	N/A
erzo(a)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
hrysene	0.1	mg/kg	nt	nt	V/N	N/A	< 0.1	< 0.1	N/A	N/A
erzo(b)&(k)fluoranthene	0.2	mg/kg	<b>E</b> 1	<b>E</b> 1	V/N	V X	< 0.2	< 0.2	V X	Υ/X
ideno(12.3-cd) byrene	0.1	mg/kg	1 12	11 12	V/N	N/A	<0.1	< 0.1	K/N	N/A
ibenz(a,h)anthracene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
erzo(g.h,i)perylene	0.1	mg/kg	nt	nt	N/A	N/A	< 0.1	< 0.1	N/A	N/A
NCP NAME BOTH	0	mallea	1	1	V/N	V/N	*	1	N/N	V/IV
piirbun	0.1	mg/kg ma/ka	i i	i i	V/N	V/V	E 1	E T	V/N	V/N
BHC	0.1	mg/kg mg/kg	ii ti	ii ti	N/A	N/A	Ħ	п	Z/X	N/A
amma-BHC (Lindane)	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
BHC	0.1	mg/kg	nt	nt	N/A	V/V	nt	nt	N/A	V/N
eptachlor	0.1	mg/kg	ti .	ti .	V/A	V/A	nt .	nt	ΑΝ	A/A
Jarin entachlor enexide	0.1	mg/kg ma/ka	n n	n n	N/A	V/A	n tu	n n	K X	N/A
epiacinor epoxine h ordane - trans	0.1	mg/kg mo/ko	i ti	ii ti	N/A	V/V	ii ti	ii ti	Z Z	N/A
hlordane - cis	0.1	mg/kg	n	n	N/A	V/V	nt	nt	N/A	N/A
ndosulfan alpha	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
ieldrin	0.1	mg/kg	Ħ	ti ii	N/A	N/A	ti ii	ti ti	N/A	N/A
4-DDE	0 0	mg/kg	ii ti	ii ti	V/N	V/V	= t	ii ta	N/A	V/V
ndrin	0.1	mg/kg	i ti	i ti	N/A	V/A	Ħ	i ti	N/A	N/A
ndosulfan II	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
ndrin aldeltyde	0.1	mg/kg	nt	nt	N/A	V/A	nt	nt	V/A	N/A
ndosuitan supnate	0.1	mg/kg mg/kg	i i	i i	V/N	N/A	E E	ii ii	K/N	N/A
lethoxychlor	0.1	mg/kg	ii ii	ii ii	N/A	V/V	n in	nt	N/A	N/A
PP										
imethoate	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Hazinon Niconomi Goromonthal	0.1	mg/kg	n n	n ti	V/N	V/V	n n	n ti	Y Z	N/A
mot y mos-menty i	0.1	mg/kg mg/kg	1 11	11 11	V/N	V/V	111111111111111111111111111111111111111	11 11	Z Z	V/N
entrothion	0.1	mg/kg	Ħ	Ħ	N/A	N/A	Ħ	i ti	N/A	N/A
hlopyrifos	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
thion	0.1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
CB										

Relative Percentage Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and caproseed as a percentage.

Relative Percentage Difference (RPD) is calculated in Limit.

\*\* EQL increased the armit's interference.

NA\*\* not applicable.

\*\*Significa NPD > S9%\* where the average concentration caccecds ten times the BOL.

\*\*Significa NPD > S9% where the average concentration exceeds ten times the BOL.

\*\*Significa NPD > S9% where the average concentration exceeds ten times the BOL.

\*\*Signification of the average concentration of the average conc

Signifies RPD > 50% where the average concentration exceeds ten times the EQL, or where the RPD > 75% where the verage concentration is between 2-510 times the EQL, or where the RPD > 100% where the verage concentration is between 2-51 times the EQL, or where the RPD > 100% where the verage concentration is between 2-5 times the EQL.

# Blind Replicate Sample RPD Results - Soil

Location			ABI	ABH262			ABI	ABH260		
Depth			1.7	1.7-19			9.0	8.0-9.0		
Date			12-M	12-May-08			12-M	12-May-08		
Laboratory			Envi	Envirolab			Envi	Envirolab		
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate	plicate	Original Sample	Blind Sample	Blind Replicate	plicate
VOC					Average	RFD			Average	KFD
Styrene	<u>.</u>	mg/kg	nt	nt	N/A	V/A	nt	nt	N/A	V/A
Cumene (isopropylbenzene)	- -	mg/kg mo/ko	nt nt	n nt	e s	4 × ×	ii ii	nt	N/A	V X
3,5-Trimethylbenzene	-	mg/kg	n	n	N/A	V/V	i ii	n	N/A	N/A
ec-butylbenzene	_	mg/kg	nt	nt	N/A	N/A	nt	nt	V/N	N/A
,2,4-1 rimethylbenzene	- -	mg/kg	nt nt	nt nt	N/A	N/A	11 11	nt nt	N/A	N/A
it-buty to enze ne -isopropyltoluene	-	mg/kg	11 11	11 11	X X	X/X	i ii	ii ii	V/V	X X
Butylbenzene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
,2-Dichloropropane		mg/kg	nt	nt	N/A	N/A	nt	nt	V/N	N/A
2-dichloropropane	- -	mg/kg	ti ii	t i	N/A	N/A	t i	nt ==	N/A	N/A
ans-1,3-Dichloropropene	-	mg/kg mg/kg	11 11	11 11	X X	X/X	i ii	ii ii	V/V	X X
2-Dibromoethane	_	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
ichloro difluoromethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	V/N	N/A
hloromethane	0 0	mg/kg	nt tr	nt nt	N/A	N/A	t t	nt nt	N/A	N/A
romomethane	10	mg/kg	n n	n n	N/A	V/V	i ti	i ti	V/V	N/A
hloroethane	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
richlorofluoromethane	0 -	mg/kg	nt	nt	N/A	V/A	nt	nt	N/A	N/A
1-Dichloroethylene	- -	mg/kg me/ko	nt nt	n nt	N/A	K/X	ii ii	nt	N/A	V.V.
1-Dichlorochane	-	mg/kg	n n	n n	N/A	V/V	i ti	i ti	V/V	N/A
+1,2-Dichloroethylene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1, 1-Trichloroethane	- -	mg/kg	nt	nt	N/A	V/A	nt	nt	N/A	N/A
1-Dichloropropene	-	mg/kg ma/ka	nt nt	nt	N/A	4/X	n n	nt	N/A	N/A
-Dichloroethane	-	mg/kg	Ħ	Ħ	Z/X	V/N	1 1	н	N/A	N/A
chloroethene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
bromomethane	- -	mg/kg	n i	ti ii	N/A	N/A	Ħ	tu :	N/A	N/A
-dichloropropane	-	mg/kg	m m	ii ii	V.V	V/N	i	nt nt	V/N	N/A
trachloroethene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
1,2-Tetrachloroethane	- -	mg/kg	TI I	tu :	V/A	V/N	ti ii	nt :	V/V	V/V
2.3-Trichloropropane	-	mg/kg mo/kg	ii ta	ii tu	V.V	N/A	i t	u tu	N/A	N/A
-Dibromo-3-chloropropane	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
exachloro butadiene	-	mg/kg	nt	nt	N/A	V/V	nt	nt	N/A	N/A
onxcholoromethane	- -	mg/kg	n :	ш	V X	V/V	E i	n :	N/A	V/V
lloro benzene	-	mg/kg ma/ka	n tu	nt	N/A	A/A	10 10	nt	N/A	N/A
Chlorotoluene	-	mg/kg	n ti	ii ii	V.V	V/N	i	nt nt	V/N	N/A
chlorotoluene	-	mg/kg	nt	nt	N/A	V/V	nt	nt	N/A	N/A
3-Dichlorobenzene	_	mg/kg	nt	nt	N/A	N/A	nt	nt	V/N	N/A
+Dichlorobenzene	- -	mg/kg	nt	nt	V/V	N/A	ti .	nt	A/N	N/A
2-Dichloro benzene	-	mg/kg ma/ka	nt nt	nt	N/A	4/X	n n	nt	N/A	N/A
2,3-trichlorobenzene	-	mg/kg	11 11	11 11	X X	X/X	i ii	ii ii	V/V	X X
loroform	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
omodichlo romethane	_	mg/kg	nt	nt	N/A	N/A	nt	nt	V/N	N/A
loro dibromonethane		mg/kg	H H	11 11	N/A	V/A	t t	tt tt	N/A	N/A
onoiom AAH	-	mg/ kg	#	#	VV	W/W	=	#	WW	WW
+DB	100	ug/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
_	001	ng/kg	nt	nt	N/A	V/A	nt	nt	N/A	N/A
Methyl-4-chlorophenoxyacetic acid	001	ug/kg	nt to	nt	N/A	V/A	ti ti	nt	V/N	N/A
4-D	001	ug/kg	ii ii	ii ii	N/A	V/N	i i	ii ti	N/A	N/A
riclopyr	100	ng/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
(2,4,5-Trichlorophenoxy) propionic acid	001	ug/kg	ti ti	n n	N/A	V/A	t t	t t	N/A	N/A
henols		94.49			47.00					
otal Phenols	5	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
futrients				-						
mmonia as N	0.5	mg/kg	ti ti	nt	V/A	V/A	ti ii	nt	N/A	V/V
otal Metaani Mitogen itrite as N	0.1	mg/kg	n n	nt nt	N/A	V/N	1 11	ii ii	V/N	N/A
itrate as N	0.5	mg/kg	n	nt	V/N	V/V	ī			A17.4
					V/A/	TATAL	nt	nt	N/A	N/A

NUTS.

Statistics becoming Difference (RPD) is calculated as the shoulst-value of the difference between original and replicate samples divided by the average and expressed as a personnage.

In contract, it is below the theory of Estimated Quantitation Limit.

NA, and applicable.

Signifies RPD > 50% where the average own-contration exceeds ten times the EQL or where the RRD > 75% where the average concentration showers 3.5 (times the EQL or where the RRD > 50% where the average concentration is because 3.5 (times the EQL or where the RRD > 50% where the average concentration is because 3.5 (times the EQL or where the RRD > 50% where the average concentration is because 3.5 (times the EQL.

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RPD
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Deptit   D			ABI	ABH295		
Depth   Part   Laboratory   L						
Date   Polity   Pol		1	7.1	1.2-1.4		
Continue			13-M	13-May-08		
1   1   1   1   1   1   1   1   1   1			Envi	Envirolab		
1   mg/kg   c 4   c 4   c 4     1   mg/kg   c 1   c 1   c 1     1   mg/kg   c 1   c	te plie	ate	Original Sample	Blind Sample	Blind Replicate	plicate
1   mg/kg   <  1     1   mg/kg   <  0     1   mg/	Average	KFD			Average	KPD
1   mg/kg   1,1	N/A	N/A	^ 4	> 4	N/A	N/A
1   1   10, 10, 10, 10, 11, 11, 11, 11, 11, 11,	N/A	N/A	~ ;		N/A	N/A
1	1443	27%	7 7	1.0	0:1	N/A
1   myky   7.2	2.1	%01	7 7		N/A	N/A
1   mg/kg   0.130	76.5	12%	\  -	1.1	171	N/A
25	115	%6	1 > 1	1.5	1.5	N/A
100   100	0.15	40%	1.0 ×	< 0.1	N/A	N/A
150   myks   mt	N/A	V/V	< 25	< 25	N/A	N/A
100   mp/kg   nt	N/A	N/A	< 50	< 50	N/A	N/A
100   100   101	N/A	N/A	< 100	< 100	V/A	N/A
1   1   1   1   1   1   1   1   1   1	N/A	N/A	<100	<100	V/A	V/A
1   1   1   1   1   1   1   1   1   1	V/V	N/A	<0.5	< 0.5	V.Z	V S
1	N/A	N/A	- N-S	- C- N-2	K/N	K.N.
1 mg/kg   nt	N/A	N/A	< 2	<2	N/A	N/A
0.1 mg/kg   nt	N/A	N/A		<1	N/A	N/A
0   1   10   10   10   10   10   10	4//4	17.74	***	*	4/14	1/1/4
0.1   mg/kg   mi   mi   mi   mi   mi   mi   mi   m	N/A	V/V	<b>= =</b>	ii ii	N/N	N/A
0.1 mg/kg	N/A	N/A	nt	nt	N/A	N/A
0   0   0   0   0   0   0   0   0   0	N/A	N/A	nt	nt	N/A	N/A
0.1   mg/kg   mt	×××	V/N	i i	nt ni	V.N	N/A
10   11   11   11   12   13   14   14   14   14   14   14   14	N/A	N/A	i ti	nt	N/A	N/A
10   11   11   12   13   14   15   15   15   15   15   15   15	N/A	N/A	nt	nt	N/A	N/A
10   10   10   10   10   10   10   10	N/A	V/N	tt	nt	N/A	N/A
10.05   10.0	N/A	V/V	i ii	nt	N/A	N/A
10   10   10   10   10   10   10   10	N/A	N/A	nt	nt	N/A	N/A
10   10   10   10   10   10   10   10	V X	N/A	<b>1</b> 1	nt nt	N/A	N/A
10   10   10   10   10   10   10   10	X X	V/X	i ti	nt nt	XX	N/A
101   mg/kg   0.01						
10   10   10   10   10   10   10   10	N/A	N/A	nt	nt	N/A	N/A
(out   100	N/A	V/N	t t	nt nt	V/V	N/A
0.1 mg/kg	N/A	N/A	1 11	n n	N/A	N/A
0.1 mg/kg < 0.0.1	N/A	N/A	nt	nt	N/A	N/A
10   10   10   10   10   10   10   10	N/A	N/A	nt	nt	N/A	N/A
0	V X	N/A	<b>1</b> 1	nt nt	N/A	N/A
10 2 85/m 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	N/A	N/A	1 11	nt	N/A	N/A
0.1 mg/kg < 0.1 mg	N/A	V/V	nt	nt	N/A	N/A
0 1 mg/kg < 0.1	N/A	N/A	E 1	n n	N/A	N/A
10 - 85/m 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	N/A	N/A	1 11	nt m	N/A	N/A
0.1 mp/8s	N/A	N/A	nt	nt	N/A	N/A
0.11 mg/kg < 0.1 0.11 mg/kg < 0.1 0.11 mg/kg < 0.1 0.11 mg/kg < 0.1 0.1 mg/kg < 0.1 0.1 mg/kg < 0.1	N/A	V/V	ti ii	nt	N/A	N/A
10	N/A	N/N	i ii	ii ii	N/A	N/A
0.1 mg/kg < 0.1 0.1 mg/kg < 0.1 0.1 mg/kg < 0.1	N/A	N/A	nt	nt	N/A	N/A
0.1 mg/kg < 0.1	N/A	N/A	nt	nt	V/N	N/A
$\begin{array}{c cccc} 0.1 & \text{ng/kg} & < 0.1 \\ & & & & & & \\ & & & & & & \\ \end{array}$	N/A	V/V	ni	nt	V.N	N/A
	N/A	N/A	nt	nt	N/A	N/A
0.1 mg/kg < 0.1	N/A	N/A	nt	nt	N/A	N/A
mg/kg < 0.1	N/A	V/V	Ħ	nt ==	V/A	N/A
0.1 mg/kg < 0.1	N/N	V/N	i 16	ii ii	V/N	N/A
mg/kg	N/A	N/A	nt	nt	N/A	N/A
< 0.1	N/A	N/A	nt	nt	V/V	Α/N

NOTION

Notice (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage, and --
Real is below the laboratory Estimated Quantitation Limit.

\* BQL increased date a mutit, incretenees

Note: the real applicable.

Signifies RPD > 50% where the average concentration is between 5:00 times the EQL.

or whome the RPD > 55% where the average concentration is between 5:00 times the EQL.

Signifies RPD > 50% where the average concentration exceeds ten times the EQ1, or where the RPD > 75% where the average concentration is between 5-10 times the EQ1. or where the RPD > 100% where the average concentration is between 2-5 times the EQ1.

# Blind Replicate Sample RPD Results - Soil

Sample ID Location			130508-304-KW	130508-305-KW			130508-323-KW	130508-324-KW		
Location			Idv	ABH373			SOCHAY	205		
e e										
Depth			0.1	0.1-0.5			1.2-	1.2-1.4		
Date			13-M	13-May-08			13-May-08	ay-08		
Laboratory			Envi	Envirolab			Envir	Envirolab		
Parameter	PQL	Units	Original Sample	Blind Sample	Blind Replicate	plicate	Original Sample	Blind Sample	Blind Replicate	eplicate
00					Second				Service	- 1
rene (iconomidancem)		mg/kg	ti ti	nt	V/N	V/N	nt	nt	N/A	N/A
mene (soptopytoenzene) Propylbenzene	-	mg/kg mg/kg	# #	n n	XX	V/V	ii ii	ii ii	X X	X X
,5-Trimethylbenzene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
2-butylbenzene		mg/kg mg/kg	t t	n n	V/V	A/A	n n	t t	N/A	N/A
t-Butybenzene	-	mg/kg	i ti	ii iii	V/N	V/N	ni ni	11 11	X.X	N/A
sopropyltoluene	1	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Butylbenzene	-	mg/kg	nt	nt	V/N	V/N	nt	nt	N/A	N/A
-Dichloropropane	-	mg/kg	t t	nt	N/A	A/A	nt ==	ti ti	Y Z	N/A
-1.3-Dichloropropene	-	mg/kg	i ti	ii iii	V/N	V/N	ni ni	11 11	X.X	N/A
ns-1,3-Dichloropropene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
3-Dibromoethane	_ 9	mg/kg	12 12	n i	N/A	V/V	n n	ti ti	Y X	N/A
loromethane	10	mg/kg	i ti	ni tii	V/N	V/N	ni ni	11 12	Z X	N/A
nyl chloride	10	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
omomethane	0 0	mg/kg	nt	nt	N/A	N/A	nt	nt	ν×.	N/A
doroghane	0 01	mg/kg ma/ka	n to	n n	V/N	V/V	n	ii ii	A Z	N/A
-Dichloro ethylene	-	mg/kg	Ħ	nt	N/N	N/A	nt	Ħ	N/A	N/A
ns-1,2-Dichloroethylene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
-Dichloro ethane	- -	mg/kg	n	nt	V/N	N/A	nt	nt	V.X	V/V
L'Trickloroethylene	-	mg/kg ma/ka	n to	n n	V/N	V/V	n	ii ii	A Z	N/A
-Dichloro propene	_	mg/kg	ii tii	nt	N/A	V/A	nt	n n	N/A	N/A
rbon tetrachloride	_	mg/kg	nt	nt	V/N	V/N	nt	nt	N/A	N/A
-Dichloroethane	-	mg/kg mo/kg	n t	n i	V/N	V/V	n	ii ii	V V	N/A
bromomethane	_	mg/kg	ii ti	nt	N/A	N/A	nt	nt	N/A	N/A
,2-trichloroethane	1	mg/kg	nt	nt	V/N	V/N	nt	nt	N/A	N/A
i-dichloropropane	-	mg/kg	n n	nt	N/A	V/N	n	n n	A N	N/A
1,1,2-Tetrachloroethane	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
,2,2-Tetrachloroethane	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
.,3-Trichloropropane		mg/kg mg/kg	t t	n n	V/V	A/A	n n	t t	N/A	N/A
Sachlorobutadiene	-	mg/kg	111111111111111111111111111111111111111	ni ni	V/N	V/N	ii ii	1 11	Z Z	N/A
onocholoromethane	-	mg/kg	i ti	n n	N/A	V/V	nt	i ti	N/A	N/A
lorobenzene	_	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
omobenzene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
Chlorotoluene	-	mg/kg	= 1	ti ti	N/A	N/A	n n	ti ti	Y X	N/A
in or oto turne LD ich loro henze ne	-	mg/kg mo/ko	H H	nt nt	V.N	N/A	n n	ii ta	× × ×	N/A
+Dichlorobenzene	-	mg/kg	ii tii	ııt	N/A	N/A	nt	ii ii	N/A	N/A
2-Dichlorobenzene	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
4-trichlorobenzene		mg/kg	t	ti ti	V/A	V/A	11 11	t t	A'N	V/A
loro form	-	mg/kg me/ke	H H	i ii	N/A	N/A	ii ii	i ii	N/N	×××
onnodic thoromethane	_	mg/kg	ii ti	nt	N/A	N/A	nt	nt	N/A	N/A
lorodibromomethane	-	mg/kg	nt	nt	N/A	N/A	nt	nt	N/A	N/A
omotorm	-	mg/kg	Ju	ni	N/A	N/A	nt	n	N/A	ΝA
LDB	100	110/20	> 100	> 100	N/A	N/A	nt	n n	N/A	N/A
camba	100	ug/kg	<100	< 100	N/A	N/A	nt	nt	N/A	N/A
	100	ug/kg	<100	< 100	V/N	V/N	nt	nt	N/A	N/A
LDP (Dichloroprop)	000	ug/kg	001 >	000 ×	N/A	N/A	n n	ti ti	Y X	N/A
clony	001	ug/kg ug/kg	001>	001 >	V/N	V/N	ii ii	1 11	Z Z	V.N
2,4,5-Trichlorophenoxy) propionic acid	100	ug/kg	<100	< 100	N/A	N/A	nt	nt	N/A	N/A
A.S-T	100	ug/kg	<100	< 100	N/A	N/A	nt	nt	N/A	N/A
tal Phenols	2	mg/kg	nt	nt	N/A	N/A	< 5	< 5	N/A	N/A
utrients										
mmonia as N	0.5	mg/kg	< 0.5	9'0	9.0	N/A	nt	nt	N/A	N/A
tal Kjeldahl Nitrogen	30	mg/kg	480	560	520	15%	nt	nt i	V/X	N/A
Interests N	0.5	mg/kg mo/bo	< 0.1	< 0.5	V/N	V/N	11 11	E E	V/N	N/A
tal Phosphorous	10	me/ke	370	340	3.40	1111			****	1010

Relative becoming Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage.

The contractive is below the theory Efermined Quantitation Limit.

The contractive is a numbrate and contractive to the contractive to

Signifies RPD > 50% where the average concentration exceeds for times the EQL, or where the RPD > 75% where the average concentration is between \$4.0 times the EQL, or where the RPD > 100% where the average concentration is between 2.5 times the EQL.

Blind Replicate Sample RPD Results - Soil

Part	Date   15-May-18		-May-08	Billind Rept   Average	2.3-2.5 -: May-08 nvirolab		
Protection	Parameter   Political Sample   Parameter   Political Sample   Parameter   Political Sample   Parameter   Political Sample   P		-May-08	Blind Rep    Average   A	-May-08		
Table   Liberton   Figure   Liberton   Figure   Liberton   Figure   Liberton   Figure   Liberton   Figure   F	Lathoratory   Permeter   Poly   Parimeter   Parimeter   Poly   Poly   Parimeter   Poly   Po		deloriva	Bilad Rept   Average   A	nvirolab		
The control	Parenteer   PQ1   Chelle   Original Sample   Bitted Sample			Blind Rep     Average     4.5			
	1   mp/kg   22     1   mp/kg   23     1   mp/kg   24     1   mp/kg   25     25   mp/kg   26     26   mp/kg   26     27   mp/kg   26     28   mp/kg   26     29   mp/kg   26     20   mp/kg   26     21   mp/kg   27     21   mp/kg   27     21   mp/kg   27     22   mp/kg   27     23   mp/kg   27     24   mp/kg   27     25   mp/kg   27     26   mp/kg   27     27   mp/kg   27     28   mp/kg   27     29   mp/kg   27     20   mp/kg				4 >	<	Blind Replicate
	1   mp/kg   24     1   mp/kg   25     25   mp/kg   26     25   mp/kg   26     26   mp/kg   26     27   mp/kg   26     28   mp/kg   26     29   mp/kg   26     20   mp/kg   26     21   mp/kg   26     21   mp/kg   26     21   mp/kg   26     22   mp/kg   26     23   mp/kg   26     24   mp/kg   26     25   mp/kg   26     26   mp/kg   26     27   mp/kg   26     28   mp/kg   26     29   mp/kg   26     20   mp/kg						
	1   mg/kg   8.5     1   mg/kg   8.6     1				< 1		_
	1   1   1   1   1   1   1   1   1   1				1>	N/A	
	1   mg/kg   0.3			200	2.1	181	
	10   10   10   10   10   10   10   10				1.9		
10   10   10   10   10   10   10   10	2.53   mg/kg   < 5/25			N/A	< 0.1		
10   1974   1975   19	100 mp/kg   24/56			N/A	nt	nt N/A	LĪ
1	100   100			N/A	nt	Z Z	_
1   1   1   1   1   1   1   1   1   1	0.55 mg/kg < 0.05   mg/kg   0.05			V X X	11 11	nt N/A	
1   1   1   1   1   1   1   1   1   1	1   1   1   1   1   1   1   1   1   1		*	K/Z	nt	nt N	
1	1   1   10   10   1   1   1   10   10			N/A N/A	nt	Z Z	
1   1   1   1   1   1   1   1   1   1	1   10   10   10   10   10   10   10				n	n in	
Column	0.1. mp/kg   mt		-		nt	nt N/A	
Column	0.11   mg/kg   m   m					-	
1   1   1   1   1   1   1   1   1   1	6.1. mg/kg on or				t	n tu	_
1   1965   1   1965   1   1   1   1   1   1   1   1   1	0.1 mg/s2				11 11	ii ti	
01   mg/kg   m   m   m   N   N   N   m   m   m   m	0.1. mg/s/s nn 0.1. mg/s/s nn 0.1. mg/s/s nn 0.1. mg/s/s nn 0.1. mg/s/s nn 0.1 mg/s/s nn 0.2 mg/s/s nn 0.2 mg/s/s nn 0.1 mg/s/s nn 0	N/N			nt	in in	L
10   1995   10   1995   10   11   1995	0.11   mp/kg   111			N/A N/A	nt	nt N	
1	0.11 m/h k/k   10 m/h k/k   1				nt	nt N/A	
Columbia	0.1 mg/s2   nt			Ì	ii ii	i ti	
1	0.1 mg/kg   0.1	N/A N/A		I.	nt	nt N/A	L
10   1   1   1   1   1   1   1   1   1	01.2   mp/kg   mt			_	nt	nt N	
1	0.000 mg/sg				nt	nt Tu	
01   mg/kg   m	0.1 mg/kg   11 mg/kg				nt nt	nt N/A	
1	101 mg/sg not			I.	nt	nt N	L
1	0.01 mg/kg nn n 0.02 mg/kg nn n 0.03 mg/kg nn n 0.01 mg/kg nn n 0.02 mg/kg nn n 0.03 mg/kg nn n 0.04 mg/kg nn n 0.05 mg/kg nn n 0.07 mg/kg nn n 0.08 mg/kg nn n 0.09 mg/kg nn n 0.00 m				nt	nt N	_
1	0.01 mg/kg mm m m m m m m m m m m m m m m m m m	ŀ		ŀ	1	17	I.
1	001				nt nt	nt N/A	
1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	K/X			nt	Z	
Ferential Control of any Region of an analysis and any		N/A N/A	< 0.1	_	nt	nt N	,
Ferrors (1) 11 111/2   111/2	8 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	N/A N/A		N/A N/A	nt	nt N/A	_
Comparison		N/A N/A		< <	nt i	tu ii	
1   1   1   1   1   1   1   1   1   1		NA NA		< 4	nt nt	E 12	
1		N/A N/A	< 0.1 < 0.1	N/A N/A	nt	nt N	
1	0110000	N/A N/A	< 0.1	٧	ıu	nt N	_
1	01	N/A N/A	< 0.1	٧	nt	nt N/A	
1	001	N/A N/A	< 0.1	N/A N/A	nt	nt N	
O	0.1 0.1 0.1 0.1	NA NA	<0.1	N/A N/A	nt	nt i	
1	de 0.1	NA NA	100/ 201	N/A N/A	ii ta	i ta	
Delicity	1.0	N/A N/A	< 0.1	N/A N/A	nt	nt N/A	
1   mg/kg   mi		N/A N/A	< 0.1	N/A N/A	nt	nt N	_
1   1   1   1   1   1   1   1   1   1	ate 0.1 mg/kg	1	< 0.1		nt	nt N	
1   1   1   1   1   1   1   1   1   1	0.1 mg/kg	ł	× 0.1		nt	nt N/A	
1   1   1   1   1   1   1   1   1   1	W 0017	l	110				
Controlly    Con	0.1 ng/kg	N/A N/A	<0.1	N/A N/A	nt	nt N	
1	0.1 mg/kg	N/A N/A	<0.1	N/A N/A	11 11	nt N/A	]
0   1   1   1   1   1   1   1   1   1	O.1 mg/kg	N/A N/A		N/A N/A	ii ii	M 10	
0,1   0,0	1.0	N/A N/A	<0.1	N/A N/A	11 15	in the	
0,1 mg/kg nt nt NA NA <0,1 <0,1 NA NA NA   NA NA NA NA NA NA NA NA NA NA NA NA NA	0.1	K/X	< 0.1	K/Z	i	2	
Company   Comp			< 0.1		nt	nt N/A	,
Total DCR CO. N.A. N.A. N.A. N.A. M.A. M.A. M.A. M.A	PCB						
The state of the s	Total PCB nt nt nt	N/A N/A	< 0.1	N/A N/A	nt	nt	

The continue of the continue	SomeloID			150 509 370 1/3/	150500 371 LYN		150500 3		200		150500 202 1/13/	150500 204 IV XV		
The control of the	Sample ID			M N-0 / C-ODC DCT	120200-211-WW		CONCINCT	- 1			AA N-CCC-O DCDCT	W N-4-C-OOCOCT		
This control   This	Location			ABII	697			ABH28/			VP	1790		
This continue	Depth			0.0-(	3			0.0-0.4			2.3	-2.5		
14   14   15   15   15   15   15   15	Date			15-Ma	13-08			15-May-08			15-M	lay-08		
	Laboratory			Envir	olab			Envirolab			Envi	irolab		
	Parameter	PQL	Units	Original Sample	Blind Sample	- epli	Η.			ם	Original Sample	Blind Sample	Blind Replicate	licate
	VOC					- 1				_			og man	a W
	Styrene	- -	mg/kg	nt	nt				N		nt	nt	N/A	N/A
	Cumene (isopropylbenzene)	-	mg/kg mo/ko	nt nt	n n	V V	N/A nt	II to	ž Ž		n n	nt nt	e z	e e
	1,3,5-Trimethylbenzene	-	mg/kg	nt	nt			TII.	Ž		nt	nt	N/A	N/A
	sec-butylbenzene		mg/kg	nt	nt		N/A nt	12 1	ž		nt	nt	N/A	N/A
	1.2.4-1rimethylbenzene ten-Butybenzene		mg/kg mg/kg	nt	n n	K K	N/A	H H	žŻ		n tu	n n	X/X	K/X
	p-isopropyltoluene	-	mg/kg	nt	nt	N/A	N/A nt	ju	N		nt	nt	N/A	N/A
	n-Butylbenzene		mg/kg	nt	nt	N/A	N/A nt	벋	ż	N/A	nt	nt	N/A	V/V
	2.2-Dichloropropane		mg/kg	ti ti	t t	e e	N/A	11 11	ž ž	Z Z	t t	ti ti	N/A	K'N
	cis-1,3-Dichloropropene	-	mg/kg	ii tii	i	N/A	M/A	111	Ż	N/A	ii tii	m m	N/A	V/V
1   1   1   1   1   1   1   1   1   1	trans-1,3-Dichloropropene	1	mg/kg	nt	nt	N/A	N/A nt	nt	Ż	A/A	nt	nt	N/A	N/A
1   1   1   1   1   1   1   1   1   1	1,2-Dibromoethane	-	mg/kg	nt	nt	N/A	N/A nt	Ħ	Ż	V/A	nt	nt	N/A	V/V
1   1   1   1   1   1   1   1   1   1	Dichloro diffuoromethane	10	mg/kg	ti ii	Ħ	N/A	N/A	= :	ž ž	V X	tu 1	tu i	Y X	V/V
10   10   10   10   10   10   10   10	Vind obloride	01	mg/kg mo/ko	ii ti	ii ti	V V V	N/A	H T	ŽŽ	22	i t	E E	X X X	V/V
10   10   10   10   10   10   10   10	Bronxmethane	10	mg/kg	i	i i	V.V	N/A n	1 11	Ż	Z V Z	i u	ii ii	X/X	V/N
1   1   1   1   1   1   1   1   1   1	Chloroethane	10	mg/kg	nt	nt	N/A	N/A nt	nt	Ż	A/A	nt	nt	N/A	N/A
	Trichlorofluoromethane	10	mg/kg	nt	nt	N/A	N/A nt	Ħ	Ż	A N/A	nt	nt	N/A	N/A
	1,1-Dichloroethylene		mg/kg	nt	nt	N/A	N/A nt	Ħ	ž	A/N	nt	nt	N/A	Α/Ν
1   1965   1   1965	trans-1,z-Dichloroethylene	-	mg/kg mo/ko	n n	ii ii	V V	N/A nt		ž Ž	×××	n n	nt nt	4 × ×	V/V
1   1   1   1   1   1   1   1   1   1	cis 1,2-Dichloroethylene	-	mg/kg	ш	i ti	N/A	N/A nt	1 12	ž	V/N	i ti	n n	N/A	N/A
1   1   1   1   1   1   1   1   1   1	1,1,1-Trichloro ethane	1	mg/kg	nt	nt	N/A	N/A nt	TI III	Ż	A N/A	nt	nt	N/A	N/A
1   100	1,1-Dichloropropene	-	mg/kg	nt	nt	N/A	N/A nt	nt	ž:	V/N	ut	nt	N/A	N/A
1   my   my   my   my   my   my   my	Carbon terraentoride	- -	mg/kg mo/ka	ii ii	H T	V/V	N/A nt	II II	ž Ž	N/A	ш	n n	N/A	N/A
1   mg/kg   m   m   m   m   m   m   m   m   m	Trichloresthere	-	mg/kg	1 11	1 11	V.V	N/A	= =	ŽŽ	V V	10	n tu	K K	V/N
1   1   1   1   1   1   1   1   1   1	Dibromomethane	1	mg/kg	nt	nt	N/A	N/A nt	TI III	Ż	A N/A	nt	nt	N/A	N/A
1   100, 20   1   1   100, 20   1   1   100, 20   1   1   100, 20   1   1   100, 20   1   1   100, 20   1   1   100, 20   1   1   100, 20   1   1   100, 20   1   1   1   100, 20   1   1   1   100, 20   1   1   1   1   1   1   1   1   1	1.1.2-trichloroethane		mg/kg	nt	nt	N/A	N/A nt	nt	Ż	A/N	nt	nt	N/A	V/N
1   100	Tetrachlorophopane	-	mg/kg mo/ko	n n	ii ii	V V	N/A nt	i t	ž Ž	×××	n n	nt nt	4 × ×	N/A
1   10   10   10   10   10   10   10	1,1,1,2-Tetrachloroethane	-	mg/kg	nt	nt	N/A	N/A nt	H	ž	A/A	nt	nt	N/A	N/A
1   100	1,1,2,2-Tetrachloroethane	- -	mg/kg	nt	nt	N/A	N/A nt	H	ž į	A/N	nt	nt	N/A	V/V
1   10,005   1	1.2.5-1ricinoropropane	-	mg/kg mo/ko	ii ti	ii ti	K K K	N/A nt	nt m	ŻŻ	×××	n ti	u tu	< <	N/A
1   mg/sg   mi	Hexachlorobutadiene	_	mg/kg	nt	nt	N/A	N/A nt	변	ž	N/A	nt	nt	N/A	V/N
1   10   10   10   10   10   10   10	Bronocholoromethane	-	mg/kg	nt	nt	N/A	N/A nt	nt	ž	A N/A	nt	nt	N/A	N/A
1   100	Chloro benzene		mg/kg	nt	nt	N/A	N/A nt	nt	ž	A/N/A	nt	nt	N/A	N/A
1   10,000   1   10,000   1   1   10,000   1   1   10,000   1   1   10,000   1   1   10,000   1   1   10,000   1   1   10,000   1   1   10,000   1   1   1   10,000   1   1   1   10,000   1   1   1   1   1   1   1   1   1	Bromobenzene	-	mg/kg	ti ti	t t	V V	N/A nt	2 2	Ž Ž	V V	11 11	nt nt	N/A	K/N
1   my/s   my/s   m   m   m   m   m   m   m   m   m	4-chlorotoluene	-	mg/kg mg/kg	11 11	i ii	N/A	N/A nt	1 12	Ż	N/A	i ii	i ti	N/A	N/A
1   11   11   11   11   11   12   13   13	1,3-Dichlorobenzene	-	mg/kg	nt	nt	N/A	N/A nt	Ħ	ž	A/A	nt	nt	N/A	V/V
1   100	1,4-Dichlorobenzene	- -	mg/kg	ti ii	Ħ	N/A	N/A	<b>H</b> 1	ž ž	V X	tu 1	tu 1	Y X	V/A
1   100	1.2.4-trichlorobenzene	-	mg/kg	ii tii	i	N/A	M/A	1 11	ŽŽ	V V	ii tii	m m	X/X	V/N
1   100	1,2,3-trichlo robenzene	-	mg/kg	nt	nt	N/A	N/A nt	ш	Ž		nt	nt	N/A	N/A
1   10,00   10   10   10   10   10   1	Chloro form Bromodichlo romethane	1	mg/kg mo/ko	nt	n n	V X X	N/A N/A	E E	2 2		n tu	n t	K X	< ×
10   10   10   10   10   10   10   10	Chlorodibromomethane	-	mg/kg	nt	nt	N/A	N/A nt	TI.	ž	A N/A	nt	nt	N/A	N/A
100   100	Bromotorm	-	mg/kg	ni	n	NA	N/A	п	ž	A NA	n	n	N/A	V/V
1500 949/54   REF   REF   NA NA   REF   REF   NA NA   REF   REF   NA NA   REF   RE	2,4:DB	100	ug/kg	nt	n	H			ž	H	ut	nt	N/A	V/N
100   100	Dicamba	100	ug/kg	nt	nt			TI.	ž		nt	nt	N/A	N/A
100   100	2-Methyl-4-chlorophenoxyacetic acid	00 00	ug/kg	ti ti	t t	+		= 1	2 2		12 12	1 1	N/A	K/N
100   92/54   RE	2.4-D	100	ug/kg	11 11	i ii			1 12	Ż		i ii	i ti	N/A	N/A
100   1954   11	Triclopyr	100	ug/kg	nt	nt			ш	Ż		nt	nt	N/A	N/A
1	2-(2,4,5-Trichlorophenoxy) propionic acid	001	ug/kg	n n	n n		N/A nt	2	Ž Ž	V V	ti ti	nt s	N/A	K/N
1   1   1   1   1   1   1   1   1   1	Phenols	No.	ng/wg	=	ŧ	Va.		1	N.	Vai		=	Var	Visit
0.5   mg/kg   mi   mi   m   NA   NA   mi   mi   NA   NA   mi   mi   mi   mi   mi   mi   mi   m	Total Phenols	2	mg/kg	nt	nt	N/A	N/A nt	ш	N	A N/A	nt	nt	N/A	N/A
0.5 mg/kg   mi	Nutrients													
0.5 mg/s	Ammonia as N Total Rieldah Mironan	30	mg/kg	ti ti	t t			= 1	2 2		12 12	1 1	N/A	V/N
0.5         mg/kg         nt         nt         NA         NA         nt         nt         NA         nt         nt         nt         nt           10         mg/kg         nt         nt         nt         NA         nt         nt         nt         nt	Nitrite as N	0.1	mg/kg	ш	i ii			11	ž		n	n	N/A	V/X
10 mg/kg ni ni ni NA NA ni ni ni NA NA ni ni ni	Nitrake as N	0.5	mg/kg	nt	nt			12	Ž.	H	nt	nt	N/A	V/V
NAPPE	Total Phosphorous	10	mg/kg	nt	III	N/A	M/A	H	IN.	N/N	III	nt	N/A	N/A

Perform Preventing Difference (RPD) is calculated as the absolute value of the difference between original and replicate samples divided by the average and expressed as a percentage.

In al. Reals is below the hallown deep Estimated Quantitation Limit.

NA- not applicable.

NA- not applicable.

RELL increased due to mark inference.

Signifies RPD > 50% where the average concentration caveds tent times the EOL.

<sup>10.110</sup> signifies 1970 > 50% when the average concentration exceeds on times the EQL or where the RPD > 70% where the average construction is because 15 to make the EQL or where the RPD > 100% where the average concentration is because 15 of man the EQL.

Split Replicate RPD	Results - Groundwater
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Split Replicate RPD Results - O	Groundwater				_									_								
Sample I	ID		178685-03-KW	170685-94-KW			300508-10-KW	300505-11-KW			298508-65-KW	250508-06-KW	298598-07-KW			AMW283	0.4001	QAQC2				
Location				TW484			MB					BHD00C					AMW283					
Date				me 2008			30 Ma					29 May 2008					17 February 2017					
Laborato	iry		Envirolab	ALS			East				Envirolab	Envirolab	ALS			Envirolab	Envirolab	ALS				
Parameter	PQL	Units	Original Sample	Split Sample	Illind I	RPD	Original Sample	Blind Sample	Blind F	Leplicate	Original Sample	Hind Replicate	Split Sample	Blind Replicate Splk Sa	mple	Original Sample	Blind Replicate	Split Sample	Blind R	plicate RPD	Split Sa Average	imple
Chloride	20	ngt.	5900	6140	6020	4% 18%	2000	2199	Average 2050	RPD 5%	210	230	234	Average RPD Average 220 9% 222 135 2% 134.5	11%	22	at .		N/A	N/A	N/A	N/A N/A
Sulphase Total Dissolved Solids	- 5	mg1	830 11000	696 11000	763		2300	2499 7600	2350	4%	140	130 900	129	135 7% 134.5 850 12% 763	8% 10%	21	at or	EE .	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Saleity	1	ngt gt ngt	11000 10000	9350	9675	2% 2%	6.2	6.1	6.15	2%	-4	- 4	0.62	850 12% 743 N/A N/A 0.62 N/A N/A N/A N/A 150 0% 151.5	N/A	- 11	at .	H.	N/A	N/A	N/A	N/A
Bicarbonate Alkalinity as	0.1		10.1 250	az.	9675 N/A 280	NA NA	810	810	810	0%	150	150	153	150   12%   763   N/A   N/A   0.62   N/A   N/A   N/A   N/A   150   0%   151.5   N/A   N/A   153   N/A   N/A   153   79.5   4%   78.5	2%	at	at	et	N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A	N/A
Cakium (II) Ion	0.03	mg1 mg1	170	163	166.5	4%	610	610	610	9%	81	78	76	79.5 4% 78.5	6%	at at	85	15	N/A	N/A	N/A	N/A
Potassium (I) Ion Sodium (Na)	0.03	mg1 mg1	130 3500	130 3160	130 3330	0%	93 1600	92 1500	\$290 6.15 N/A \$10 N/A 610 92.5 1590 325	1% 6%	19	29 120	20 122		5% 2%	at at	at at	at at		N/A N/A N/A	N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
Magnesium (II) Ion Metals	0.03	mg1	30	336	183	167%	330	320	325	3%	34	34	24		0%	at .	at		N/A N/A	N/A	N/A N/A	N/A
Amenic Cudesian	1 01	1ga 1ga	1.6 0.2	*1 *0.01	1.6	N/A N/A	5.7 0.2	5.5	5.6 0.15	4% 67%	-0.1	-0.1	10 -0.1	11 6% 10.5 N/A N/A N/A	10% N/A	32 -0.1	32 <0.1	22 40.1	32 N/A	0% N/A	27 N/A	37% N/A
Chronium		ngt ngt	23	34	23.5	4%	15	1.5	1.5	0%	-4	1.1	-0.1	1.1 N/A N/A	N/A	<1	- 4	-1	N/A	N/A N/A	N/A	N/A
Nickel	i	ug1	-1	4	4	NO.	- 4	4	N/A	NO.	-1	4	-0.1	NA NA NA	N/A	<1	- 3	-1	N/A	N/A	N/A	N/A N/A N/A N/A
Zinc	-	ug1 ug1	-0.5 2.5	-1		N/A 82%	5.9	5.7	5.8	9% 3%	-1		-0.1 -0.5	1.05 30% 1.1 N/A N/A N/A	N/A	-0.05 <1	-0.65 -(1	-0.1 -3	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Mercury TPH/HTEX	0.5	ugt	4.1	<0.1	4.1	NO	<0.5	<0.5	N/A	NOL	<0.5	<0.5	-0.01	NA NA NA	NA	-0.05	-0.65	<0.1	N/A	N/A	N/A	N/A
TPH C6 - C9 TPH C10 - C14	10	ug1	-30 -50	-20 -50	N/A N/A	N/A N/A	<10 <50	-10 -50	N/A N/A	N/A N/A	-30 -30	<10 <50	<20 <50	N/A N/A N/A N/A N/A N/A	N/A N/A	-30 -30	<10 <50	-20 450	N/A N/A	N/A N/A	N/A N/A	N/A N/A
TPH C15 - C28 TPH C29 - C16	100	1881 1881	-300 -300	-100 -50	N/A N/A	N/A N/A	<300 <300	<100 -100	N/A N/A	NO.	<100 <100	<100	-100 -50	N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A	<100 <100	<100 <100	<100 450	N/A N/A N/A	N/A N/A N/A	N/A N/A	N/A N/A N/A
Benzene	- 1	ugt	-1	- 4	N/A	N/A	4	4	N/A	N/A	- 4		- 1	NA NA NA	N/A	<1	- 3	4	N/A	N/A	N/A	N/A
Dhybenome		190	- 4	-2	N/A	N/A N/A N/A	d	- 4	N/A N/A N/A	NA.	d	- 4	-2	NA NA NA	NA	d	à	- 2	N/A	N/A N/A N/A	N/A N/A N/A	NA NA NA NA
orho-Xylme	1	ug1 ug1	4	- 4	N/A N/A	N/A	- d	4	N/A N/A	NA NA		- G	- 2	NA NA NA	N/A	- d		- 2	N/A	N/A	N/A	N/A
PAlls Naphthalene		ugt	-1	- 4	N/A	N/A	-1	-4	N/A	N/A	-4	- 4	<1	NA NA NA	NA	<1	- 4	<1	N/A	N/A N/A	N/A	N/A N/A
Accessphiliplese Accessphiliplese	<u> </u>	ug1 ug1	d d		N/A N/A	N/A N/A	d d	4	N/A N/A	NO.	4	4	- G	N/A N/A N/A N/A N/A N/A	N/A N/A	d d	- 0	41 41	N/A N/A	N/A	N/A N/A	N/A N/A
Fluorene Photosothome		ug1 ug1	- d - d		N/A N/A	N/A N/A	- d - d		N/A N/A	NO.	4	- 0		NA NA NA	N/A N/A			41 41	N/A N/A	N/A N/A	N/A N/A	N/A N/A N/A
Anthricene Thoranthene		ugi ugi	4	- 4	N/A N/A	N/A N/A	d d	4	N/A N/A	NOL	4	4	- 0	NA NA NA	N/A	4	- d	-11	N/A N/A	N/A	N/A	N/A N/A
Pyrene Benevislanthroom		ug1 ug1	- 4	- 4	N/A N/A	N/A N/A	4	- 4	N/A N/A	NA NA	- 4	- 9	- 0	N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A	- 4	- 9	-11	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Chrysens		ugl	4	- 1	N/A N/A	N/A	4	4	NA NA	N/A N/A	- 1	- 4	- 41	N/A N/A N/A	N/A N/A	- 4	- 1	- 1	N/A	N/A N/A	N/A	N/A N/A
Benzo(a)pyrene	1	ugt ugt	4	-1 -0.5	N/A N/A	N/A N/A	-2	4	N/A N/A	N/A N/A	-2 -1	-2	49.5 KI	NA NA NA	N/A N/A	-0	-2 -(1	41 40.5	N/A N/A	N/A N/A	N/A N/A	N/A N/A
macno(1,2,3-cd)pyrene Dibens(a,b)anthracene		ug1 ug1	- 4	- 4	N/A N/A	N/A N/A N/A	- 4	4	N/A N/A N/A	N/A N/A N/A	4	4	- G	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A	4	- d - d	41 41	N/A N/A	N/A N/A	N/A N/A N/A N/A	N/A N/A
Benzojg,h,iporykne OCP			- 4	1 4			-4	- 4			-4					- 4		-11				
slpha-BCH Hexachlorobenzene	0.2 0.2	ug1	-0.2 -0.2	-0.2 -0.2	N/A N/A N/A	N/A N/A	+0.2 +0.2	<0.2 <0.2	N/A N/A N/A	N/A N/A	-0.2 -0.2	-0.2 -0.2	nt =0.5	N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A	-0.2 -0.2	<0.2 <0.2	-0.2 -0.2		N/A N/A N/A		N/A N/A N/A
b-IBC	0.2	ng1 ng1	49.2 49.2	40.2 40.2	N/A N/A	N/A N/A	49.2 49.2	49.2 49.7	N/A N/A	NO.	<0.2	<0.2	49.5 49.5	N/A N/A N/A N/A N/A N/A	N/A N/A	40.2 40.2	49.2 49.2	<0.5	N/A N/A N/A	N/A N/A	N/A N/A	
4-BBC	0.2 0.2	ogt ogt	10.2	+0.2 +0.3	N/A N/A	N/A	×0.2	49.2 49.3	NYA	NA NA	+0.2 -0.3	+0.2 -0.3	-0.5	NA NA NA	N/A	-0.2	10.2	-0.5	N/A N/A		N/A	N/A
Aldrin Honoubles associate	0.2	190 190 1	-0.2	-0.2	N/A	N/A N/A	-0.2	10.2	N/A N/A N/A	NO.	-0.2	*82 *82	-0.5	NA NA NA	N/A N/A	-0.2	-D.2	-0.5	N/A	NA NA NA	N/A N/A	N/A
Chkedate - trans	0.2	ug1	10.2	*0.2 *0.2	N/A	N/A	10.2	19.2	N/A	NO.	-0.2	10.2	19.5 19.5	NA NA NA	N/A	-0.2	19.2 19.2	10.5	N/A	N/A	N/A	N/A
Chkedane - cis Endosalfan alpha	0.2 0.2	ug1 ug1	-0.2 -0.2	*0.2 *0.2	N/A N/A	N/A N/A	-0.2 -0.2	49.2 49.2	N/A N/A N/A N/A N/A N/A N/A	NO.	*0.2 *0.2	<0.2 <0.2	-0.5 -0.5	N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A	-0.2 -0.2	49.2 49.2	#E =10.5	N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A	N/A N/A
Diskfrin 4,4-DDE	0.2	ugi	-0.2 -0.2	-0.2 -0.2	N/A N/A	N/A N/A	-0.2 -0.2	<0.2 <0.2	N/A N/A	N/A N/A	-10.2 -10.2	<0.2 <0.2	-0.5 -0.5	N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A	-0.2 -0.2	<0.2 <0.2	<0.5 <0.5	N/A N/A N/A	N/A N/A	N/A N/A N/A	N/A N/A
4,4-000 Entrin	0.2	ug1 ug1	-0.2 -0.2	-0.2 -0.2	N/A N/A	N/A N/A	+0.2 +0.2	<0.2 <0.2	N/A N/A	NO.	-0.2 -0.2	<0.2 <0.2	=0.5 =0.5	N/A N/A N/A N/A N/A N/A	N/A N/A	+0.2 +0.2	<0.2 <0.2	=0.5 =0.5	N/A N/A	N/A N/A	N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
Endosulfan II Endrin aldebyde	0.2	ug1 ug1	-0.2 -0.2	-0.2 -0.2	N/A N/A	N/A N/A	-0.2 -0.2	<0.2 <0.2	N/A N/A N/A	NO.	<0.2 <0.2	<0.2 <0.2	-0.5 -2	NA NA NA	N/A N/A	-0.2 -0.2	<0.2 <0.2	<0.5 <0.5	N/A N/A	N/A N/A N/A	N/A N/A	N/A N/A
Endosoffen sulphate 4,4-DDT	0.2	ug1	+0.2 +0.2	*0.2 *0.2	N/A N/A	N/A N/A	*0.2 *0.2	49.2 49.2	N/A N/A	NO.	-0.2 -0.2	<0.2 <0.2	-0.5 -0.5	N/A N/A N/A N/A N/A N/A	N/A N/A	+0.2 +0.2	<0.2 <0.2	+0.5 +0.5	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Mathesychler OPP	0.2	ugi	-0.2	<0.2	N/A	NA	10.2	<0.2	N/A	NA	< 0.2	+0.2	-2	N/A N/A N/A	NA	-0.2	<0.2	<0.5	N/A	NA	N/A	N/A
Distrison	0.2	ugt	-0.2	-0.5	N/A N/A	N/A N/A	-0.2 -0.3	19.2	N/A N/A	N/A N/A	-0.2	<0.2	-0.5	NA NA NA	N/A	-0.2	10.2	+0.5	N/A	N/A	N/A N/A	N/A
Chkepyripho-methyl	0.2	190 190 190	10.2	-0.5	N/A N/A	N/A N/A	-0.2	10.2	N/A N/A	NA NA	-0.2	10.2	-0.5	N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A	-0.2	10.2	×0.5	N/A N/A	N/A N/A N/A	N/A N/A	N/A N/A N/A
Chkepyriphos	0.2	ug1 ug1	10.2	-0.5	N/A	N/A	*0.2	19.2	N/A N/A	NO.	-0.2	49.2 49.2	-0.5	NA NA NA	N/A	-0.2 -0.2	10.2	*0.5 *0.5	N/A N/A	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A
Romaphos ethyl	0.2	ug1	10.2	-0.5	N/A	N/A	10.2	19.2	N/A	NA.	10.2	19.2 19.2	-9.5	NA NA NA	N/A	-0.2	19.2	10.5	N/A	N/A	N/A	N/A
Ethion PCB	0.2	ugi	-0.2	-0.5	NA	N/A	-0.2	<0.2	N/A	N/A	<0.2	-0.2	-0.5	NA NA NA		-0.2	<0.2	<0.5	N/A	NA	N/A	N/A
Total PCB VOC	2	ugl	-2	-2	N/A	NA	-2	-2	N/A	NA	-2	-2	-2	NA NA NA	NA	at .	at				N/A	
Dichlorod florromethane Chloromethane	50	ug1	-30 -30	<10 <10	N/A N/A	N/A N/A	<10 <10	<10 <10	N/A N/A	N/A	~30 ~30	<10 <10	<50 <50	NA NA NA	N/A N/A	-30 -30	<10 <10	<50 <50	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Viryl Chloride	50	ug1 ug1	<30	<10	N/A N/A	N/A N/A N/A	<10	<10	N/A N/A	N/A N/A N/A	<30	<10	<50	N/A N/A N/A	N/A N/A	-30	<10	-(50 -(8)	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Chkeethate	50	ugi	-10 -10	<10 <10	N/A	N/A	<10	-10 -10	N/A	N/A	133	<10 <10	<50 -50	NA NA NA	N/A	<10 <10	<10 <10	-30	N/A	N/A	N/A	N/A
1,1-Dichloroethene	3	ug1 ug1	- 4	-10	N/A	NA.	- 4	-4	N/A N/A N/A N/A N/A	N/A N/A	- 4	-1	- 3	N/A N/A N/O, N/A N/A N/O, N/A N/A N/O, N/A N/A N/O, N/A N/A N/O, N/A N/A N/O,	N/A N/A N/A N/A	- d	<1	- 3	N/A	N/A N/A N/A N/A N/A N/A N/A	NA NA NA NA NA NA NA	NA NA NA NA NA NA NA
Trans-1,2-dichlomethene 1,1-dichlomethane	50	ug1 ug1	- 4	4	N/A N/A N/A	N/A N/A N/A	4	4	N/A N/A N/A	NA NA NA	- 4	- d - d	- 3	N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A	4		3	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A
Cic-1,2-dichkeroethene Bosmochloromethane	5 5	ug1 ug1	4		N/A	N/A	4	4	N/A	NA	4	4	- d - d	NA NA NA	N/A	- d - d	- 4	- d - d	N/A	N/A	N/A	N/A
Chloroform 2,2-dichloropropune	50 5	ug1 ug1	4		N/A N/A	N/A N/A	- d - d	- d - d	N/A N/A	NO.	41	- G - G	- c5 - 88	N/A N/A N/A N/A N/A N/A	N/A N/A	- q - q	- G - G	- 3	N/A N/A	N/A N/A	N/A N/A	N/A N/A
1,2-dichloroethane 1,1,1-michloroethane	5	ug1	4		N/A N/A	N/A N/A	- d - d	4	N/A N/A	NO.	4	4	- d	N/A N/A N/A N/A N/A N/A	N/A N/A			- 3	N/A N/A	N/A N/A	N/A N/A	N/A N/A
1,1-dichloropropose Carbon tetrachloride	5 5	ug1 ug1	- 4		N/A N/A	N/A N/A	- d	4	N/A N/A	NA NA	4	- 4	- 3	N/A N/A N/A N/A N/A N/A	N/A N/A	- d	- 0	- 15	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Dibromomethane	5	1gu	-1	- 4	N/A	N/A N/A	4	4		NA NA	- 4	- 4	- 3			- 4	- 4	- 3	N/A N/A		N/A N/A	
1,2-dichloropopuse Trichlorophopus	- 5	190 191 191	1	- 4	N/A N/A N/A	NA NA	4	- 4	N/A N/A N/A	NA NA	- 4	- 3	3	N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A	- 4	3	3	N/A N/A N/A	N/A N/A N/A	N/A N/A	N/A N/A N/A
Bromodichlosomethane trans-1,3-dichlosomopne cis-1,3-dichlosomopne	5	ogt ugt	4	4	N/A	N/A	d -d	4	N/A N/A N/A	NA.	4	4	-3 at	NA NA NA NA NA NA	N/A N/A	d d		- d - d	N/A N/A		N/A N/A	N/A
cis-1.3-dichloropopene 1.1.2-trichloroethane	5	ug1 ug1	- d - d	- d - d	N/A N/A	N/A N/A	- d - d	4	N/A N/A	NO.	4	- d - d	- 3	N/A N/A N/A N/A N/A N/A	N/A N/A	- d - d	- 4	et et	N/A N/A	N/A N/A	N/A N/A	N/A N/A N/A
1,3-dichloropropuse Dibromochioromohime	- 5	ug1 ug1	4	- 4	N/A N/A	N/A N/A	4	4	N/A N/A	N/A N/A	-1	- 4	- 3	N/A N/A N/A N/A N/A N/A	N/A N/A	- 4	- 0		N/A N/A	N/A N/A	N/A N/A	N/A N/A
1,2-dibremochane Tetrachlomethene	5 5	ng1 ng1	- d -d		N/A N/A	N/A N/A	- d - d	4	N/A N/A N/A N/A N/A N/A N/A	NO.	-d -d	4	-3	N/A	N/A N/A	- q - q	-0	-5	N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
1,1,1,2-tetrachloroethane Chlorobenzene	5 5	ug1	- d - d		N/A N/A	N/A N/A	- d - d	4	N/A N/A	NO.	4		- 3	N/A N/A N/A N/A N/A N/A	N/A N/A	- q - q	- 0	- 3	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Bromeform Storage	50	1921 1921	- 4		N/A N/A	N/A N/A	d	4	N/A N/A	NO.	4	4	- 3	N/A N/A N/A N/A N/A N/A	N/A N/A		- 4	- 3	N/A N/A	N/A N/A	N/A N/A	N/A N/A
1,1,2,2-strachlomethane	3	ugt	4	- 4	N/A N/A	N/A N/A	4	4	N/A N/A	N/A N/A	4	3	- 3		N/A N/A	4	3	3	N/A N/A	N/A N/A	N/A N/A	N/A N/A
1.2.3-richleropopase* Isopropytheneese	5	ug1 ug1	4	3	N/A N/A	N/A N/A	4	4	N/A N/A N/A	N/A N/A	- 4	- 3	43 86	N/A N/A N/A N/A N/A N/A	N/A N/A	- 4	- 0	- 6	N/A N/A	N/A	N/A N/A N/A	N/A N/A
Bromobenome a-gropyl benome	5	ug1 ug1	4		N/A N/A	N/A N/A	- d - d	4	N/A N/A	NO.	4	4	-3 at	N/A N/A N/A N/A N/A N/A	N/A N/A	- d - d	- d - d		N/A N/A	NA	N/A N/A	N/A N/A
2-chlorotolacne 4-chlorotolacne	5 5	ug1 ug1	- d - d	- d - d	N/A N/A	N/A N/A	- d - d	4	N/A N/A	NO.	- d - d	- 4	- d - d	N/A N/A N/A N/A N/A N/A	N/A N/A	- d - d	- 0	- 3	N/A N/A	N/A N/A	N/A N/A	N/A N/A
1.3.5-trimethyl benzene Test-butyl benzene	2 2	tg1	-d		N/A N/A	N/A N/A	-d -d		N/A N/A	NO.		- 4	at at	N/A N/A N/A N/A N/A N/A	N/A N/A	-0	-0	- 3	N/A N/A	N/A N/A	N/A N/A	N/A N/A
1,2,4-minethyl bename 1,3-dichlorobename	3	1901 1901	- 4		N/A N/A	N/A N/A	d	4	N/A N/A	NA NA	4	4	- M	NA NA NA	N/A N/A		- 4	- 3	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Sec-baryl housese  1 4-6/dephenome	2	ug1	4	- 4	N/A N/A	N/A N/A	4	4	N/A N/A	N/A N/A	4	3	#	NA NA NA	N/A N/A	4	3	3	N/A N/A	N/A N/A N/A	N/A N/A	N/A N/A
1,4-dichlorobenzene 4-isopropyl tolsene	5	ug1	4	3	N/A N/A	N/A N/A	4	4	N/A N/A	N/A N/A	- 4	- 3	43 86	NA NA NA	N/A N/A	- 4	- 0	15	N/A N/A	N/A	N/A N/A	N/A N/A
s-butyl benzene	5	ug1 ug1	4		N/A N/A	N/A N/A	- d - d	4	N/A N/A	NO.	4	4	-3 at	NA NA NA NA NA NA	N/A N/A	- d - d			N/A N/A	N/A N/A N/A	N/A N/A	N/A N/A N/A
1,2-dibromo-3-chloropropune 1,2,4-trichlorobenzene	5	ug1	d d		N/A N/A	N/A N/A	d d	4	N/A N/A	NO.	4	4	- G	N/A N/A N/A N/A N/A N/A	N/A N/A	d d	- 0	- 3	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Herachlorobatadiene 1,2,3-trichlorobetstene	5 5	ng1 ng1	-d -d		N/A N/A	N/A N/A	- d - d	4	N/A N/A	NO.	-1	- 4	- d - d	NA NA NA	N/A N/A	-d -d	-0	- 3	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Nutrients Ammonia as N	0.1	mgt	4.4	4.69	4.545	6%	3.1	3.1	3.1	0%	2	2.1	0.971			1.1	LI	0.%				
Total Nitrogen Total Phoenhouse	0.05	mg1	5.6	7 076	6.3	22%	7	6.9	6.95	1%	3.4	3.4	2.7		23%	13	1.3	1.5	1.35 N/A	0% 7% N/A	1.45	7% N/A

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# **Trip Blank and Trip Spike Results**

Laboratory: Envirolab Laboratory Report Number: 19069

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		Trip Blank	Trip Spike
Total Petroleum Hydrocarbons			
TPH 6-9	25	< 25	
Benzene, Toluene, Ethylbenzene and T	otal Xylenes		
Benzene	0.5	< 0.5	87%
Toluene	0.5	< 0.5	89%
Ethylbenzene	1	< 1	93%
meta- & para Xylene	2	< 2	92%
ortho-Xylene	1	< 1	95%

Laboratory: Envirolab Laboratory Report Number: 19035

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		Trip Blank	Trip Spike
Total Petroleum Hydrocarbons			
TPH 6-9	25	< 25	
Benzene, Toluene, Ethylbenzene and T	otal Xylenes		
Benzene	0.5	< 0.5	86%
Toluene	0.5	< 0.5	83%
Ethylbenzene	1	< 1	88%
meta- & para Xylene	2	< 2	87%
ortho-Xylene	1	< 1	85%

Laboratory: Envirolab Laboratory Report Number: 18941

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		Trip Blank	Trip Spike
Total Petroleum Hydrocarbons			
TPH 6-9	25	< 25	
Benzene, Toluene, Ethylbenzene and T	otal Xylenes		
Benzene	0.5	< 0.5	103%
Toluene	0.5	< 0.5	109%
Ethylbenzene	1	< 1	115%
meta- & para Xylene	2	< 2	114%
ortho-Xylene	1	< 1	115%

#### **NOTES:**

Trip Blank and Trip Spike units are mg kg<sup>-1</sup>

limit or trip spike recovery outside the range 70%-130%

# Trip Blank and Trip Spike Results - Soil

Laboratory: Envirolab
Laboratory Report Number: 19177

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		Trip Blank	Trip Spike
Total Petroleum Hydrocarbon	ns		
TPH 6-9	25	< 25	
Benzene, Toluene, Ethylbenze	ne and Total Xylenes		
Benzene	0.5	< 0.5	69%
Toluene	0.5	< 0.5	64%
Ethylbenzene	1	< 1	64%
meta- & para Xylene	2	< 2	65%
ortho-Xylene	1	< 1	63%

Laboratory: Envirolab Laboratory Report Number: 19222

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		Trip Blank	Trip Spike
Total Petroleum Hydrocarbon	ns		
TPH 6-9	25	< 25	
Benzene, Toluene, Ethylbenze	ne and Total Xylenes		
Benzene	0.5	< 0.5	82%
Toluene	0.5	< 0.5	104%
Ethylbenzene	1	< 1	90%
meta- & para Xylene	2	< 2	85%
ortho-Xylene	1	< 1	95%

Laboratory: Envirolab and ALS
Laboratory Report Number: 19257 and ES0807086

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		Trip Blank	Trip Spike
Total Petroleum Hydrocarbon	ns		
TPH 6-9	25	< 25	
Benzene, Toluene, Ethylbenze	ne and Total Xylenes		
Benzene	0.5	< 0.5	100%
Toluene	0.5	< 0.5	121%
Ethylbenzene	1	< 1	100%
meta- & para Xylene	2	< 2	133%
ortho-Xylene	1	< 1	129%

Note: Trip spike was provided by ALS and sent to Envirolab, ALS control was analysed to provide **NOTES:** 

Trip Blank and Trip Spike units are mg kg<sup>-1</sup>

# Trip Blank and Trip Spike Results - Soil

Laboratory: Envirolab Laboratory Report Number: 19282

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		Trip Blank	Trip Spike
Total Petroleum Hydrocarboi	ns		
TPH 6-9	25	< 25	
Benzene, Toluene, Ethylbenze	ne and Total Xylenes		
Benzene	0.5	< 0.5	76%
Toluene	0.5	< 0.5	73%
Ethylbenzene	1	< 1	84%
meta- & para Xylene	2	< 2	98%
ortho-Xylene	1	< 1	117%

Laboratory: Envirolab Laboratory Report Number: 19325

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		Trip Blank	Trip Spike
Total Petroleum Hydrocarbo	ns		
TPH 6-9	25	< 25	
Benzene, Toluene, Ethylbenze	ene and Total Xylenes		
Benzene	0.5	< 0.5	80%
Toluene	0.5	< 0.5	73%
Ethylbenzene	1	< 1	65%
meta- & para Xylene	2	< 2	65%
ortho-Xylene	1	< 1	60%

Laboratory: Envirolab Laboratory Report Number: 19432

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		Trip Blank	Trip Spike
Total Petroleum Hydrocarbo	ns		
TPH 6-9	25	< 25	
Benzene, Toluene, Ethylbenze	ene and Total Xylenes		
Benzene	0.5	< 0.5	83%
Toluene	0.5	< 0.5	119%
Ethylbenzene	1	< 1	95%
meta- & para Xylene	2	< 2	99%
ortho-Xylene	1	< 1	100%

#### **NOTES:**

Trip Blank and Trip Spike units are mg kg<sup>-1</sup>

### Trip Blank and Trip Spike Results - Groundwater

Laboratory: Envirolab
Laboratory Report Number: 20315

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		Trip Blank	Trip Spike
Total Petroleum Hydrocarbons			
TPH 6-9	10	< 10	
Benzene, Toluene, Ethylbenzene and Total Xyl	enes	-	
Benzene	1	< 1	104%
Toluene	1	< 1	90%
Ethylbenzene	1	< 1	91%
meta- & para Xylene	2	< 2	89%
ortho-Xylene	1	< 1	89%

#### NOTES:

Trip Blank and Trip Spike units are  $\mu g \; L^{\text{--}1}$ 

BOLD

Indicates detection of analyte in trip blank above detection limit or trip spike recovery outside the range 70%-130%

### Trip Blank and Trip Spike Results - Groundwater

Laboratory: Envirolab
Laboratory Report Number: 19834

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		Trip Blank	Trip Spike
Total Petroleum Hydrocarbons			
TPH 6-9	10	< 10	
Benzene, Toluene, Ethylbenzene and Total Xy	lenes	-	
Benzene	1	< 1	89%
Toluene	1	< 1	121%
Ethylbenzene	1	< 1	123%
meta- & para Xylene	2	< 2	122%
ortho-Xylene	1	< 1	123%

#### NOTES:

Trip Blank and Trip Spike units are  $\mu g \ L^{\text{-}1}$ 

BOLD

Indicates detection of analyte in trip blank above detection

### Trip Blank and Trip Spike Results - Groundwater

Laboratory: Envirolab
Laboratory Report Number: 162123

Parameter	PQL	Trip Blank	Trip Spike
Sample ID:		Trip Blank	Trip Spike
Total Petroleum Hydrocarbons			
TPH 6-9	10	< 10	
Benzene, Toluene, Ethylbenzene and Total Xylenes	<del>-</del>	<del>-</del>	
Benzene	1	< 1	82%
Toluene	1	< 1	92%
Ethylbenzene	1	< 1	94%
meta- & para Xylene	2	< 2	94%
ortho-Xylene	1	< 1	96%

#### NOTES:

Trip Blank and Trip Spike units are  $\mu g \; L^{\text{-}1}$ 

BOLD

Indicates detection of analyte in trip blank above detection limit or trip spike recovery outside



# Appendix 3 Laboratory Certificates of Analysis



**Envirolab Services Pty Ltd** 

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

### **CERTIFICATE OF ANALYSIS 18941-A**

Client:

**Consulting Earth Scientists** 

Suite 121, 26-32 Pirrama Rd Pyrmont NSW 2009

Attention: Michael Petrozzi / Kelly Weir / Luke Jenkins

Sample log in details:

Your Reference: CES050706-BCC, Area B
No. of samples: Additional Testing on 4 Soils

Date samples received: 30/04/08
Date completed instructions received: 27/05/08

#### **Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

**Report Details:** 

Date results requested by: 3/06/08

Date of Preliminary Report: Not Issued Issue Date: 2/06/08

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**Results Approved By:** 

Jacinta/Hurst Operations Manager



UNITS	18941-A-54	18941-A-63
	290408-56-K	290408-65-K
	W	W
	29/04/2008	29/04/2008
	Soil	Soil
	SO	SO
	00:00	00:00
-	28/05/2008	28/05/2008
-	29/05/2008	29/05/2008
mg/kg	<50	<50
mg/kg	<100	<100
mg/kg	<100	<100
%	93	95



Acid Extractable metals in soil					
Our Reference:	UNITS	18941-A-27	18941-A-52	18941-A-54	18941-A-63
Your Reference		280408-28-K W	290408-54-K W	290408-56-K W	290408-65-K W
Date Sampled		28/04/2008	29/04/2008	29/04/2008	29/04/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date digested	-	30/05/2008	30/05/2008	30/05/2008	30/05/2008
Date analysed	-	30/05/2008	30/05/2008	30/05/2008	30/05/2008
Lead	mg/kg	<1.0	77	1.5	3.2



Moisture					
Our Reference:	UNITS	18941-A-27	18941-A-52	18941-A-54	18941-A-63
Your Reference		280408-28-K W	290408-54-K W	290408-56-K W	290408-65-K W
Date Sampled		28/04/2008	29/04/2008	29/04/2008	29/04/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date prepared	-	28/05/2008	28/05/2008	28/05/2008	28/05/2008
Date analysed	-	28/05/2008	28/05/2008	28/05/2008	28/05/2008
Moisture	%	17	27	20	26



Method ID	Methodology Summary
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTPH in Soil (C10-C36)						Base II Duplicate II %RPD		
Date extracted	-			28/5/08	[NT]	[NT]	LCS-6	28/5/08%
Date analysed	-			29/5/08	[NT]	[NT]	LCS-6	29/5/08%
TPH C10 - C14	mg/kg	50	GC.3	<50	[NT]	[NT]	LCS-6	96%
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	GC.3	<100	[NT]	[NT]	LCS-6	94%
TPH C29 - C36	mg/kg	100	GC.3	<100	[NT]	[NT]	LCS-6	109%
Surrogate o-Terphenyl	%		GC.3	100	[NT]	[NT]	LCS-6	99%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			30/5/08	[NT]	[NT]	LCS-9	30/5/08%
Date analysed	-			30/5/08	[NT]	[NT]	LCS-9	30/5/08%
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	[NT]	[NT]	LCS-9	96%
QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank				
Date prepared	-			28/5/08	-			
Date analysed	-			28/5/08				
Moisture	%	0.1	LAB.8	[NT]				



#### **Report Comments:**

Samples analysed out of holding time for TPH C10-C36 analysis.

Asbestos was analysed by Approved Identifier: Not applicable for this job

selected should be one where the analyte concentration is easily measurable.

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

NR: Not requested <: Less than >: Greater than

#### **Quality Control Definitions**

**Blank**: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. **Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample

**Matrix Spike**: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist. **LCS (Laboratory Control Sample)**: This comprises either a standard reference material or a control matrix (such as a blank

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

#### **Laboratory Acceptance Criteria:**

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for

sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for

SVOC and speciated phenols.





**Envirolab Services Pty Ltd** 

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

### **CERTIFICATE OF ANALYSIS 19072**

Client:

**Consulting Earth Scientists** 

Suite 121, 26-32 Pirrama Rd Pyrmont NSW 2009

Attention: Kelly Weir / Luke Jenkins

Sample log in details:

Your Reference: CES050706-BCC, Area B

No. of samples:19 SoilsDate samples received:05/05/08Date completed instructions received:05/05/08

#### **Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received. Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

**Report Details:** 

Date results requested by: 12/05/08

Date of Preliminary Report: Not issued Issue Date: 12/05/08

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**Results Approved By:** 

Joshua Lim Chemist



Asbestos ID - soils						
Our Reference:	UNITS	19072-1	19072-2	19072-3	19072-4	19072-5
Your Reference		010508-120-	300408-106-	010508-133-	290408-72-K	300408-78-K
		KW	KW	KW	W	W
Date Sampled		1/05/2008	30/04/2008	1/05/2008	29/04/2008	30/04/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Sample Description	-	40g soil	40g soil	40g soil	40g soil	40g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected
Asbestos ID - soils Our Reference:	UNITS	19072-6	19072-7	19072-8	19072-9	19072-10
Your Reference	UNITS	290408-43-K	010508-146-	300408-96-K	010508-160-	010508-162-
Tour Reference		290408-43-K	KWK	W	KW	KW
Date Sampled		29/04/2008	1/05/2008	30/04/2008	1/05/2008	1/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Sample Description	-	40g soil	40g soil	40g soil	40g soil	40g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable	Respirable	Respirable	Respirable	Respirable
		fibres not	fibres not	fibres not	fibres not	fibres not
		detected	detected	detected	detected	detected
Asbestos ID - soils						
Our Reference:	UNITS	19072-11	19072-12	19072-13	19072-14	19072-15
Your Reference		010508-131- KW	010508-126- KW	300408-92-K W	280408-21-K W	290408-32-K W
Date Sampled		1/05/2008	1/05/2008	30/04/2008	29/04/2008	29/04/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Sample Description	-	40g soil	40g soil	40g soil	40g soil	40g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable	Respirable	Respirable	Respirable	Respirable
		fibres not	fibres not	fibres not	fibres not	fibres not
		detected	detected	detected	detected	detected



Asbestos ID - soils Our Reference:	UNITS	19072-16	19072-17	19072-18	19072-19
Your Reference		300408-110- KW	290408-50-K W	300408-101- KW	010508-116- KW
Date Sampled		30/04/2008	29/04/2008	30/04/2008	1/05/2008
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Sample Description	-	40g soil	40g soil	40g soil	40g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected



Method ID	Methodology Summary
ASB.1	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.



#### **Report Comments:**

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample.

Envirolab recommends supplying 30-40g of sample in it's own container.

Asbestos was analysed by Approved Identifier: Joshua Lim

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

NR: Not requested <: Less than >: Greater than

#### **Quality Control Definitions**

**Blank**: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. **Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

#### **Laboratory Acceptance Criteria:**

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for

SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for

SVOC and speciated phenols.





Envirolab Services Pty Ltd

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# **CERTIFICATE OF ANALYSIS 19222**

Client:

**Consulting Earth Scientists** 

Suite 121, 26-32 Pirrama Rd Pyrmont NSW 2009

Attention: Kelly Weir / Luke Jenkins

Sample log in details:

Your Reference: CES050706-BCC Area A

No. of samples:63 SoilsDate samples received:09/05/08Date completed instructions received:09/05/08

**Analysis Details:** 

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

**Report Details:** 

Date results requested by: 20/05/08

Date of Preliminary Report: Not Issued Issue Date: 22/05/08

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**Results Approved By:** 

Business Development & Quality Manager

Envirolab Reference: 19222 Page 1 of 42

Revision No: R 00



VOC's in soil						
Our Reference:	UNITS	19222-9	19222-24	19222-49	19222-50	19222-58
Your Reference		080508-110	080508-126	080508-152	080508-153	080508-161
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample Sample Matrix Code		Soil SO	Soil SO	Soil SO	Soil SO	Soil SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	_	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Dichlorodifluoromethane	mg/kg	<10	<10	<10	<10	<10
Chloromethane	mg/kg	<10	<10	<10	<10	<10
Vinyl Chloride	mg/kg	<10	<10	<10	<10	<10
Bromomethane	mg/kg	<10	<10	<10	<10	<10
Chloroethane	mg/kg	<10	<10	<10	<10	<10
Trichlorofluoromethane	mg/kg	<10	<10	<10	<10	<10
1,1-Dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
chloroform	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
carbon tetrachloride	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
dibromomethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
trichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromodichloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
dibromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
tetrachloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
chlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromoform	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0



VOC's in soil	IINITO	40000.0	40000 04	40000 40	40000 50	40000 50
Our Reference: Your Reference	UNITS	19222-9 080508-110	19222-24 080508-126	19222-49 080508-152	19222-50 080508-153	19222-58 080508-161
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample Sample Matrix Code		Soil SO	Soil SO	Soil SO	Soil SO	Soil SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
styrene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
isopropylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
tert-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
sec-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
hexachlorobutadiene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluorometha	%	88	84	88	88	94
Surrogate aaa-Trifluorotoluene	%	96	89	98	94	90
Surrogate Toluene-da	%	98	94	98	95	93
Surrogate 4-Bromofluorobenzene	%	75	74	73	74	80



VOC's in soil		
Our Reference:	UNITS	19222-61
Your Reference  Date Sampled		Trip Blank 8/05/2008
Type of sample		Soil
Sample Matrix Code		so
Time Sampled		00:00
Date extracted	-	12/05/2008
Date analysed	-	12/05/2008
Dichlorodifluoromethane	mg/kg	<10
Chloromethane	mg/kg	<10
Vinyl Chloride	mg/kg	<10
Bromomethane	mg/kg	<10
Chloroethane	mg/kg	<10
Trichlorofluoromethane	mg/kg	<10
1,1-Dichloroethene	mg/kg	<1.0
trans-1,2-dichloroethene	mg/kg	<1.0
1,1-dichloroethane	mg/kg	<1.0
cis-1,2-dichloroethene	mg/kg	<1.0
bromochloromethane	mg/kg	<1.0
chloroform	mg/kg	<1.0
2,2-dichloropropane	mg/kg	<1.0
1,2-dichloroethane	mg/kg	<1.0
1,1,1-trichloroethane	mg/kg	<1.0
1,1-dichloropropene	mg/kg	<1.0
carbon tetrachloride	mg/kg	<1.0
Benzene	mg/kg	<0.5
dibromomethane	mg/kg	<1.0
1,2-dichloropropane	mg/kg	<1.0
trichloroethene	mg/kg	<1.0
bromodichloromethane	mg/kg	<1.0
trans-1,3-dichloropropene	mg/kg	<1.0
cis-1,3-dichloropropene	mg/kg	<1.0
1,1,2-trichloroethane	mg/kg	<1.0
Toluene	mg/kg	<0.5
1,3-dichloropropane	mg/kg	<1.0
dibromochloromethane	mg/kg	<1.0
1,2-dibromoethane	mg/kg	<1.0
tetrachloroethene	mg/kg	<1.0
1,1,1,2-tetrachloroethane	mg/kg	<1.0
chlorobenzene	mg/kg	<1.0
Ethylbenzene	mg/kg	<1.0
bromoform	mg/kg	<1.0
m+p-xylene	mg/kg	<2.0
styrene	mg/kg	<1.0



VOC's in soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19222-61 Trip Blank 8/05/2008 Soil SO 00:00
1,1,2,2-tetrachloroethane	mg/kg	<1.0
o-Xylene	mg/kg	<1.0
1,2,3-trichloropropane*	mg/kg	<1.0
isopropylbenzene	mg/kg	<1.0
bromobenzene	mg/kg	<1.0
n-propyl benzene	mg/kg	<1.0
2-chlorotoluene	mg/kg	<1.0
4-chlorotoluene	mg/kg	<1.0
1,3,5-trimethyl benzene	mg/kg	<1.0
tert-butyl benzene	mg/kg	<1.0
1,2,4-trimethyl benzene	mg/kg	<1.0
1,3-dichlorobenzene	mg/kg	<1.0
sec-butyl benzene	mg/kg	<1.0
1,4-dichlorobenzene	mg/kg	<1.0
4-isopropyl toluene	mg/kg	<1.0
1,2-dichlorobenzene	mg/kg	<1.0
n-butyl benzene	mg/kg	<1.0
1,2-dibromo-3-chloropropane	mg/kg	<1.0
1,2,4-trichlorobenzene	mg/kg	<1.0
hexachlorobutadiene	mg/kg	<1.0
1,2,3-trichlorobenzene	mg/kg	<1.0
Surrogate Dibromofluorometha	%	81
Surrogate aaa-Trifluorotoluene	%	113
Surrogate Toluene-da	%	95
Surrogate 4-Bromofluorobenzene	%	72



vTPH & BTEX in Soil						
Our Reference:	UNITS	19222-7	19222-9	19222-13	19222-19	19222-22
Your Reference		080508-108 -KW	080508-110 -KW	080508-114 -KW	080508-120 -KW	080508-123 -KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample Sample Matrix Code Time Sampled		Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
vTPH C6 - C9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	90	96	97	85	104

vTPH & BTEX in Soil						
Our Reference:	UNITS	19222-23	19222-26	19222-32	19222-33	19222-37
Your Reference		080508-124	080508-128	080508-135	080508-136	080508-140
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
vTPH C6 - C9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	99	106	73	101	97



vTPH & BTEX in Soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19222-39 080508-142 -KW 8/05/2008 Soil SO 00:00	19222-46 080508-149 -KW 8/05/2008 Soil SO 00:00	19222-49 080508-152 -KW 8/05/2008 Soil SO 00:00	19222-50 080508-153 -KW 8/05/2008 Soil SO 00:00	19222-54 080508-157 -KW 8/05/2008 Soil SO 00:00
Date extracted	_	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	_	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
vTPH C6 - C9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	83	106	98	94	98
			1			
vTPH & BTEX in Soil						
Our Reference:	UNITS	19222-56	19222-58	19222-61	19222-62	19222-63
Your Reference		080508-159	080508-161	Trip Blank	Trip Spike	080508-131
Data Carrellad		-KW	-KW	0/05/0000	0/05/0000	-KW
Date Sampled Type of sample		8/05/2008 Soil	8/05/2008 Soil	8/05/2008 Soil	8/05/2008 Soil	8/05/2008 Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	_	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	_	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
vTPH C6 - C9	mg/kg	<25	<25	<25	[NA]	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	82%	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	104%	<0.5
loluelle	ilig/kg	\0.5	<b>\0.5</b>	~0.5	104 /0	~0.5

<1.0

<2.0

<1.0

106

mg/kg

mg/kg

mg/kg

%

<1.0

<2.0

<1.0

96

<1.0

<2.0

<1.0

113

90%

85%

95%

80

<1.0

<2.0

<1.0

89

Envirolab Reference: 19222 Revision No: R 00

Ethylbenzene

m+p-xylene

o-Xylene

Surrogate aaa-Trifluorotoluene



### CES050706-BCC Area A **Client Reference:**

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19222-7	19222-9	19222-13	19222-19	19222-22
Your Reference		080508-108	080508-110	080508-114	080508-120	080508-123
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
TPH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	130	135	102	97	101
			I			
sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19222-23	19222-26	19222-32	19222-33	19222-37
Your Reference		080508-124	080508-128	080508-135	080508-136	080508-140
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00

12/05/2008

12/05/2008

<50

<100

<100

mg/kg

mg/kg

mg/kg

12/05/2008

13/05/2008

<50

<100

<100

12/05/2008

13/05/2008

<50

<100

<100

12/05/2008

13/05/2008

<50

<100

<100

12/05/2008

13/05/2008

<50

<100

<100

Surrogate o-Terphenyl	%	98	100	96	100	95
sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19222-39	19222-46	19222-49	19222-50	19222-54
Your Reference		080508-142 -KW	080508-149 -KW	080508-152 -KW	080508-153 -KW	080508-157 -KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
TPH C10 - C14	mg/kg	<50	<50	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	99	103	98	98	100

Envirolab Reference: 19222 Revision No: R 00

Date extracted

Date analysed

TPH C<sub>10</sub> - C<sub>14</sub>

TPH C<sub>15</sub> - C<sub>28</sub>

TPH C29 - C36



sTPH in Soil (C10-C36)		40000		40000
Our Reference: Your Reference	UNITS	19222-56 080508-159	19222-58 080508-161	19222-63 080508-131
Tour Reference		-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil
Sample Matrix Code		SO	SO	so
Time Sampled		00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008
TPH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100
Surrogate o-Terphenyl	%	100	101	95



PAHs in Soil						
Our Reference:	UNITS	19222-7	19222-9	19222-10	19222-13	19222-14
Your Reference		080508-108	080508-110	080508-111	080508-114	080508-115
D		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample Sample Matrix Code		Soil SO	Soil SO	Soil SO	Soil SO	Soil SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	91	96	101	95	99



PAHs in Soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19222-19 080508-120 -KW 8/05/2008 Soil SO 00:00	19222-21 080508-122 -KW 8/05/2008 Soil SO 00:00	19222-22 080508-123 -KW 8/05/2008 Soil SO 00:00	19222-23 080508-124 -KW 8/05/2008 Soil SO 00:00	19222-34 080508-137 -KW 8/05/2008 Soil SO 00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.8
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	1.0
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.4
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.9
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.5
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Surrogate p-Terphenyl-d14	%	91	98	99	104	99



PAHs in Soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19222-39 080508-142 -KW 8/05/2008 Soil SO 00:00	19222-49 080508-152 -KW 8/05/2008 Soil SO 00:00	19222-50 080508-153 -KW 8/05/2008 Soil SO 00:00	19222-54 080508-157 -KW 8/05/2008 Soil SO 00:00	19222-56 080508-159 -KW 8/05/2008 Soil SO 00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.6	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.6	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	0.9	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.5	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	100	100	100	100	102



PAHs in Soil Our Reference: Your Reference	UNITS	19222-58 080508-161 -KW
Date Sampled Type of sample Sample Matrix Code Time Sampled		8/05/2008 Soil SO 00:00
Date extracted	-	12/05/2008
Date analysed	-	12/05/2008
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Surrogate p-Terphenyl-d <sub>14</sub>	%	97



Organochlorine Pesticides in soil						
Our Reference:	UNITS	19222-15	19222-20	19222-22	19222-23	19222-30
Your Reference		080508-116	080508-121	080508-123	080508-124	080508-133
Data Campulad		-KW	-KW 8/05/2008	-KW	-KW 8/05/2008	-KW
Date Sampled Type of sample		8/05/2008 Soil	8/05/2008 Soil	8/05/2008 Soil	8/05/2008 Soil	8/05/2008 Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	90	79	78	77	78



Organochlorine Pesticides in soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19222-36 080508-139 -KW 8/05/2008 Soil SO 00:00	19222-38 080508-141 -KW 8/05/2008 Soil SO 00:00	19222-45 080508-148 -KW 8/05/2008 Soil SO 00:00	19222-52 080508-155 -KW 8/05/2008 Soil SO 00:00	19222-55 080508-158 -KW 8/05/2008 Soil SO 00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	79	77	78	78	83



Organophosphorus Pesticides						
Our Reference:	UNITS	19222-15	19222-20	19222-22	19222-23	19222-30
Your Reference		080508-116	080508-121	080508-123	080508-124	080508-133
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	90	79	78	77	78

Organophosphorus Pesticides						
Our Reference:	UNITS	19222-36	19222-38	19222-45	19222-52	19222-55
Your Reference		080508-139	080508-141	080508-148	080508-155	080508-158
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	79	77	78	78	83



PCBs in Soil						
Our Reference:	UNITS	19222-15	19222-20	19222-22	19222-23	19222-30
Your Reference		080508-116 -KW	080508-121 -KW	080508-123 -KW	080508-124 -KW	080508-133 -KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO 00:00
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	90	79	78	77	78
PCBs in Soil						
Our Reference:	UNITS	19222-36	19222-38	19222-45	19222-52	19222-55
Your Reference		080508-139 -KW	080508-141 -KW	080508-148 -KW	080508-155 -KW	080508-158 -KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
1	1	1		I	I	1

<0.1

<0.1

79

<0.1

<0.1

77

<0.1

<0.1

78

<0.1

<0.1

78

mg/kg

mg/kg

%

Envirolab Reference: 19222 Revision No: R 00

Arochlor 1254

Arochlor 1260

Surrogate TCLMX



<0.1

<0.1

83

Total Phenolics in Soil						
Our Reference:	UNITS	19222-9	19222-21	19222-24	19222-39	19222-49
Your Reference		080508-110 -KW	080508-122 -KW	080508-126 -KW	080508-142 -KW	080508-152 -KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0

Total Phenolics in Soil			
Our Reference:	UNITS	19222-50	19222-58
Your Reference		080508-153	080508-161
		-KW	-KW
Date Sampled		8/05/2008	8/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	SO
Time Sampled		00:00	00:00
Date extracted	-	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0



Herbicides in Soil						
Our Reference:	UNITS	19222-15	19222-30	19222-42	19222-43	19222-45
Your Reference		080508-116	080508-133	080508-145	080508-146	080508-148
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Date Extracted	-	22/05/2008	22/05/2008	22/05/2008	22/05/2008	22/05/2008
Dicamba	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
MCPA	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorprop	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-D	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-T	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-TP	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-DB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
MCPP	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Triclopyr	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1

Herbicides in Soil		
Our Reference:	UNITS	19222-55
Your Reference		080508-158 -KW
Date Sampled		8/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date analysed	-	20/05/2008
Date Extracted	-	22/05/2008
Dicamba	mg/kg	<0.1
MCPA	mg/kg	<0.1
Dichlorprop	mg/kg	<0.1
2,4-D	mg/kg	<0.1
2,4,5-T	mg/kg	<0.1
2,4,5-TP	mg/kg	<0.1
2,4-DB	mg/kg	<0.1
MCPP	mg/kg	<0.1
Triclopyr	mg/kg	<0.1



Acid Extractable metals in soil						
Our Reference:	UNITS	19222-1	19222-5	19222-6	19222-9	19222-10
Your Reference		080508-102	080508-106	080508-107	080508-110	080508-111
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/2008
Arsenic	mg/kg	<4.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	4.3	1.0	<1.0	1.9	1.6
Copper	mg/kg	7.9	<1.0	<1.0	8.5	<1.0
Lead	mg/kg	32	1.1	<1.0	2.7	<1.0
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	2.3	<1.0	<1.0	6.3	<1.0
Zinc	mg/kg	38	1.7	4.2	49	4.5

Acid Extractable metals in soil						
Our Reference:	UNITS	19222-13	19222-14	19222-15	19222-18	19222-19
Your Reference		080508-114	080508-115	080508-116	080508-119	080508-120
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/2008
Arsenic	mg/kg	<4.0	8.3	<4.0	19	22
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	3.2	5.6	3.0	27	6.7
Copper	mg/kg	6.3	1.5	6.3	8.1	<1.0
Lead	mg/kg	2.6	8.5	20	20	2.6
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	9.1	1.1	1.5	9.8	5.1
Zinc	mg/kg	14	12	32	29	3.2



Acid Extractable metals in soil Our Reference: Your Reference  Date Sampled	UNITS	19222-20 080508-121 -KW 8/05/2008	19222-22 080508-123 -KW 8/05/2008	19222-23 080508-124 -KW 8/05/2008	19222-25 080508-127 -KW 8/05/2008	19222-30 080508-13: -KW 8/05/2008
Type of sample Sample Matrix Code Time Sampled		Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00
Date digested	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/2008
Arsenic	mg/kg	<4.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	6.2	2.0	2.6	3.1	5.2
Copper	mg/kg	7.7	1.8	1.6	12	18
Lead	mg/kg	35	3.5	2.0	27	50
Mercury	mg/kg	0.12	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	1.9	<1.0	1.1	3.0	2.6
Zinc	mg/kg	34	5.3	3.3	48	73
Phosphorus	mg/kg	[NA]	[NA]	[NA]	550	[NA]
Acid Extractable metals in soil						
Our Reference:	UNITS	19222-33	19222-34	19222-36	19222-38	19222-39
Your Reference		080508-136 -KW	080508-137 -KW	080508-139 -KW	080508-141 -KW	080508-14 -KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code Time Sampled		SO 00:00	SO 00:00	SO 00:00	SO 00:00	SO 00:00
Date digested	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/200
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/2008

4.9

<1.0

7.3

16

35

<0.10

3.6

48

[NA]

28

2.0

48

36

40

0.29

12

150

[NA]

6.3

<1.0

7.8

9.7

21

0.15

2.8

36

[NA]

[NA]

[NA]

[NA]

[NA]

[NA]

[NA]

[NA]

[NA]

430

8.1

1.8

20

110

180

0.71

15

320

[NA]

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

Envirolab Reference: 19222 Revision No: R 00

Arsenic

Cadmium

Chromium

Copper

Lead

Mercury

Nickel

Zinc

Phosphorus



Acid Extractable metals in soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19222-42 080508-145 -KW 8/05/2008 Soil SO 00:00	19222-43 080508-146 -KW 8/05/2008 Soil SO 00:00	19222-44 080508-147 -KW 8/05/2008 Soil SO 00:00	19222-46 080508-149 -KW 8/05/2008 Soil SO 00:00	19222-48 080508-15 -KW 8/05/2008 Soil SO 00:00
Date digested	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/200
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/200
Arsenic	mg/kg	<4.0	6.7	<4.0	4.9	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	7.2	12	<1.0	7.3	<1.0
Copper	mg/kg	9.7	13	<1.0	11	3.4
Lead	mg/kg	26	26	<1.0	26	18
Mercury	mg/kg	0.24	0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	2.1	2.9	<1.0	5.4	<1.0
Zinc	mg/kg	32	23	<1.0	29	18
Phosphorus	mg/kg	120	72	[NA]	[NA]	[NA]

Acid Extractable metals in soil						
Our Reference:	UNITS	19222-49	19222-50	19222-52	19222-54	19222-55
Your Reference		080508-152 -KW	080508-153 -KW	080508-155 -KW	080508-157 -KW	080508-158 -KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code Time Sampled		SO 00:00	SO 00:00	SO 00:00	SO 00:00	SO 00:00
Date digested	-	13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008	14/05/2008	14/05/2008	14/05/2008
Arsenic	mg/kg	<4.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	1.3	1.2	1.5	2.4	1.9
Copper	mg/kg	1.6	1.8	<1.0	<1.0	7.6
Lead	mg/kg	7.8	9.1	5.8	1.1	34
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	0.29
Nickel	mg/kg	<1.0	<1.0	<1.0	1.3	1.5
Zinc	mg/kg	9.0	12	16	10	67
Phosphorus	mg/kg	[NA]	[NA]	[NA]	[NA]	160



Acid Extractable metals in soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19222-58 080508-161 -KW 8/05/2008 Soil SO 00:00	19222-63 080508-131 -KW 8/05/2008 Soil SO 00:00
Date digested	-	13/05/2008	13/05/2008
Date analysed	-	14/05/2008	14/05/2008
Arsenic	mg/kg	6.3	11
Cadmium	mg/kg	<1.0	<1.0
Chromium	mg/kg	7.2	14
Copper	mg/kg	240	9.6
Lead	mg/kg	33	22
Mercury	mg/kg	<0.10	<0.10
Nickel	mg/kg	8.6	5.5
Zinc	mg/kg	340	43



Miscellaneous Inorg - soil						
Our Reference:	UNITS	19222-25	19222-28	19222-38	19222-42	19222-43
Your Reference		080508-127 -KW	080508-130 -KW	080508-141 -KW	080508-145 -KW	080508-146 -KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample Sample Matrix Code Time Sampled		Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Ammonia as N in soil	mg/kg	14	[NA]	5.2	2.5	2.5
Nitrate as N in soil	mg/kg	1.8	[NA]	2.5	0.8	0.7
Nitrite as N in soil	mg/kg	0.5	[NA]	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/kg	2,000	[NA]	4,100	320	220
Total Nitrogen in soil	mg/kg	2,000	[NA]	4,100	320	220
pH 1:5 soil:water	pH Units	[NA]	8.1	[NA]	[NA]	[NA]
Electrical Conductivity 1:5 soil:water	μS/cm	[NA]	290	[NA]	[NA]	[NA]
Salinity as NACL *	mg/kg	[NA]	190	[NA]	[NA]	[NA]
Resistivity in soil*	ohm m	[NA]	35	[NA]	[NA]	[NA]
Chloride 1:5 soil:water	mg/kg	[NA]	380	[NA]	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	31	[NA]	[NA]	[NA]

Miscellaneous Inorg - soil		
Our Reference:	UNITS	19222-55
Your Reference		080508-158 -KW
Date Sampled		8/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date analysed	-	12/05/2008
Ammonia as N in soil	mg/kg	3.5
Nitrate as N in soil	mg/kg	0.8
Nitrite as N in soil	mg/kg	<0.1
Total Kjeldahl Nitrogen	mg/kg	1,500
Total Nitrogen in soil	mg/kg	1,500
pH 1:5 soil:water	pH Units	7.8
Electrical Conductivity 1:5 soil:water	μS/cm	61
Salinity as NACL *	mg/kg	39
Resistivity in soil*	ohm m	160
Chloride 1:5 soil:water	mg/kg	<100
Sulphate, SO4 1:5 soil:water	mg/kg	29



Moisture						
Our Reference:	UNITS	19222-1	19222-5	19222-6	19222-7	19222-9
Your Reference		080508-102	080508-106	080508-107	080508-108	080508-110
rodi resistance		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	_	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	_	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	27	16	14	17	25
Moisture						
Our Reference:	UNITS	19222-10	19222-13	19222-14	19222-15	19222-18
Your Reference		080508-111	080508-114	080508-115	080508-116	080508-119
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	25	27	39	22	38
Moisture						
Our Reference:	UNITS	19222-19	19222-20	19222-21	19222-22	19222-23
Your Reference		080508-120	080508-121	080508-122	080508-123	080508-124
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	26	27	27	17	18
Moisture						
Our Reference:	UNITS	19222-24	19222-25	19222-26	19222-30	19222-32
Your Reference		080508-126	080508-127	080508-128	080508-133	080508-135
		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	19	32	14	24	33



Moisture Our Reference: Your Reference	UNITS	19222-33 080508-136 -KW	19222-34 080508-137 -KW	19222-36 080508-139 -KW	19222-37 080508-140 -KW	19222-38 080508-141 -KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	24	44	23	27	29
Maiationa						
Moisture Our Reference:	UNITS	19222-39	19222-42	19222-43	19222-44	19222-45
Your Reference		080508-142	080508-145	080508-146	080508-147	080508-148
Tour Reference		-KW	-KW	-KW	-KW	-KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	20	30	15	19	19
		T	T	T	I	
Moisture	LINITO	40000 40	40000 40	40000 40	10000 50	40000 50
Our Reference:	UNITS	19222-46	19222-48	19222-49	19222-50	19222-52
Your Reference		080508-149 -KW	080508-151 -KW	080508-152 -KW	080508-153 -KW	080508-155 -KW
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		so	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	9.7	6.4	14	15	14
Moisture		10000 - 1	10555	10555	10555	40555
Our Reference:	UNITS	19222-54	19222-55	19222-56	19222-58	19222-61
Your Reference		080508-157 -KW	080508-158 -KW	080508-159 -KW	080508-161 -KW	Trip Blank
Date Sampled		8/05/2008	8/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code Time Sampled		SO 00:00	SO 00:00	SO 00:00	SO 00:00	SO 00:00
·						
Date prepared	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Date analysed	-	12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Moisture	%	21	5.0	12	14	0.10



Moisture Our Reference: Your Reference  Date Sampled	UNITS	19222-63 080508-131 -KW 8/05/2008
Type of sample Sample Matrix Code Time Sampled		Soil SO 00:00
Date prepared	-	12/05/2008
Date analysed	-	12/05/2008
Moisture	%	23



Method ID	Methodology Summary
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
Metals.20 ICP- AES	Determination of various metals by ICP-AES.
Metals.21 CV- AAS	Determination of Mercury by Cold Vapour AAS.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
LAB.55	Nitrate water extractable - determined colourimetrically based on EPA114A.
LAB.56	Nitrite water extractable - determined colourimetrically based on EPA116A.
LAB.66	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen.
LAB.1	pH - Measured using pH meter and electrode in accordance with APHA 20th ED, 4500-H+.
LAB.2	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA2510 20th ED and Rayment & Higginson.
LAB.11	Chloride determined by argentometric titration.
LAB.9	Sulphate determined turbidimetrically.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOC's in soil						Base II Duplicate II %RPD		recovery
Date extracted	-			12/5/08	19222-9	12/05/2008    12/05/2008	LCS-6	12/5/08%
Date analysed	-			12/5/08	19222-9	12/05/2008    12/05/2008	LCS-6	12/5/08%
Dichlorodifluoromethane	mg/kg	10	GC.14	<10	19222-9	<10    <10	[NR]	[NR]
Chloromethane	mg/kg	10	GC.14	<10	19222-9	<10    <10	[NR]	[NR]
Vinyl Chloride	mg/kg	10	GC.14	<10	19222-9	<10    <10	[NR]	[NR]
Bromomethane	mg/kg	10	GC.14	<10	19222-9	<10    <10	[NR]	[NR]
Chloroethane	mg/kg	10	GC.14	<10	19222-9	<10    <10	[NR]	[NR]
Trichlorofluoromethane	mg/kg	10	GC.14	<10	19222-9	<10    <10	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	LCS-6	102%
cis-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
bromochloromethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
chloroform	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	LCS-6	94%
2,2-dichloropropane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	LCS-6	98%
1,1,1-trichloroethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	LCS-6	89%
1,1-dichloropropene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
carbon tetrachloride	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
Benzene	mg/kg	0.5	GC.14	<0.5	19222-9	<0.5    <0.5	[NR]	[NR]
dibromomethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
trichloroethene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	LCS-6	113%
bromodichloromethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	LCS-6	121%
trans-1,3- dichloropropene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
Toluene	mg/kg	0.5	GC.14	<0.5	19222-9	<0.5    <0.5	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
dibromochloromethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	LCS-6	121%
1,2-dibromoethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
tetrachloroethene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	LCS-6	115%
1,1,1,2- tetrachloroethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
chlorobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
Ethylbenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
bromoform	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
m+p-xylene	mg/kg	2	GC.14	<2.0	19222-9	<2.0    <2.0	[NR]	[NR]
styrene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,1,2,2- tetrachloroethane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
o-Xylene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOC's in soil						Base II Duplicate II %RPD		
1,2,3-trichloropropane*	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
isopropylbenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
bromobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
n-propyl benzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
2-chlorotoluene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
4-chlorotoluene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
tert-butyl benzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
sec-butyl benzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
n-butyl benzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,2-dibromo-3- chloropropane	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	GC.14	<1.0	19222-9	<1.0    <1.0	[NR]	[NR]
Surrogate Dibromofluorometha	%		GC.14	86	19222-9	88    89    RPD: 1	LCS-6	92%
Surrogate aaa- Trifluorotoluene	%		GC.14	91	19222-9	96    91    RPD: 5	LCS-6	101%
Surrogate Toluene-d8	%		GC.14	96	19222-9	98    96    RPD: 2	LCS-6	95%
Surrogate 4- Bromofluorobenzene	%		GC.14	78	19222-9	75    78    RPD: 4	LCS-6	70%



CS-6 12/5 CS-6 12/5 CS-6 10 CS-6 8 CS-6 10 CS-6 10 CS-6 10 CS-6 8 CS-6 8	12/5/08% 12/5/08% 108% 88% 136% 108% 105% 83%
CS-6 12/5 CS-6 10 CS-6 8 CS-6 10 CS-6 10 CS-6 10 CS-6 8 CS-6 8	12/5/08% 108% 88% 136% 108% 105%
CS-6 10 CS-6 8 CS-6 13 CS-6 10 CS-6 10 CS-6 8 CS-6 8	108% 88% 136% 108% 105%
CS-6 8 CS-6 10 CS-6 10 CS-6 8 CS-6 8	88% 136% 108% 105%
CS-6 13 CS-6 10 CS-6 10 CS-6 8 CS-6 8	136% 108% 105%
CS-6 10 CS-6 10 CS-6 8 CS-6 8	108% 105%
CS-6 10 CS-6 8 CS-6 8	105%
CS-6 8 CS-6 8	
CS-6 8	83%
e Sm# Spi	85%
	Spike % Recovery
CS-6 12/5	12/5/08%
CS-6 12/5	12/5/08%
CS-6 8	86%
S-6 8	83%
S-6 9	97%
CS-6 10	101%
	Spike % Recovery
CS-6 12/5	12/5/08%
CS-6 12/5	12/5/08%
CS-6 10	102%
NR] [I	[NR]
NR] [I	[NR]
CS-6 10	107%
CS-6 10	106%
NR] [I	[NR]
CS-6 10	105%
CS-6 10	106%
NR] [I	[NR]
CS-6 1	118%
ND1 "	[NR]
	CS-6 CS-6 CS-6 CS-6 CS-6 CS-6 CS-6 CS-6



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		,
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	19222-9	<0.05    <0.05	LCS-6	85%
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1    <0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1    <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	19222-9	<0.1    <0.1	[NR]	[NR]
Surrogate p-Terphenyl- d <sub>14</sub>	%		GC.12 subset	82	19222-9	96    100    RPD: 4	LCS-6	102%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Organochlorine Pesticides in soil						Base II Duplicate II %RPD		Recovery
Date extracted	-			12/5/08	19222-15	12/05/2008    12/05/2008	LCS-6	12/5/08%
Date analysed	_			13/5/08	19222-15	13/05/2008    13/05/2008	LCS-6	13/5/08%
HCB	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	LCS-6	88%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	LCS-6	83%
Heptachlor	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	LCS-6	60%
delta-BHC	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	LCS-6	99%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	LCS-6	90%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	LCS-6	89%
Dieldrin	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	LCS-6	95%
Endrin	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	LCS-6	63%
pp-DDD	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	LCS-6	92%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	LCS-6	80%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	82	19222-15	90    85    RPD: 6	LCS-6	82%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Organophosphorus Pesticides					Ollim	Base II Duplicate II %RPD		ROOVETY
Date extracted	-			12/5/08	19222-15	12/05/2008    12/05/2008	LCS-6	12/5/08%
Date analysed	_			13/5/08	19222-15	13/05/2008    13/05/2008	LCS-6	13/5/08%
Diazinon	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1    <0.1	LCS-6	97%
Fenitrothion	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1    <0.1	LCS-6	79%
Bromophos-ethyl	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	GC.8	<0.1	19222-15	<0.1    <0.1	LCS-6	121%
Surrogate TCLMX	%		GC.8	82	19222-15	90    85    RPD: 6	LCS-6	83%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
PCBs in Soil						Base II Duplicate II %RPD		Recovery
Date extracted	-			12/5/08	19222-15	12/05/2008    12/05/2008	LCS-6	12/5/08%
Date analysed	-			13/5/08	19222-15	13/05/2008    13/05/2008	LCS-6	13/5/08%
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	19222-15	<0.1    <0.1	LCS-6	87%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	19222-15	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	82	19222-15	90    85    RPD: 6	LCS-6	127%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			16/5/08	19222-24	16/05/2008    16/05/2008	LCS-1	16/5/08%
Date analysed	_			16/5/08	19222-24	16/05/2008    16/05/2008	LCS-1	16/5/08%
Total Phenolics (as Phenol)	mg/kg	5	LAB.30	<5.0	19222-24	<5.0    <5.0	LCS-1	106%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Herbicides in Soil						Base II Duplicate II %RPD		
Dicamba	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	102%
MCPA	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	103%
Dichlorprop	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	101%
2,4-D	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	105%
2,4,5-T	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	101%
2,4,5-TP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	115%
2,4-DB	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	105%
MCPP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	103%
Triclopyr	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	104%



QUALITY CONTROL  Acid Extractable  metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results  Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
				40/05/0	10000 1	40/05/0000 !! 40/05/0000	1.00.0	40/05/000/
Date digested	-			13/05/0 8	19222-1	13/05/2008    13/05/2008	LCS-6	13/05/08%
Date analysed	-			14/05/0 8	19222-1	14/05/2008    14/05/2008	LCS-6	14/05/08%
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4.0	19222-1	<4.0    <4.0	LCS-6	92%
Cadmium	mg/kg	1	Metals.20 ICP-AES	<1.0	19222-1	<1.0    <1.0	LCS-6	96%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1.0	19222-1	4.3    4.2    RPD: 2	LCS-6	93%
Copper	mg/kg	1	Metals.20 ICP-AES	<1.0	19222-1	7.9    7.6    RPD: 4	LCS-6	94%
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	19222-1	32    33    RPD: 3	LCS-6	92%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.10	19222-1	<0.10    <0.10	LCS-6	109%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1.0	19222-1	2.3    2.5    RPD: 8	LCS-6	93%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1.0	19222-1	38    37    RPD: 3	LCS-6	93%
Phosphorus	mg/kg	10	Metals.20 ICP-AES	<10	[NT]	[NT]	LCS-6	97%



Miscellanous Inorg	QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	6	Spike Sm#	Spike % Recovery
Nitrate as N in soil						<b>-</b>	Base II Duplicate II %	RPD		
Nitrito as N in soil	Ammonia as N in soil	mg/kg	0.5	LAB.57	<0.5	[NT]	[NT]		LCS-1	101%
Total Kijeldarh Nitrogen   mg/kg   30   Ext-020   <30   [NT]   [NT]   [NR]   [NR]     NR]   Total Kijeldarh Nitrogen in soil   mg/kg   10   LAB.66   <10   [NT]   [NT]   [NT]   [NT]   [NR]   [NR]     NR]   H.15 soil-water   pH Units   LAB.1   NR]   NR]   NR]   LAB.2   <1.0   [NT]   [NT]   [NT]   LCS-1   100%   LCS-1   105%   LAB.2   <1.0   [NT]   [NT]   [NT]   LCS-1   105%   LC	Nitrate as N in soil	mg/kg	0.5	LAB.55	<0.5	[NT]	[NT]		LCS-1	93%
Total Nitrogen in soil	Nitrite as N in soil	mg/kg	0.1	LAB.56	<0.1	[NT]	[NT]		LCS-1	105%
PH 1.5 soli-water   PH Units	Total Kjeldahl Nitrogen	mg/kg	30	Ext-020	<30	[NT]	[NT]		[NR]	[NR]
Electrical Conductivity	Total Nitrogen in soil	mg/kg	10	LAB.66	<10	[NT]	[NT]		[NR]	[NR]
1.5 soit water   Salinity as NACL   mg/kg   1	pH 1:5 soil:water	pH Units		LAB.1	[NT]	[NT]	[NT]		LCS-1	100%
Resistivity in soil*	1	μS/cm	1	LAB.2	<1.0	[NT]	[NT]		LCS-1	105%
Chloride 1:5 soil:water   mg/kg   100	Salinity as NACL *	mg/kg	1	LAB.2	<1.0	[NT]	[NT]		LCS-1	105%
Sulphate, SO4 1:5 soil:water	Resistivity in soil*	ohm m	1	LAB.2	<1.0	[NT]	[NT]		LCS-1	105%
Soil:water	Chloride 1:5 soil:water	mg/kg	100	LAB.11	<100	[NT]	[NT]		LCS-1	105%
Moisture	1 '	mg/kg	25	LAB.9	<25	[NT]	[NT]		LCS-1	110%
Date analysed   -		UNITS	PQL	METHOD	Blank	Duplicate Sm#	·	RPD		
Date analysed Moisture         - %         0.1         LAB.8          <0.10         19222-1         12/05/2008    12/05/2008    27    27    27    27    27    27    27    27    27    27	Date prepared	-			12/5/08	19222-1	12/05/2008    12/05/20	800		
QUALITY CONTROL VOC's in soil         UNITS         Dup. Sm#         Duplicate Base + Duplicate + %RPD         Spike Sm#         Spike % Recovery           Date extracted         -         [NT]         [NT]         19222-24         12/5/08%           Date analysed         -         [NT]         [NT]         [NT]         19222-24         12/5/08%           Dichlorodifluoromethane         mg/kg         [NT]         [NT]         [NR]         [NR]           Chloromethane         mg/kg         [NT]         [NT]         [NR]         [NR]           Vinyl Chloride         mg/kg         [NT]         [NT]         [NR]         [NR]           Bromomethane         mg/kg         [NT]         [NT]         [NR]         [NR]           Chloroethane         mg/kg         [NT]         [NT]         [NR]         [NR]           Trichlorofluoromethane         mg/kg         [NT]         [NT]         [NR]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]           bromochloromethane         mg/kg         [NT]         [NT]         [NT]         [N		-			12/5/08	19222-1	12/05/2008    12/05/20	800		
Date extracted   -   [NT]   [NT]   19222-24   12/5/08%	Moisture	%	0.1	LAB.8	<0.10	19222-1	27    27    RPD: 0			
Date extracted         -         [NT]         [NT]         19222-24         12/5/08%           Date analysed         -         [NT]         [NT]         19222-24         12/5/08%           Dichlorodifluoromethane         mg/kg         [NT]         [NT]         [NT]         [NR]           Chloromethane         mg/kg         [NT]         [NT]         [NT]         [NR]           Vinyl Chloride         mg/kg         [NT]         [NT]         [NR]         [NR]           Bromomethane         mg/kg         [NT]         [NT]         [NR]         [NR]           Chloroethane         mg/kg         [NT]         [NT]         [NR]         [NR]           Trichlorofluoromethane         mg/kg         [NT]         [NT]         [NR]         [NR]           1,1-Dichloroethene         mg/kg         [NT]         [NT]         [NR]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         [NR]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         [NR]         [NR]           bromochloromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           chloroform	QUALITY CONTROL	UNITS	5 [	Dup. Sm#		Duplicate	Spike Sm#	Spike	e % Recovery	
Date analysed         -         [NT]         [NT]         19222-24         12/5/08%           Dichlorodifluoromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Chloromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Vinyl Chloride         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Bromomethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Chloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,1-Dichloroethene         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           trans-1,2-dichloroethene         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           bromochloromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           2,2-dichloropropane         mg/kg         [NT]         [NT]         [NT]         [NT]         [NT]         [NT] </td <td>VOC's in soil</td> <td></td> <td></td> <td></td> <td>Base + I</td> <td>Ouplicate + %RPD</td> <td></td> <td></td> <td></td> <td></td>	VOC's in soil				Base + I	Ouplicate + %RPD				
Dichlorodifluoromethane         mg/kg         [NT]         [NT]         [NR]         [NR]           Chloromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Vinyl Chloride         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Bromomethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Chloroethane         mg/kg         [NT]         [NT]         [NR]         [NR]           Trichlorofluoromethane         mg/kg         [NT]         [NT]         [NR]         [NR]           1,1-Dichloroethene         mg/kg         [NT]         [NT]         [NR]         [NR]           1,1-dichloroethene         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           chloroform         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           2,2-dichloroethane         mg/kg         [NT]         [NT]         [NT]         [NT]         [NT]         [NT]         [NT]         [NT]         [NT]	Date extracted	-		[NT]		[NT]	19222-24		12/5/08%	
Chloromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Vinyl Chloride         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Bromomethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Chloroethane         mg/kg         [NT]         [NT]         [NR]         [NR]           Trichlorofluoromethane         mg/kg         [NT]         [NT]         [NR]         [NR]           1,1-Dichloroethane         mg/kg         [NT]         [NT]         [NR]         [NR]           trans-1,2-dichloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]           bromochloromethane         mg/kg         [NT]         [NT]         [NT]         [NR]           chloroform         mg/kg         [NT]         [NT]         [NR]         [NR]           2,2-dichloropropane         mg/kg         [NT]         [NT]         [NT]         [NR]           1,1-trichloroethane         mg/kg         [NT]         [NT]         [NT]         [NT]         [	Date analysed	-		[NT]		[NT]	19222-24	,	12/5/08%	
Vinyl Chloride         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Bromomethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Chloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Trichlorofluoromethane         mg/kg         [NT]         [NT]         [NR]         [NR]           1,1-Dichloroethane         mg/kg         [NT]         [NT]         [NR]         [NR]           trans-1,2-dichloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           bromochloromethane         mg/kg         [NT]         [NT]         [NT]         [NT]         [NT]         [NT]         [NR]         [NR]           2,2-dichloropropane         mg/kg         [NT]         [NT	Dichlorodifluoromethane	mg/kg	ı	[NT]		[NT]	[NR]		[NR]	
Bromomethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Chloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           Trichlorofluoromethane         mg/kg         [NT]         [NT]         [NR]         [NR]           1,1-Dichloroethene         mg/kg         [NT]         [NT]         [NR]         [NR]           trans-1,2-dichloroethene         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           bromochloromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           chloroform         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,2-dichloropropane         mg/kg         [NT]         [NT] <td>Chloromethane</td> <td>mg/kg</td> <td>ı</td> <td>[NT]</td> <td></td> <td>[NT]</td> <td>[NR]</td> <td></td> <td>[NR]</td> <td></td>	Chloromethane	mg/kg	ı	[NT]		[NT]	[NR]		[NR]	
Chloroethane         mg/kg         [NT]         [NT]         [NR]         [NR]           Trichlorofluoromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,1-Dichloroethene         mg/kg         [NT]         [NT]         [NR]         [NR]           trans-1,2-dichloroethene         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         [NR]         [NR]           cis-1,2-dichloroethane         mg/kg         [NT]         [NT]         [NR]         [NR]           bromochloromethane         mg/kg         [NT]         [NT]         [NR]         [NR]           chloroform         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           2,2-dichloropropane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,2-dichloroethane         mg/kg         [NT]         [NT]         [NT]         19222-24         84%           1,1-dichloropropene         mg/kg         [NT]         [NT]         [NT]         [NT]         [NT]         [NT]	Vinyl Chloride	mg/kg	ı	[NT]		[NT]	[NR]		[NR]	
Trichlorofluoromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,1-Dichloroethene         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           trans-1,2-dichloroethene         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           bromochloromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           chloroform         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,2-dichloropropane         mg/kg         [NT]         <	Bromomethane	mg/kg	ı	[NT]		[NT]	[NR]		[NR]	
1,1-Dichloroethene         mg/kg         [NT]         [NT]         [NR]         [NR]           trans-1,2-dichloroethene         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           cis-1,2-dichloroethane         mg/kg         [NT]         [NT]         [NR]         [NR]           bromochloromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           chloroform         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           2,2-dichloropropane         mg/kg         [NT]         <	Chloroethane	mg/kg	ı	[NT]		[NT]	[NR]		[NR]	
trans-1,2-dichloroethene         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           1,1-dichloroethane         mg/kg         [NT]         [NT]         19222-24         88%           cis-1,2-dichloroethene         mg/kg         [NT]         [NT]         [NR]         [NR]           bromochloromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           chloroform         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           2,2-dichloropropane         mg/kg         [NT]         [NT]         [NT]         [NT]         [NT]         19222-24         84%           1,1,1-trichloroethane         mg/kg         [NT]         [NT]         [NT]         [NT]         [NR]           1,1-dichloropropene         mg/kg         [NT]         [NT]         [NT]         [NR]	Trichlorofluoromethane	mg/kg	,	[NT]		[NT]	[NR]		[NR]	
1,1-dichloroethane       mg/kg       [NT]       [NT]       19222-24       88%         cis-1,2-dichloroethene       mg/kg       [NT]       [NT]       [NR]       [NR]         bromochloromethane       mg/kg       [NT]       [NT]       [NR]       [NR]         chloroform       mg/kg       [NT]       [NT]       19222-24       81%         2,2-dichloropropane       mg/kg       [NT]       [NT]       [NR]       [NR]         1,2-dichloroethane       mg/kg       [NT]       [NT]       19222-24       84%         1,1,1-trichloroethane       mg/kg       [NT]       [NT]       [NT]       [NR]         1,1-dichloropropene       mg/kg       [NT]       [NT]       [NR]       [NR]	1,1-Dichloroethene	mg/kg	ı	[NT]		[NT]	[NR]		[NR]	
cis-1,2-dichloroethene         mg/kg         [NT]         [NT]         [NR]         [NR]           bromochloromethane         mg/kg         [NT]         [NT]         [NT]         [NR]         [NR]           chloroform         mg/kg         [NT]         [NT]         19222-24         81%           2,2-dichloropropane         mg/kg         [NT]         [NT]         [NR]         [NR]           1,2-dichloroethane         mg/kg         [NT]         [NT]         19222-24         84%           1,1,1-trichloroethane         mg/kg         [NT]         [NT]         [NT]         [NR]           1,1-dichloropropene         mg/kg         [NT]         [NT]         [NT]         [NR]	trans-1,2-dichloroethene	mg/kg		[NT]		[NT]	[NR]		[NR]	
bromochloromethane         mg/kg         [NT]         [NT]         [NR]         [NR]           chloroform         mg/kg         [NT]         [NT]         19222-24         81%           2,2-dichloropropane         mg/kg         [NT]         [NT]         [NR]         [NR]           1,2-dichloroethane         mg/kg         [NT]         [NT]         19222-24         84%           1,1,1-trichloroethane         mg/kg         [NT]         [NT]         19222-24         77%           1,1-dichloropropene         mg/kg         [NT]         [NT]         [NR]         [NR]	1,1-dichloroethane	mg/kg	ı	[NT]		[NT]	19222-24		88%	
chloroform         mg/kg         [NT]         [NT]         19222-24         81%           2,2-dichloropropane         mg/kg         [NT]         [NT]         [NR]           1,2-dichloroethane         mg/kg         [NT]         [NT]         19222-24         84%           1,1,1-trichloroethane         mg/kg         [NT]         [NT]         19222-24         77%           1,1-dichloropropene         mg/kg         [NT]         [NT]         [NT]         [NR]	cis-1,2-dichloroethene	mg/kg	ı	[NT]		[NT]	[NR]		[NR]	
2,2-dichloropropane       mg/kg       [NT]       [NT]       [NR]       [NR]         1,2-dichloroethane       mg/kg       [NT]       [NT]       19222-24       84%         1,1,1-trichloroethane       mg/kg       [NT]       [NT]       19222-24       77%         1,1-dichloropropene       mg/kg       [NT]       [NT]       [NR]       [NR]	bromochloromethane	mg/kg	,	[NT]		[NT]	[NR]		[NR]	
1,2-dichloroethane       mg/kg       [NT]       [NT]       19222-24       84%         1,1,1-trichloroethane       mg/kg       [NT]       [NT]       19222-24       77%         1,1-dichloropropene       mg/kg       [NT]       [NT]       [NR]       [NR]	chloroform	mg/kg	,	[NT]		[NT]	19222-24		81%	
1,2-dichloroethane       mg/kg       [NT]       [NT]       19222-24       84%         1,1,1-trichloroethane       mg/kg       [NT]       [NT]       19222-24       77%         1,1-dichloropropene       mg/kg       [NT]       [NT]       [NR]       [NR]	2,2-dichloropropane						[NR]		[NR]	
1,1,1-trichloroethane     mg/kg     [NT]     [NT]     19222-24     77%       1,1-dichloropropene     mg/kg     [NT]     [NT]     [NR]	1,2-dichloroethane									
1,1-dichloropropene mg/kg [NT] [NT] [NR] [NR]										
	1,1-dichloropropene						[NR]		[NR]	
carbon tetrachionide   mg/kg   [ivi]   [ivi]   [ivi]     liviK      liviK	carbon tetrachloride	mg/kg		[NT]		[NT]	[NR]		[NR]	

Envirolab Reference: 19222 Revision No: R 00



QUALITY CONTROL VOC's in soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
dibromomethane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
trichloroethene	mg/kg	[NT]	[NT]	19222-24	94%
bromodichloromethane	mg/kg	[NT]	[NT]	19222-24	103%
trans-1,3-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
dibromochloromethane	mg/kg	[NT]	[NT]	19222-24	103%
1,2-dibromoethane	mg/kg	[NT]	[NT]	[NR]	[NR]
tetrachloroethene	mg/kg	[NT]	[NT]	19222-24	95%
1,1,1,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromoform	mg/kg	[NT]	[NT]	[NR]	[NR]
m+p-xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
styrene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
o-Xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	mg/kg	[NT]	[NT]	[NR]	[NR]
isopropylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
tert-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
sec-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3- chloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]



QUALITY CONTROL VOC's in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
hexachlorobutadiene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%	[NT]	[NT]	19222-24	95%
Surrogate aaa- Trifluorotoluene	%	[NT]	[NT]	19222-24	89%
Surrogate Toluene-d8	%	[NT]	[NT]	19222-24	97%
Surrogate 4- Bromofluorobenzene	%	[NT]	[NT]	19222-24	74%
QUALITY CONTROL vTPH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19222-39	12/05/2008    12/05/2008	19222-22	12/5/08%
Date analysed	-	19222-39	12/05/2008    12/05/2008	19222-22	12/5/08%
vTPH C6 - C9	mg/kg	19222-39	<25    <25	19222-22	104%
Benzene	mg/kg	19222-39	<0.5    <0.5	19222-22	112%
Toluene	mg/kg	19222-39	<0.5    <0.5	19222-22	122%
Ethylbenzene	mg/kg	19222-39	<1.0    <1.0	19222-22	91%
m+p-xylene	mg/kg	19222-39	<2.0    <2.0	19222-22	97%
o-Xylene	mg/kg	19222-39	<1.0    <1.0	19222-22	99%
Surrogate aaa- Trifluorotoluene	%	19222-39	83    98    RPD: 17	19222-22	99%
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19222-39	12/05/2008    12/05/2008	19222-22	12/5/08%
Date analysed	_	19222-39	13/05/2008    13/05/2008	19222-22	12/5/08%
TPH C <sub>10</sub> - C <sub>14</sub>	mg/kg	19222-39	<50    <50	19222-22	79%
TPH C15 - C28	mg/kg	19222-39	<100    <100	19222-22	80%
TPH C29 - C36	mg/kg	19222-39	<100    <100	19222-22	86%
Surrogate o-Terphenyl	%	19222-39	99    98    RPD: 1	19222-22	99%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	_	19222-39	12/05/2008    12/05/2008	19222-22	12/5/08%
Date analysed	_	19222-39	12/05/2008    12/05/2008	19222-22	12/5/08%
Naphthalene	mg/kg	19222-39	<0.1    <0.1	19222-22	79%
Acenaphthylene	mg/kg	19222-39	<0.1    <0.1	[NR]	[NR]
Acenaphthene	mg/kg	19222-39	<0.1    <0.1	[NR]	[NR]
Fluorene	mg/kg	19222-39	<0.1    <0.1	19222-22	102%
Phenanthrene	mg/kg	19222-39	0.2    0.1    RPD: 67	19222-22	101%
Anthracene	mg/kg	19222-39	<0.1    <0.1	[NR]	[NR]
Fluoranthene	mg/kg	19222-39	0.6    0.6    RPD: 0	19222-22	102%



QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery	
Pyrene	mg/kg	19222-39	0.6    0.7    RPD: 15	19222-22	103%	
Benzo(a)anthracene	mg/kg	19222-39	0.3    0.4    RPD: 29	[NR]	[NR]	
Chrysene	mg/kg	19222-39	0.4    0.5    RPD: 22	19222-22	110%	
Benzo(b+k)fluoranthene	mg/kg	19222-39	0.9    1.0    RPD: 11	[NR]	[NR]	
Benzo(a)pyrene	mg/kg	19222-39	0.5    0.6    RPD: 18	19222-22	85%	
Dibenzo(a,h)anthracene	mg/kg	19222-39	<0.1    <0.1	[NR]	[NR]	
Indeno(1,2,3-c,d)pyrene	mg/kg	19222-39	0.4    0.4    RPD: 0	[NR]	[NR]	
Benzo(g,h,i)perylene	mg/kg	19222-39	0.4    0.4    RPD: 0	[NR]	[NR]	
Surrogate p-Terphenyl- d <sub>14</sub>	%	19222-39	100    101    RPD: 1	19222-22	100%	
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery	
Date extracted	-	19222-55	12/05/2008    12/05/2008	19222-22	12/5/08%	
Date analysed	-	19222-55	13/05/2008    13/05/2008	19222-22	13/5/08%	
HCB	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]	
alpha-BHC	mg/kg	19222-55	<0.1    <0.1	19222-22	86%	
gamma-BHC	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]	
beta-BHC	mg/kg	19222-55	<0.1    <0.1	19222-22	92%	
Heptachlor	mg/kg	19222-55	<0.1    <0.1	19222-22	90%	
delta-BHC	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]	
Aldrin	mg/kg	19222-55	<0.1    <0.1	19222-22	94%	
Heptachlor Epoxide	mg/kg	19222-55	<0.1    <0.1	19222-22	92%	
gamma-Chlordane	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]	
alpha-chlordane	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]	
Endosulfan I	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]	
pp-DDE	mg/kg	19222-55	<0.1    <0.1	19222-22	90%	
Dieldrin	mg/kg	19222-55	<0.1    <0.1	19222-22	95%	
Endrin	mg/kg	19222-55	<0.1    <0.1	19222-22	83%	
pp-DDD	mg/kg	19222-55	<0.1    <0.1	19222-22	93%	
Endosulfan II	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]	
pp-DDT	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]	
Endrin Aldehyde	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]	
Endosulfan Sulphate	mg/kg	19222-55	<0.1    <0.1	19222-22	85%	
Methoxychlor	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]	
Surrogate TCLMX	%	19222-55	83    83    RPD: 0	19222-22	80%	



QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19222-55	12/05/2008    12/05/2008	19222-22	12/5/08%
Date analysed	-	19222-55	13/05/2008    13/05/2008	19222-22	13/5/08%
Diazinon	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]
Dimethoate	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]
Ronnel	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	19222-55	<0.1    <0.1	19222-22	83%
Fenitrothion	mg/kg	19222-55	<0.1    <0.1	19222-22	64%
Bromophos-ethyl	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]
Ethion	mg/kg	19222-55	<0.1    <0.1	19222-22	98%
Surrogate TCLMX	%	19222-55	83    83    RPD: 0	19222-22	78%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19222-55	12/05/2008    12/05/2008	19222-22	12/5/08%
Date analysed	-	19222-55	13/05/2008    13/05/2008	19222-22	13/5/08%
Arochlor 1016	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	19222-55	<0.1    <0.1	19222-22	87%
Arochlor 1260	mg/kg	19222-55	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%	19222-55	83    83    RPD: 0	19222-22	119%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19222-20	13/05/2008    13/05/2008	LCS-7	13/05/08%
Date analysed	-	19222-20	14/05/2008    14/05/2008	LCS-7	14/05/08%
Arsenic	mg/kg	19222-20	<4.0    <4.0	LCS-7	91%
Cadmium	mg/kg	19222-20	<1.0    <1.0	LCS-7	94%
Chromium	mg/kg	19222-20	6.2    5.1    RPD: 19	LCS-7	92%
Copper	mg/kg	19222-20	7.7    9.8    RPD: 24	LCS-7	93%
Lead	mg/kg	19222-20	35    35    RPD: 0	LCS-7	92%
Mercury	mg/kg	19222-20	0.12    0.14    RPD: 15	LCS-7	110%
Nickel	mg/kg	19222-20	1.9    1.8    RPD: 5	LCS-7	91%
Zinc	mg/kg	19222-20	34    32    RPD: 6	LCS-7	92%
Phosphorus	mg/kg	[NT]	[NT]	LCS-7	95%



QUALITY CONTROL  Moisture	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD		
Date prepared	_	19222-9	12/05/2008    12/05/2008		
Date analysed	_	19222-9	12/05/2008    12/05/2008		
Moisture	%	19222-9	25    25    RPD: 0		
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil	OTHIO	Бар. Спії	Base + Duplicate + %RPD	орию опи	opine witecovery
Date digested	-	19222-42	13/05/2008    13/05/2008	19222-5	13/05/08%
Date analysed	-	19222-42	14/05/2008    14/05/2008	19222-5	14/05/08%
Arsenic	mg/kg	19222-42	<4.0    7.1	19222-5	98%
Cadmium	mg/kg	19222-42	<1.0    <1.0	19222-5	99%
Chromium	mg/kg	19222-42	7.2    13    RPD: 57	19222-5	98%
Copper	mg/kg	19222-42	9.7    15    RPD: 43	19222-5	99%
Lead	mg/kg	19222-42	26    42    RPD: 47	19222-5	97%
Mercury	mg/kg	19222-42	0.24    0.21    RPD: 13	19222-5	109%
Nickel	mg/kg	19222-42	2.1    3.8    RPD: 58	19222-5	96%
Zinc	mg/kg	19222-42	32    43    RPD: 29	19222-5	98%
Phosphorus	mg/kg	19222-42	120    200    RPD: 50	19222-5	107%
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate		
Moisture			Base + Duplicate + %RPD		
Date prepared	-	19222-15	12/05/2008    12/05/2008		
Date analysed	-	19222-15	12/05/2008    12/05/2008		
Moisture	%	19222-15	22    22    RPD: 0		
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil			Base + Duplicate + %RPD		
Date digested	-	19222-58	13/05/2008    13/05/2008	19222-43	13/05/08%
Date analysed	-	19222-58	14/05/2008    14/05/2008	19222-43	14/05/08%
Arsenic	mg/kg	19222-58	6.3    4.7    RPD: 29	19222-43	90%
Cadmium	mg/kg	19222-58	<1.0    <1.0	19222-43	94%
Chromium	mg/kg	19222-58	7.2    5.0    RPD: 36	19222-43	87%
Copper	mg/kg	19222-58	240    210    RPD: 13	19222-43	88%
Lead	mg/kg	19222-58	33    29    RPD: 13	19222-43	83%
Mercury	mg/kg	19222-58	<0.10    <0.10	19222-43	106%
Nickel	mg/kg	19222-58	8.6    5.0    RPD: 53	19222-43	89%
Zinc	mg/kg	19222-58	340    210    RPD: 47	19222-43	88%
Phosphorus	mg/kg	[NT]	[NT]	19222-43	93%



QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate
Moisture			Base + Duplicate + %RPD
Date prepared	-	19222-20	12/05/2008    12/05/2008
Date analysed	-	19222-20	12/05/2008    12/05/2008
Moisture	%	19222-20	27    27    RPD: 0
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD
Moisture			base + Duplicate + 7011FD
Date prepared	-	19222-39	12/05/2008    12/05/2008
Date analysed	-	19222-39	12/05/2008    12/05/2008
Moisture	%	19222-39	20    20    RPD: 0
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate
Moisture			Base + Duplicate + %RPD
Date prepared	-	19222-42	12/05/2008    12/05/2008
Date analysed	-	19222-42	12/05/2008    12/05/2008
Moisture	%	19222-42	30    30    RPD: 0
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate
Moisture			Base + Duplicate + %RPD
Date prepared	-	19222-55	12/05/2008    12/05/2008
Date analysed	-	19222-55	12/05/2008    12/05/2008
Moisture	%	19222-55	5.0    5.0    RPD: 0
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate
Moisture			Base + Duplicate + %RPD
Date prepared	-	19222-58	12/05/2008    12/05/2008
Date analysed	-	19222-58	12/05/2008    12/05/2008
Moisture	%	19222-58	14    14    RPD: 0



#### **Report Comments:**

**Texture Classification:** 

28 = Sandy Loam

55 = Sandy Loam

TKN - samples 25 & 38 - analysed by NMI: Report Number - RN679927.

Herbicides and TKN analysed by NMI: Report Number - RN680257.

Asbestos was analysed by Approved Identifier: Not applicable for this job

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

NR: Not requested <: Less than >: Greater than

#### **Quality Control Definitions**

**Blank**: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. **Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

#### **Laboratory Acceptance Criteria:**

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for

SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for

SVOC and speciated phenols.





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# **CERTIFICATE OF ANALYSIS 19257**

Client:

**Consulting Earth Scientists** 

Suite 121, 26-32 Pirrama Rd Pyrmont NSW 2009

Attention: Luke Jenkins / Kelly Weir

Sample log in details:

Your Reference: CES050706-BCC Area A

No. of samples: 49 Soils, 1 Water

Date samples received: 12/05/08
Date completed instructions received: 12/05/08

## **Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

**Report Details:** 

Date results requested by: 21/05/08

Date of Preliminary Report: Not Issued Issue Date: 23/05/08

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Accredited for compliance with ISO/IEC 17025.

Tests not covered by NATA are denoted with \*.

**Results Approved By:** 

Business Development & Quality Manager

Envirolab Reference: 19257 Page 1 of 48

Revision No: R 00



VOC's in soil						
Our Reference:	UNITS	19257-7	19257-21	19257-29	19257-34	19257-46
Your Reference		090508-168	090508-178	090508-202	090508-197	090508-205
		-KW	-KW	-KW	-KW	-KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample Sample Matrix Code		Soil SO	Soil SO	Soil SO	Soil SO	Soil SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	_	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
Dichlorodifluoromethane	mg/kg	<10	<10	<10	<10	<10
Chloromethane	mg/kg	<10	<10	<10	<10	<10
Vinyl Chloride	mg/kg	<10	<10	<10	<10	<10
Bromomethane	mg/kg	<10	<10	<10	<10	<10
Chloroethane	mg/kg	<10	<10	<10	<10	<10
Trichlorofluoromethane	mg/kg	<10	<10	<10	<10	<10
1,1-Dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
chloroform	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
carbon tetrachloride	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
dibromomethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
trichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromodichloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
dibromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
tetrachloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
chlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromoform	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0



VOC's in soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19257-7 090508-168 -KW 9/05/2008 Soil SO 00:00	19257-21 090508-178 -KW 9/05/2008 Soil SO 00:00	19257-29 090508-202 -KW 9/05/2008 Soil SO 00:00	19257-34 090508-197 -KW 9/05/2008 Soil SO 00:00	19257-46 090508-205 -KW 9/05/2008 Soil SO 00:00
styrene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
isopropylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
bromobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
tert-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
sec-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
hexachlorobutadiene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluorometha	%	86	76	98	83	92
Surrogate aaa-Trifluorotoluene	%	95	101	79	95	88
Surrogate Toluene-da	%	91	91	90	91	92
Surrogate 4-Bromofluorobenzene	%	85	84	82	80	80



VOC's in soil	LIMITE	10257 40
Our Reference: Your Reference	UNITS	19257-49 Trip Blank
Date Sampled		9/05/2008
Type of sample		Soil
Sample Matrix Code		so
Time Sampled		00:00
Date extracted	-	16/05/2008
Date analysed	-	17/05/2008
Dichlorodifluoromethane	mg/kg	<10
Chloromethane	mg/kg	<10
Vinyl Chloride	mg/kg	<10
Bromomethane	mg/kg	<10
Chloroethane	mg/kg	<10
Trichlorofluoromethane	mg/kg	<10
1,1-Dichloroethene	mg/kg	<1.0
trans-1,2-dichloroethene	mg/kg	<1.0
1,1-dichloroethane	mg/kg	<1.0
cis-1,2-dichloroethene	mg/kg	<1.0
bromochloromethane	mg/kg	<1.0
chloroform	mg/kg	<1.0
2,2-dichloropropane	mg/kg	<1.0
1,2-dichloroethane	mg/kg	<1.0
1,1,1-trichloroethane	mg/kg	<1.0
1,1-dichloropropene	mg/kg	<1.0
carbon tetrachloride	mg/kg	<1.0
Benzene	mg/kg	<0.5
dibromomethane	mg/kg	<1.0
1,2-dichloropropane	mg/kg	<1.0
trichloroethene	mg/kg	<1.0
bromodichloromethane	mg/kg	<1.0
trans-1,3-dichloropropene	mg/kg	<1.0
cis-1,3-dichloropropene	mg/kg	<1.0
1,1,2-trichloroethane	mg/kg	<1.0
Toluene	mg/kg	<0.5
1,3-dichloropropane	mg/kg	<1.0
dibromochloromethane	mg/kg	<1.0
1,2-dibromoethane	mg/kg	<1.0
tetrachloroethene	mg/kg	<1.0
1,1,1,2-tetrachloroethane	mg/kg	<1.0
chlorobenzene	mg/kg	<1.0
Ethylbenzene	mg/kg	<1.0
bromoform	mg/kg	<1.0
m+p-xylene	mg/kg	<2.0
styrene	mg/kg	<1.0
•		



VOC's in soil Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19257-49 Trip Blank 9/05/2008 Soil SO 00:00
1,1,2,2-tetrachloroethane	mg/kg	<1.0
o-Xylene	mg/kg	<1.0
1,2,3-trichloropropane*	mg/kg	<1.0
isopropylbenzene	mg/kg	<1.0
bromobenzene	mg/kg	<1.0
n-propyl benzene	mg/kg	<1.0
2-chlorotoluene	mg/kg	<1.0
4-chlorotoluene	mg/kg	<1.0
1,3,5-trimethyl benzene	mg/kg	<1.0
tert-butyl benzene	mg/kg	<1.0
1,2,4-trimethyl benzene	mg/kg	<1.0
1,3-dichlorobenzene	mg/kg	<1.0
sec-butyl benzene	mg/kg	<1.0
1,4-dichlorobenzene	mg/kg	<1.0
4-isopropyl toluene	mg/kg	<1.0
1,2-dichlorobenzene	mg/kg	<1.0
n-butyl benzene	mg/kg	<1.0
1,2-dibromo-3-chloropropane	mg/kg	<1.0
1,2,4-trichlorobenzene	mg/kg	<1.0
hexachlorobutadiene	mg/kg	<1.0
1,2,3-trichlorobenzene	mg/kg	<1.0
Surrogate Dibromofluorometha	%	81
Surrogate aaa-Trifluorotoluene	%	99
Surrogate Toluene-da	%	91
Surrogate 4-Bromofluorobenzene	%	79



vTPH & BTEX in Soil						
Our Reference:	UNITS	19257-2	19257-3	19257-7	19257-10	19257-12
Your Reference		090508-165	090508-166	090508-168	090508-182	090508-171
		-KW	-KW	-KW	-KW	-KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
vTPH C6 - C9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	104	125	95	93	96

vTPH & BTEX in Soil						
Our Reference:	UNITS	19257-14	19257-18	19257-21	19257-26	19257-29
Your Reference		090508-173	090508-175	090508-178	090508-192	090508-202
		-KW	-KW	-KW	-KW	-KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
vTPH C6 - C9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	105	101	101	107	79



vTPH & BTEX in Soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19257-34 090508-197 -KW 9/05/2008 Soil SO 00:00	19257-35 090508-199 -KW 9/05/2008 Soil SO 00:00	19257-37 090508-198 -KW 9/05/2008 Soil SO 00:00	19257-46 090508-205 -KW 9/05/2008 Soil SO 00:00	19257-49 Trip Blank 9/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
vTPH C6 - C9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	95	98	91	88	99

vTPH & BTEX in Soil		
Our Reference:	UNITS	19257-50
Your Reference		Trip Spike
Date Sampled		9/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date extracted	-	16/05/2008
Date analysed	-	16/05/2008
Benzene	mg/kg	0.7
Toluene	mg/kg	14
Ethylbenzene	mg/kg	1.6
m+p-xylene	mg/kg	11
o-Xylene	mg/kg	4.0
Surrogate aaa-Trifluorotoluene	%	97



sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19257-2	19257-3	19257-7	19257-10	19257-12
Your Reference		090508-165 -KW	090508-166 -KW	090508-168 -KW	090508-182 -KW	090508-171 -KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
TPH C10 - C14	mg/kg	<50	<50	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	85	85	90	92	92

aTDILin Cail (C40, C26)						
sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19257-14	19257-18	19257-21	19257-26	19257-29
Your Reference		090508-173	090508-175	090508-178	090508-192	090508-202
		-KW	-KW	-KW	-KW	-KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	so
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
TPH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	93	94	92	95	88

sTPH in Soil (C10-C36)					
Our Reference:	UNITS	19257-34	19257-35	19257-37	19257-46
Your Reference		090508-197 -KW	090508-199 -KW	090508-198 -KW	090508-205 -KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
TPH C10 - C14	mg/kg	<50	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100	<100
Surrogate o-Terphenyl	%	90	90	92	94



PAHs in Soil						
Our Reference:	UNITS	19257-3	19257-12	19257-18	19257-23	19257-29
Your Reference		090508-166 -KW	090508-171 -KW	090508-175 -KW	090508-186 -KW	090508-202 -KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code Time Sampled		SO 00:00	SO 00:00	SO 00:00	SO 00:00	SO 00:00
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.06	0.07	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d <sub>14</sub>	%	106	103	106	104	103



PAHs in Soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19257-37 090508-198 -KW 9/05/2008 Soil SO 00:00	19257-38 090508-207 -KW 9/05/2008 Soil SO 00:00	19257-40 090508-209 -KW 9/05/2008 Soil SO 00:00	19257-42 090508-188 -KW 9/05/2008 Soil SO 00:00	19257-43 090508-189 -KW 9/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.3	0.7
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	0.8	0.4
Pyrene	mg/kg	0.1	<0.1	<0.1	1.0	0.4
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.5	0.2
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.5	0.3
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.8	0.3
Benzo(a)pyrene	mg/kg	0.1	<0.05	<0.05	0.5	0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Surrogate p-Terphenyl-d <sub>14</sub>	%	108	107	100	104	100



PAHs in Soil			
Our Reference:	UNITS	19257-44	19257-46
Your Reference		090508-190 -KW	090508-205 -KW
Date Sampled		9/05/2008	9/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		so	so
Time Sampled		00:00	00:00
Date extracted	-	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	101	109



Organochlorine Pesticides in soil						
Our Reference:	UNITS	19257-22	19257-31	19257-32	19257-38	19257-39
Your Reference		090508-185 -KW	090508-194 -KW	090508-195 -KW	090508-207 -KW	090508-208 -KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code Time Sampled		SO 00:00	SO 00:00	SO 00:00	SO 00:00	SO 00:00
Time Sampled		00.00	00.00		00.00	
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	83	81	80	78	80



Organochlorine Pesticides in soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19257-45 090508-204 -KW 9/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008
Date analysed	-	16/05/2008
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Surrogate TCLMX	%	77



Organophosphorus Pesticides						
Our Reference:	UNITS	19257-22	19257-31	19257-32	19257-38	19257-39
Your Reference		090508-185	090508-194	090508-195	090508-207	090508-208
		-KW	-KW	-KW	-KW	-KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	83	81	80	78	80

Organophosphorus Pesticides		
Our Reference:	UNITS	19257-45
Your Reference		090508-204
		-KW
Date Sampled		9/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date extracted	-	16/05/2008
Date analysed	-	16/05/2008
Diazinon	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Ethion	mg/kg	<0.1
Surrogate TCLMX	%	77



PCBs in Soil						
Our Reference:	UNITS	19257-22	19257-31	19257-32	19257-38	19257-39
Your Reference		090508-185	090508-194	090508-195	090508-207	090508-208
		-KW	-KW	-KW	-KW	-KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	83	81	80	78	80

PCBs in Soil		
Our Reference:	UNITS	19257-45
Your Reference		090508-204
		-KW
Date Sampled		9/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date extracted	-	16/05/2008
Date analysed	-	16/05/2008
Arochlor 1016	mg/kg	<0.1
Arochlor 1232	mg/kg	<0.1
Arochlor 1242	mg/kg	<0.1
Arochlor 1248	mg/kg	<0.1
Arochlor 1254	mg/kg	<0.1
Arochlor 1260	mg/kg	<0.1
Surrogate TCLMX	%	77



Total Phenolics in Soil						
Our Reference:	UNITS	19257-7	19257-21	19257-29	19257-35	19257-46
Your Reference		090508-168	090508-178	090508-202	090508-199	090508-205
		-KW	-KW	-KW	-KW	-KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0



Acid Extractable metals in soil						
Our Reference:	UNITS	19257-2	19257-3	19257-7	19257-10	19257-12
Your Reference		090508-165	090508-166	090508-168	090508-182	090508-171
		-KW	-KW	-KW	-KW	-KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	6.2	4.5	5.1	<4.0	8.3
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	2.1	2.3	3.8	1.7	13
Copper	mg/kg	3.6	8.5	2.0	<1.0	34
Lead	mg/kg	14	31	5.7	3.0	24
Mercury	mg/kg	0.28	0.14	<0.10	<0.10	0.52
Nickel	mg/kg	<1.0	1.6	1.8	<1.0	19
Zinc	mg/kg	11	51	7.9	28	43

Acid Extractable metals in soil						
Our Reference:	UNITS	19257-14	19257-18	19257-21	19257-23	19257-26
Your Reference		090508-173	090508-175	090508-178	090508-186	090508-192
		-KW	-KW	-KW	-KW	-KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	<4.0	4.3	<4.0	4.6	7.1
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	1.4	2.1	2.7	3.9	8.5
Copper	mg/kg	3.0	3.6	<1.0	13	24
Lead	mg/kg	19	16	7.9	40	180
Mercury	mg/kg	<0.10	<0.10	<0.10	0.26	<0.10
Nickel	mg/kg	<1.0	<1.0	<1.0	7.2	4.7
Zinc	mg/kg	9.6	20	1.2	44	69



Acid Extractable metals in soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19257-29 090508-202 -KW 9/05/2008 Soil SO 00:00	19257-31 090508-194 -KW 9/05/2008 Soil SO 00:00	19257-32 090508-195 -KW 9/05/2008 Soil SO 00:00	19257-34 090508-197 -KW 9/05/2008 Soil SO 00:00	19257-37 090508-198 -KW 9/05/2008 Soil SO 00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	8.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	3.6	9.7	4.2	2.8	11
Copper	mg/kg	<1.0	13	7.3	13	22
Lead	mg/kg	1.7	950	1,200	61	990
Mercury	mg/kg	<0.10	<0.10	<0.10	0.53	<0.10
Nickel	mg/kg	1.6	12	4.0	1.5	15
Zinc	mg/kg	1.4	41	34	57	200

UNITS	19257-38	19257-39	19257-40	19257-42	19257-43
	090508-207	090508-208	090508-209	090508-188	090508-189
	-KW	-KW	-KW	-KW	-KW
	9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
	Soil	Soil	Soil	Soil	Soil
	_	_		_	SO
	00:00	00:00	00:00	00:00	00:00
-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
mg/kg	<4.0	<4.0	<4.0	4.5	<4.0
mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
mg/kg	6.0	3.1	<1.0	5.4	2.4
mg/kg	2.2	11	1.9	16	33
mg/kg	6.3	47	<1.0	68	21
mg/kg	<0.10	0.90	<0.10	0.23	<0.10
mg/kg	1.7	2.7	<1.0	4.5	15
mg/kg	7.1	36	33	47	33
mg/kg	[NA]	220	[NA]	[NA]	[NA]



	_	
Acid Extractable metals in soil		
Our Reference:	UNITS	19257-45
Your Reference		090508-204
		-KW
Date Sampled		9/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date digested	-	19/05/2008
Date analysed	-	20/05/2008
Arsenic	mg/kg	<4.0
Cadmium	mg/kg	<1.0
Chromium	mg/kg	6.7
Copper	mg/kg	25
Lead	mg/kg	130
Mercury	mg/kg	<0.10
Nickel	mg/kg	9.2
Zinc	mg/kg	89



Miscellaneous Inorg - soil		
Our Reference:	UNITS	19257-39
Your Reference		090508-208
		-KW
Date Sampled		9/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date analysed	-	13/05/2008
Ammonia as N in soil	mg/kg	<0.5
Nitrate as N in soil	mg/kg	4.9
Nitrite as N in soil	mg/kg	<0.1
Total Kjeldahl Nitrogen	mg/kg	2,300
Total Nitrogen in soil	mg/kg	2,300



Moisture		400	400	100	4005- 15	1005- 15
Our Reference:	UNITS	19257-2	19257-3	19257-7	19257-10	19257-12
Your Reference		090508-165 -KW	090508-166 -KW	090508-168 -KW	090508-182 -KW	090508-171 -KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	9/03/2008 Soil	9/03/2008 Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	_	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	_	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	6.6	6.1	6.4	8.8	5.2
Moisture						
Our Reference:	UNITS	19257-14	19257-18	19257-21	19257-22	19257-23
Your Reference		090508-173 -KW	090508-175 -KW	090508-178 -KW	090508-185 -KW	090508-186 -KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	6.9	4.8	14	5.4	4.3
		I		I		
Moisture	LINUTO	40057.00	10057.00	10057.01	10057.00	10057.04
Our Reference:	UNITS	19257-26	19257-29	19257-31	19257-32	19257-34
Your Reference		090508-192 -KW	090508-202 -KW	090508-194 -KW	090508-195 -KW	090508-197 -KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	5.5	23	4.7	3.5	19
Moisture						
Our Reference:	UNITS	19257-35	19257-37	19257-38	19257-39	19257-40
Your Reference	CINITO	090508-199	090508-198	090508-207	090508-208	090508-209
I OUI INCICICIO		-KW	-KW	-KW	-KW	-KW
Date Sampled		9/05/2008	9/05/2008	9/05/2008	9/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	17	4.5	5.3	10	8.8



Moisture Our Reference: Your Reference	UNITS	19257-42 090508-188 -KW	19257-43 090508-189 -KW	19257-44 090508-190 -KW	19257-45 090508-204 -KW	19257-46 090508-205 -KW
Date Sampled Type of sample Sample Matrix Code Time Sampled		9/05/2008 Soil SO 00:00	9/05/2008 Soil SO 00:00	9/05/2008 Soil SO 00:00	9/05/2008 Soil SO 00:00	9/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	7.7	20	16	1.6	3.6

UNITS	19257-49
	Trip Blank
	9/05/2008
	Soil SO 00:00
-	16/05/2008
-	16/05/2008
%	5.6
_	



Herbicides in Soil			
Our Reference:	UNITS	19257-22	19257-39
Your Reference		090508-185	090508-208
		-KW	-KW
Date Sampled		9/05/2008	9/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	SO
Time Sampled		00:00	00:00
Date analysed	-	14/05/2008	14/05/2008
Date Extracted	-	15/05/2008	15/05/2008
Dicamba	mg/kg	<0.1	<0.1
MCPA	mg/kg	<0.1	<0.1
Dichlorprop	mg/kg	<0.1	<0.1
2,4-D	mg/kg	<0.1	<0.1
2,4,5-T	mg/kg	<0.1	<0.1
2,4,5-TP	mg/kg	<0.1	<0.1
2,4-DB	mg/kg	<0.1	<0.1
MCPP	mg/kg	<0.1	<0.1
Triclopyr	mg/kg	<0.1	<0.1



\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		
VOC's in water Our Reference:	UNITS	19257-48
Your Reference		090508-500
. 33 1 (3.6. 5)5		-KW
Date Sampled		9/05/2008
Type of sample		Water
Sample Matrix Code Time Sampled		WG 00:00
Date extracted	-	18/05/2008
Date analysed	-	18/05/2008
Dichlorodifluoromethane	μg/L	<10
Chloromethane	μg/L	<10
Vinyl Chloride	μg/L	<10
Bromomethane	μg/L	<10
Chloroethane	μg/L	<10
Trichlorofluoromethane	μg/L	<10
1,1-Dichloroethene	μg/L	<1.0
Trans-1,2-dichloroethene	μg/L	<1.0
1,1-dichloroethane	μg/L	<1.0
Cis-1,2-dichloroethene	μg/L	<1.0
Bromochloromethane	μg/L	<1.0
Chloroform	μg/L	<1.0
2,2-dichloropropane	μg/L	<1.0
1,2-dichloroethane	μg/L	<1.0
1,1,1-trichloroethane	μg/L	<1.0
1,1-dichloropropene	μg/L	<1.0
Carbon tetrachloride	μg/L	<1.0
Benzene	μg/L	<1.0
Dibromomethane	μg/L	<1.0
1,2-dichloropropane	μg/L	<1.0
Trichloroethene	μg/L	<1.0
Bromodichloromethane	μg/L	<1.0
trans-1,3-dichloropropene	μg/L	<1.0
cis-1,3-dichloropropene	μg/L	<1.0
1,1,2-trichloroethane	μg/L	<1.0
Toluene	μg/L	<1.0
1,3-dichloropropane	μg/L	<1.0
Dibromochloromethane	μg/L	<1.0
1,2-dibromoethane	μg/L	<1.0
Tetrachloroethene	μg/L	<1.0
1,1,1,2-tetrachloroethane	μg/L	<1.0
Chlorobenzene	μg/L	<1.0
Ethylbenzene	μg/L	<1.0
Bromoform	μg/L	<1.0
m+p-xylene	μg/L	<2.0



VOC's in water Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19257-48 090508-500 -KW 9/05/2008 Water WG 00:00
Styrene	μg/L	<1.0
1,1,2,2-tetrachloroethane	μg/L	<1.0
o-xylene	μg/L	<1.0
1,2,3-trichloropropane*	μg/L	<1.0
Isopropylbenzene	μg/L	<1.0
Bromobenzene	μg/L	<1.0
n-propyl benzene	μg/L	<1.0
2-chlorotoluene	μg/L	<1.0
4-chlorotoluene	μg/L	<1.0
1,3,5-trimethyl benzene	μg/L	<1.0
Tert-butyl benzene	μg/L	<1.0
1,2,4-trimethyl benzene	μg/L	<1.0
1,3-dichlorobenzene	μg/L	<1.0
Sec-butyl benzene	μg/L	<1.0
1,4-dichlorobenzene	μg/L	<1.0
4-isopropyl toluene	μg/L	<1.0
1,2-dichlorobenzene	μg/L	<1.0
n-butyl benzene	μg/L	<1.0
1,2-dibromo-3-chloropropane	μg/L	<1.0
1,2,4-trichlorobenzene	μg/L	<1.0
Hexachlorobutadiene	μg/L	<1.0
1,2,3-trichlorobenzene	μg/L	<1.0
Surrogate Dibromofluoromethane	%	76
Surrogate toluene-d8	%	88
Surrogate 4-BFB	%	76



vTPH & BTEX in Water		
Our Reference:	UNITS	19257-48
Your Reference		090508-500 -KW
Date Sampled		9/05/2008
Type of sample		Water
Sample Matrix Code		WG
Time Sampled		00:00
Date extracted	-	18/05/2008
Date analysed	-	18/05/2008
TPH C6 - C9	μg/L	<10
Benzene	μg/L	<1.0
Toluene	μg/L	<1.0
Ethylbenzene	μg/L	<1.0
m+p-xylene	μg/L	<2.0
o-xylene	μg/L	<1.0
Surrogate Dibromofluoromethane	%	76
Surrogate toluene-d8	%	88
Surrogate 4-BFB	%	76



sTPH in Water (C10-C36)		
Our Reference:	UNITS	19257-48
Your Reference		090508-500 -KW
Date Sampled		9/05/2008
Type of sample Sample Matrix Code Time Sampled		Water WG 00:00
Date extracted	-	16/05/2008
Date analysed	-	16/05/2008
TPH C10 - C14	μg/L	<50
TPH C <sub>15</sub> - C <sub>28</sub>	μg/L	<100
TPH C29 - C36	μg/L	<100
Surrogate o-Terphenyl	%	92



PAHs in Water		
Our Reference:	UNITS	19257-48
Your Reference		090508-500
		-KW
Date Sampled		9/05/2008
Type of sample		Water WG
Sample Matrix Code Time Sampled		00:00
Date extracted	-	16/05/2008
Date analysed	-	17/05/2008
Naphthalene	μg/L	<1
Acenaphthylene	μg/L	<1
Acenaphthene	μg/L	<1
Fluorene	μg/L	<1
Phenanthrene	μg/L	<1
Anthracene	μg/L	<1
Fluoranthene	μg/L	<1
Pyrene	μg/L	<1
Benzo(a)anthracene	μg/L	<1
Chrysene	μg/L	<1
Benzo(b+k)fluoranthene	μg/L	<2
Benzo(a)pyrene	μg/L	<1
Dibenzo(a,h)anthracene	μg/L	<1
Indeno(1,2,3-c,d)pyrene	μg/L	<1
Benzo(g,h,i)perylene	μg/L	<1
Surrogate p-Terphenyl-d14	%	117



Total Phenolics in Water		
Our Reference:	UNITS	19257-48
Your Reference		090508-500
		-KW
Date Sampled		9/05/2008
Type of sample		Water
Sample Matrix Code		WG
Time Sampled		00:00
Date extracted	-	19/05/2008
Date analysed	-	20/05/2008
Total Phenolics (as Phenol)	mg/L	<0.050



UNITS	10057.10
UNITS	40057.40
	19257-48
	090508-500
	-KW
	9/05/2008
	Water
	WG
	00:00
-	19/05/2008
-	20/05/2008
μg/L	<1.0
μg/L	<0.10
μg/L	<1.0
μg/L	<1.0
μg/L	<1.0
μg/L	<0.50
μg/L	<1.0
μg/L	5.5
	µg/L µg/L µg/L µg/L µg/L



Method ID	Methodology Summary
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP- AES	Determination of various metals by ICP-AES.
Metals.21 CV- AAS	Determination of Mercury by Cold Vapour AAS.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
LAB.55	Nitrate water extractable - determined colourimetrically based on EPA114A.
LAB.56	Nitrite water extractable - determined colourimetrically based on EPA116A.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
LAB.66	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
GC.13	Water samples are analysed directly by purge and trap GC-MS.
Metals.22 ICP- MS	Determination of various metals by ICP-MS.



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOC's in soil						Base II Duplicate II %RPD		recovery
Date extracted	-			16/5/08	19257-34	16/05/2008    16/05/2008	LCS-1	16/5/08%
Date analysed	-			17/5/08	19257-34	17/05/2008    17/05/2008	LCS-1	17/5/08%
Dichlorodifluoromethane	mg/kg	10	GC.14	<10	19257-34	<10    <10	[NR]	[NR]
Chloromethane	mg/kg	10	GC.14	<10	19257-34	<10    <10	[NR]	[NR]
Vinyl Chloride	mg/kg	10	GC.14	<10	19257-34	<10    <10	[NR]	[NR]
Bromomethane	mg/kg	10	GC.14	<10	19257-34	<10    <10	[NR]	[NR]
Chloroethane	mg/kg	10	GC.14	<10	19257-34	<10    <10	[NR]	[NR]
Trichlorofluoromethane	mg/kg	10	GC.14	<10	19257-34	<10    <10	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	LCS-1	95%
cis-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
bromochloromethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
chloroform	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	LCS-1	86%
2,2-dichloropropane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	LCS-1	90%
1,1,1-trichloroethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	LCS-1	85%
1,1-dichloropropene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
carbon tetrachloride	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
Benzene	mg/kg	0.5	GC.14	<0.5	19257-34	<0.5    <0.5	[NR]	[NR]
dibromomethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
trichloroethene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	LCS-1	113%
bromodichloromethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	LCS-1	106%
trans-1,3- dichloropropene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
Toluene	mg/kg	0.5	GC.14	<0.5	19257-34	<0.5    <0.5	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
dibromochloromethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	LCS-1	106%
1,2-dibromoethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
tetrachloroethene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	LCS-1	108%
1,1,1,2- tetrachloroethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
chlorobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
Ethylbenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
bromoform	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
m+p-xylene	mg/kg	2	GC.14	<2.0	19257-34	<2.0    <2.0	[NR]	[NR]
styrene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,1,2,2- tetrachloroethane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
o-Xylene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOC's in soil						Base II Duplicate II %RPD		
1,2,3-trichloropropane*	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
isopropylbenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
bromobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
n-propyl benzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
2-chlorotoluene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
4-chlorotoluene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
tert-butyl benzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
sec-butyl benzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
n-butyl benzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,2-dibromo-3- chloropropane	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	GC.14	<1.0	19257-34	<1.0    <1.0	[NR]	[NR]
Surrogate Dibromofluorometha	%		GC.14	87	19257-34	83    90    RPD: 8	LCS-1	85%
Surrogate aaa- Trifluorotoluene	%		GC.14	89	19257-34	95    87    RPD: 9	LCS-1	107%
Surrogate Toluene-d8	%		GC.14	94	19257-34	91    93    RPD: 2	LCS-1	93%
Surrogate 4- Bromofluorobenzene	%		GC.14	83	19257-34	80    79    RPD: 1	LCS-1	77%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTPH & BTEX in Soil					Jiii#	Base II Duplicate II %RPD		Necovery
Date extracted	-			[NT]	19257-3	16/05/2008    16/05/2008	LCS-1	16/5/08%
Date analysed	-			[NT]	19257-3	16/05/2008    16/05/2008	LCS-1	16/5/08%
vTPH C6 - C9	mg/kg	25	GC.16	<25	19257-3	<25    <25	LCS-1	121%
Benzene	mg/kg	0.5	GC.14	<0.5	19257-3	<0.5    <0.5	LCS-1	125%
Toluene	mg/kg	0.5	GC.14	<0.5	19257-3	<0.5    <0.5	LCS-1	130%
Ethylbenzene	mg/kg	1	GC.14	<1.0	19257-3	<1.0    <1.0	LCS-1	122%
m+p-xylene	mg/kg	2	GC.14	<2.0	19257-3	<2.0    <2.0	LCS-1	135%
o-Xylene	mg/kg	1	GC.14	<1.0	19257-3	<1.0    <1.0	LCS-1	140%
Surrogate aaa- Trifluorotoluene	%		GC.14	[NT]	19257-3	125    96    RPD: 26	LCS-1	90%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTPH in Soil (C10-C36)						Base II Duplicate II %RPD		-
Date extracted	-			16/5/08	19257-3	16/05/2008    16/05/2008	LCS-1	16/5/08%
Date analysed	-			16/5/08	19257-3	16/05/2008    16/05/2008	LCS-1	16/5/08%
TPH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	GC.3	<50	19257-3	<50    <50	LCS-1	87%
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	GC.3	<100	19257-3	<100    <100	LCS-1	83%
TPH C29 - C36	mg/kg	100	GC.3	<100	19257-3	<100    <100	LCS-1	96%
Surrogate o-Terphenyl	%	501	GC.3	94	19257-3	85    86    RPD: 1	LCS-1	92%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			16/5/08	19257-3	16/05/2008    16/05/2008	LCS-1	16/5/08%
Date analysed	-			17/5/08	19257-3	17/05/2008    17/05/2008	LCS-1	17/5/08%
Naphthalene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	LCS-1	109%
Acenaphthylene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	LCS-1	108%
Phenanthrene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	LCS-1	105%
Anthracene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	LCS-1	109%
Pyrene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	LCS-1	112%
Benzo(a)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	LCS-1	114%
Benzo(b+k)fluoranthene	mg/kg	0.2	GC.12 subset	<0.2	19257-3	<0.2    <0.2	[NR]	[NR]



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
PAHs in Soil					Sm#	Page II Duplicate II 9/ PPD		Recovery
PAHS IN SOII						Base II Duplicate II %RPD		
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	19257-3	<0.05    <0.05	LCS-1	109%
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	19257-3	<0.1    <0.1	[NR]	[NR]
Surrogate p-Terphenyl- d <sub>14</sub>	%		GC.12 subset	113	19257-3	106    105    RPD: 1	LCS-1	110%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Organochlorine Pesticides in soil						Base II Duplicate II %RPD		Recovery
Date extracted	-			16/5/08	19257-22	16/05/2008    16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19257-22	16/05/2008    16/05/2008	LCS-3	16/5/08%
HCB	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	LCS-3	91%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	LCS-3	106%
Heptachlor	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	LCS-3	101%
delta-BHC	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	LCS-3	98%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	LCS-3	100%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	LCS-3	103%
Dieldrin	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	LCS-3	103%
Endrin	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	LCS-3	94%
pp-DDD	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	LCS-3	107%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	LCS-3	100%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	81	19257-22	83    77    RPD: 8	LCS-3	84%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
Organophosphorus Pesticides					Sm#	Base II Duplicate II %RPD		Recovery
Date extracted	-			16/5/08	19257-22	16/05/2008    16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19257-22	16/05/2008    16/05/2008	LCS-3	16/5/08%
Diazinon	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1    <0.1	LCS-3	100%
Fenitrothion	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1    <0.1	LCS-3	91%
Bromophos-ethyl	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	GC.8	<0.1	19257-22	<0.1    <0.1	LCS-3	122%
Surrogate TCLMX	%		GC.8	81	19257-22	83    77    RPD: 8	LCS-3	88%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	-			16/5/08	19257-22	16/05/2008    16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19257-22	16/05/2008    16/05/2008	LCS-3	16/5/08%
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	19257-22	<0.1    <0.1	LCS-3	95%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	19257-22	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	81	19257-22	83    77    RPD: 8	LCS-3	130%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			16/5/08	[NT]	[NT]	LCS-1	16/5/08%
Date analysed	-			19/5/08	[NT]	[NT]	LCS-1	19/5/08%
Total Phenolics (as Phenol)	mg/kg	5	LAB.30	<5.0	[NT]	[NT]	LCS-1	112%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			19/5/08	19257-2	19/05/2008    19/05/2008	LCS-5	19/5/08%
Date analysed	-			20/5/08	19257-2	20/05/2008    20/05/2008	LCS-5	20/5/08%
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4.0	19257-2	6.2    6.4    RPD: 3	LCS-5	94%
Cadmium	mg/kg	1	Metals.20 ICP-AES	<1.0	19257-2	<1.0    <1.0	LCS-5	100%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1.0	19257-2	2.1    2.2    RPD: 5	LCS-5	100%
Copper	mg/kg	1	Metals.20 ICP-AES	<1.0	19257-2	3.6    3.7    RPD: 3	LCS-5	102%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
QUALITY OUTTION	0.1110			Didiik	Sm#	Dupiloute leadite	Spino Ollin	Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	19257-2	14    14    RPD: 0	LCS-5	97%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.10	19257-2	0.28    0.27    RPD: 4	LCS-5	114%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1.0	19257-2	<1.0    <1.0	LCS-5	99%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1.0	19257-2	11    14    RPD: 24	LCS-5	98%
Phosphorus	mg/kg	10	Metals.20 ICP-AES	<10	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorg - soil						Base II Duplicate II %RPD		,
Ammonia as N in soil	mg/kg	0.5	LAB.57	<0.5	[NT]	[NT]	LCS-1	101%
Nitrate as N in soil	mg/kg	0.5	LAB.55	<0.5	[NT]	[NT]	LCS-1	93%
Nitrite as N in soil	mg/kg	0.1	LAB.56	<0.1	[NT]	[NT]	LCS-1	100%
Total Kjeldahl Nitrogen	mg/kg	30	Ext-020	<30	[NT]	[NT]	LCS-1	116%
Total Nitrogen in soil	mg/kg	10	LAB.66	<10	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results		
Moisture						Base II Duplicate II %RPD		
Date prepared	-			16/5/08	19257-3	16/05/2008    16/05/2008	-	
Date analysed	-			16/5/08	19257-3	16/05/2008    16/05/2008		
Moisture	%	0.1	LAB.8	<0.10	19257-3	6.1    6.1    RPD: 0		
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Herbicides in Soil						Base II Duplicate II %RPD		
Dicamba	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	102%
MCPA	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	103%
Dichlorprop	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	101%
2,4-D	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	105%
2,4,5-T	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	101%
2,4,5-TP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	115%
2,4-DB	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	105%
MCPP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	103%
Triclopyr	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	104%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOC's in water					Giii.ii	Base II Duplicate II %RPD		Recovery
Date extracted	-			18/5/08	[NT]	[NT]	LCS-W1	18/5/08%
Date analysed	-			18/5/08	[NT]	[NT]	LCS-W1	18/5/08%
Dichlorodifluoromethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trans-1,2- dichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	86%
Cis-1,2-dichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chloroform	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	87%
2,2-dichloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	88%
1,1,1-trichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	87%
1,1-dichloropropene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromomethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	114%
Bromodichloromethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	100%
trans-1,3- dichloropropene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Toluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	97%
1,2-dibromoethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	95%
1,1,1,2- tetrachloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromoform	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
m+p-xylene	μg/L	2	GC.13	<2.0	[NT]	[NT]	[NR]	[NR]
Styrene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2,2- tetrachloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]



QUALITY CONTROL  VOC's in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results  Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
o-xylene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3- chloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		GC.13	75	[NT]	[NT]	LCS-W1	100%
Surrogate toluene-d8	%		GC.13	108	[NT]	[NT]	LCS-W1	110%
Surrogate 4-BFB	%		GC.13	96	[NT]	[NT]	LCS-W1	96%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTPH & BTEX in Water					<b>5</b> 11111	Base II Duplicate II %RPD		nocorony
Date extracted	-			18/5/08	[NT]	[NT]	LCS-W1	18/5/08%
Date analysed	-			18/5/08	[NT]	[NT]	LCS-W1	18/5/08%
TPH C6 - C9	μg/L	10	GC.16	<10	[NT]	[NT]	LCS-W1	101%
Benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	96%
Toluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	118%
Ethylbenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	111%
m+p-xylene	μg/L	2	GC.13	<2.0	[NT]	[NT]	LCS-W1	110%
o-xylene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	109%
Surrogate Dibromofluoromethane	%		GC.13	75	[NT]	[NT]	LCS-W1	79%
Surrogate toluene-d8	%		GC.13	108	[NT]	[NT]	LCS-W1	103%
Surrogate 4-BFB	%		GC.13	96	[NT]	[NT]	LCS-W1	97%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTPH in Water (C10-C36)						Base II Duplicate II %RPD		
Date extracted	-			16/5/08	[NT]	[NT]	LCS-W1	16/5/08%
Date analysed	-			16/5/08	[NT]	[NT]	LCS-W1	16/5/08%
TPH C <sub>10</sub> - C <sub>14</sub>	μg/L	50	GC.3	<50	[NT]	[NT]	LCS-W1	84%
TPH C <sub>15</sub> - C <sub>28</sub>	μg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	92%
TPH C29 - C36	μg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	102%
Surrogate o-Terphenyl	%		GC.3	105	[NT]	[NT]	LCS-W1	108%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	-			[NT]	[NT]	[NT]	LCS-W2	16/5/08%
Date analysed	-			[NT]	[NT]	[NT]	LCS-W2	17/5/08%
Naphthalene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	91%
Acenaphthylene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	89%
Phenanthrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	89%
Anthracene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	85%
Pyrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	88%
Benzo(a)anthracene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	92%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Benzo(b+k)fluoranthene	μg/L	2	GC.12 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W2	70%
Dibenzo(a,h)anthracene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl- d <sub>14</sub>	%		GC.12 subset	[NT]	[NT]	[NT]	LCS-W2	108%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Total Phenolics in Water						Base II Duplicate II %RPD		Recovery
Date extracted	-			19/5/08	[NT]	[NT]	LCS-W1	19/5/08%
Date analysed	-			20/5/08	[NT]	[NT]	LCS-W1	20/5/08%
Total Phenolics (as Phenol)	mg/L	0.05	LAB.30	<0.050	[NT]	[NT]	LCS-W1	120%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
HM in water - total						Base II Duplicate II %RPD		Recovery
Date prepared	-			19/5/08	[NT]	[NT]	LCS-W1	19/5/08%
Date analysed	-			20/5/08	[NT]	[NT]	LCS-W1	20/5/08%
Arsenic-Total	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	94%
Cadmium-Total	μg/L	0.1	Metals.22 ICP-MS	<0.10	[NT]	[NT]	LCS-W1	97%
Chromium-Total	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	100%
Copper-Total	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	97%
Lead-Total	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	96%
Mercury-Total	μg/L	0.5	Metals.21 CV-AAS	<0.50	[NT]	[NT]	LCS-W1	99%
Nickel-Total	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	98%
Zinc-Total	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	99%



QUALITY CONTROL VOC's in soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19257-7	16/5/08%
Date analysed	-	[NT]	[NT]	19257-7	17/5/08%
Dichlorodifluoromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Chloromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	mg/kg	[NT]	[NT]	[NR]	[NR]
Bromomethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Chloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	mg/kg	[NT]	[NT]	19257-7	106%
cis-1,2-dichloroethene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromochloromethane	mg/kg	[NT]	[NT]	[NR]	[NR]
chloroform	mg/kg	[NT]	[NT]	19257-7	92%
2,2-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	mg/kg	[NT]	[NT]	19257-7	96%
1,1,1-trichloroethane	mg/kg	[NT]	[NT]	19257-7	91%
1,1-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
carbon tetrachloride	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
dibromomethane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
trichloroethene	mg/kg	[NT]	[NT]	19257-7	118%
bromodichloromethane	mg/kg	[NT]	[NT]	19257-7	108%
trans-1,3-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
Toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
dibromochloromethane	mg/kg	[NT]	[NT]	19257-7	108%
1,2-dibromoethane	mg/kg	[NT]	[NT]	[NR]	[NR]
tetrachloroethene	mg/kg	[NT]	[NT]	19257-7	116%
1,1,1,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromoform	mg/kg	[NT]	[NT]	[NR]	[NR]
m+p-xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
styrene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]



QUALITY CONTROL VOC's in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
o-Xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	mg/kg	[NT]	[NT]	[NR]	[NR]
isopropylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
tert-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
sec-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3- chloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
hexachlorobutadiene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%	[NT]	[NT]	19257-7	84%
Surrogate aaa- Trifluorotoluene	%	[NT]	[NT]	19257-7	108%
Surrogate Toluene-d8	%	[NT]	[NT]	19257-7	94%
Surrogate 4- Bromofluorobenzene	%	[NT]	[NT]	19257-7	78%



QUALITY CONTROL vTPH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recover
Date extracted	-	19257-34	16/05/2008    16/05/2008	19257-7	16/5/08%
Date analysed	-	19257-34	16/05/2008    16/05/2008	19257-7	16/5/08%
vTPH C6 - C9	mg/kg	19257-34	<25    <25	19257-7	125%
Benzene	mg/kg	19257-34	<0.5    <0.5	19257-7	125%
Toluene	mg/kg	19257-34	<0.5    <0.5	19257-7	133%
Ethylbenzene	mg/kg	19257-34	<1.0    <1.0	19257-7	123%
m+p-xylene	mg/kg	19257-34	<2.0    <2.0	19257-7	133%
o-Xylene	mg/kg	19257-34	<1.0    <1.0	19257-7	135%
Surrogate aaa- Trifluorotoluene	%	19257-34	95    87    RPD: 9	19257-7	103%
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19257-37	16/05/2008    16/05/2008	19257-12	16/5/08%
Date analysed	-	19257-37	16/05/2008    16/05/2008	19257-12	16/5/08%
TPH C10 - C14	mg/kg	19257-37	<50    <50	19257-12	88%
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	19257-37	<100    <100	19257-12	84%
TPH C29 - C36	mg/kg	19257-37	<100    <100	19257-12	96%
Surrogate o-Terphenyl	%	19257-37	92    94    RPD: 2	19257-12	92%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	19257-37	16/05/2008    16/05/2008	19257-12	16/5/08%
Date analysed	-	19257-37	17/05/2008    17/05/2008	19257-12	17/5/08%
Naphthalene	mg/kg	19257-37	<0.1    <0.1	19257-12	110%
Acenaphthylene	mg/kg	19257-37	<0.1    <0.1	[NR]	[NR]
Acenaphthene	mg/kg	19257-37	<0.1    <0.1	[NR]	[NR]
Fluorene	mg/kg	19257-37	<0.1    <0.1	19257-12	105%
Phenanthrene	mg/kg	19257-37	<0.1    0.3	19257-12	107%
Anthracene	mg/kg	19257-37	<0.1    <0.1	[NR]	[NR]
Fluoranthene	mg/kg	19257-37	0.1    0.3    RPD: 100	19257-12	109%
Pyrene	mg/kg	19257-37	0.1    0.5    RPD: 133	19257-12	113%
Benzo(a)anthracene	mg/kg	19257-37	<0.1    0.2	[NR]	[NR]
Chrysene	mg/kg	19257-37	<0.1    0.2	19257-12	113%
Benzo(b+k)fluoranthene	mg/kg	19257-37	<0.2    0.3	[NR]	[NR]
Benzo(a)pyrene	mg/kg	19257-37	0.1    0.2    RPD: 67	19257-12	109%
Dibenzo(a,h)anthracene	mg/kg	19257-37	<0.1    <0.1	[NR]	[NR]
ndeno(1,2,3-c,d)pyrene	mg/kg	19257-37	<0.1    0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	19257-37	<0.1    0.1	[NR]	[NR]
Surrogate p-Terphenyl-	%	19257-37	108    108    RPD: 0	19257-12	103%



QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19257-31	16/5/08%
Date analysed	-	[NT]	[NT]	19257-31	16/5/08%
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	19257-31	95%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	19257-31	105%
Heptachlor	mg/kg	[NT]	[NT]	19257-31	108%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	19257-31	105%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	19257-31	100%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	19257-31	99%
Dieldrin	mg/kg	[NT]	[NT]	19257-31	102%
Endrin	mg/kg	[NT]	[NT]	19257-31	94%
pp-DDD	mg/kg	[NT]	[NT]	19257-31	103%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	19257-31	100%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19257-31	86%



QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19257-31	16/5/08%
Date analysed	-	[NT]	[NT]	19257-31	16/5/08%
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	19257-31	97%
Fenitrothion	mg/kg	[NT]	[NT]	19257-31	88%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	19257-31	123%
Surrogate TCLMX	%	[NT]	[NT]	19257-31	85%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19257-31	16/5/08%
Date analysed	-	[NT]	[NT]	19257-31	16/5/08%
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	19257-31	81%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19257-31	127%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19257-29	19/05/2008    19/05/2008	LCS-6	19/5/08%
Date analysed	-	19257-29	20/05/2008    20/05/2008	LCS-6	20/5/08%
Arsenic	mg/kg	19257-29	8.0    7.8    RPD: 3	LCS-6	95%
Cadmium	mg/kg	19257-29	<1.0    <1.0	LCS-6	100%
Chromium	mg/kg	19257-29	3.6    4.0    RPD: 11	LCS-6	101%
Copper	mg/kg	19257-29	<1.0    1.5	LCS-6	103%
Lead	mg/kg	19257-29	1.7    1.9    RPD: 11	LCS-6	98%
Mercury	mg/kg	19257-29	<0.10    <0.10	LCS-6	114%
Nickel	mg/kg	19257-29	1.6    1.4    RPD: 13	LCS-6	100%
Zinc	mg/kg	19257-29	1.4    1.4    RPD: 0	LCS-6	99%
Phosphorus	mg/kg	[NT]	[NT]	LCS-6	88%



QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate		
Moisture			Base + Duplicate + %RPD		
Date prepared	-	19257-2	16/05/2008    16/05/2008		
Date analysed	-	19257-2	16/05/2008    16/05/2008		
Moisture	%	19257-2	6.6    6.6    RPD: 0		
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
Total Phenolics in Water			Base + Duplicate + %RPD		
Date extracted	-	[NT]	[NT]	19257-48	19/5/08%
Date analysed	-	[NT]	[NT]	19257-48	20/5/08%
Total Phenolics (as Phenol)	mg/L	[NT]	[NT]	19257-48	98%
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
Acid Extractable metals in			Base + Duplicate + %RPD		
soil					
Date digested	-	[NT]	[NT]	19257-3	195/08%
Date analysed	-	[NT]	[NT]	19257-3	20/5/08%
Arsenic	mg/kg	[NT]	[NT]	19257-3	96%
Cadmium	mg/kg	[NT]	[NT]	19257-3	96%
Chromium	mg/kg	[NT]	[NT]	19257-3	100%
Copper	mg/kg	[NT]	[NT]	19257-3	103%
Lead	mg/kg	[NT]	[NT]	19257-3	89%
Mercury	mg/kg	[NT]	[NT]	19257-3	103%
Nickel	mg/kg	[NT]	[NT]	19257-3	98%
Zinc	mg/kg	[NT]	[NT]	19257-3	96%
Phosphorus	mg/kg	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate		
Moisture			Base + Duplicate + %RPD		
Date prepared	-	19257-22	16/05/2008    16/05/2008		
Date analysed	-	19257-22	16/05/2008    16/05/2008		
Moisture	%	19257-22	5.4    5.4    RPD: 0		
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate		
Moisture			Base + Duplicate + %RPD		
Date prepared	-	19257-34	16/05/2008    16/05/2008		
Date analysed	-	19257-34	16/05/2008    16/05/2008		
Moisture	%	19257-34	19    19    RPD: 0		
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate		
Moisture			Base + Duplicate + %RPD		
Date prepared	-	19257-37	16/05/2008    16/05/2008		
Date analysed	_	19257-37	16/05/2008    16/05/2008		
Moisture	%	19257-37	4.5    4.5    RPD: 0		
		l .			



#### **Report Comments:**

Herbicides and TKN analysed by NMI: Report Number - RN680473.

Asbestos was analysed by Approved Identifier: Not applicable for this job

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

NR: Not requested <: Less than >: Greater than

#### **Quality Control Definitions**

**Blank**: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. **Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample

selected should be one where the analyte concentration is easily measurable.

**Matrix Spike**: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist. **LCS (Laboratory Control Sample)**: This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

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

#### **Laboratory Acceptance Criteria:**

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for

SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for

SVOC and speciated phenols.





**Envirolab Services Pty Ltd** 

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Chemist

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# **CERTIFICATE OF ANALYSIS 19282**

Client:

**Consulting Earth Scientists** 

Suite 121. 26-32 Pirrama Rd **Pyrmont** NSW 2009

Attention: Luke Jenkins / Kelly Weir

Sample log in details:

Your Reference: CES050706-BCC Area A

No. of samples: 64 Soils, 3 Materials

13/05/08 Date samples received: Date completed instructions received: 13/05/08

**Analysis Details:** 

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

**Report Details:** 

Date results requested by: 22/05/08 Date of Preliminary Report: Not Issued 26/05/08 Issue Date:

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**Results Approved By:** 

Revision No:

Business Development & Quality Manager

Envirolab Reference: 19282 Page 1 of 40

VOC's in soil					
Our Reference:	UNITS	19282-8	19282-17	19282-54	19282-62
Your Reference		120508-219 -KW	120508-228 -KW	120508-267 -KW	Trip Blank
Date Sampled		12/05/2008	12/05/2008	12/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	18/05/2008	18/05/2008	18/05/2008	18/05/2008
Dichlorodifluoromethane	mg/kg	<10	<10	<10	<10
Chloromethane	mg/kg	<10	<10	<10	<10
Vinyl Chloride	mg/kg	<10	<10	<10	<10
Bromomethane	mg/kg	<10	<10	<10	<10
Chloroethane	mg/kg	<10	<10	<10	<10
Trichlorofluoromethane	mg/kg	<10	<10	<10	<10
1,1-Dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
trans-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
cis-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0
chloroform	mg/kg	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0
carbon tetrachloride	mg/kg	<1.0	<1.0	<1.0	<1.0
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5
dibromomethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
trichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromodichloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
dibromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	mg/kg	<1.0	<1.0	<1.0	<1.0
tetrachloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
chlorobenzene		<1.0	<1.0	<1.0	<1.0
		<1.0	<1.0	<1.0	<1.0
bromoform		<1.0	<1.0	<1.0	<1.0
m+p-xylene		<2.0	<2.0	<2.0	<2.0
tetrachloroethene 1,1,1,2-tetrachloroethane chlorobenzene Ethylbenzene bromoform	mg/kg	<1.0 <1.0 <1.0 <1.0 <1.0	<1.0 <1.0 <1.0 <1.0 <1.0	<1.0 <1.0 <1.0 <1.0 <1.0	<1.0 <1.0 <1.0 <1.0 <1.0



VOC's in soil Our Reference: Your Reference	UNITS	19282-8 120508-219	19282-17 120508-228	19282-54 120508-267	19282-62 Trip Blank
Date Sampled Type of sample Sample Matrix Code Time Sampled		-KW 12/05/2008 Soil SO 00:00	-KW 12/05/2008 Soil SO 00:00	-KW 12/05/2008 Soil SO 00:00	13/05/2008 Soil SO 00:00
styrene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	mg/kg	<1.0	<1.0	<1.0	<1.0
isopropylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
tert-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
sec-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
hexachlorobutadiene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluorometha	%	68	69	83	90
Surrogate aaa-Trifluorotoluene	%	107	99	88	90
Surrogate Toluene-da	%	89	91	94	96
Surrogate 4-Bromofluorobenzene	%	79	78	79	77



vTPH & BTEX in Soil						
Our Reference:	UNITS	19282-16	19282-17	19282-24	19282-32	19282-33
Your Reference		120508-227 -KW	120508-228 -KW	120508-236 -KW	120508-244 -KW	120508-245 -KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample Sample Matrix Code Time Sampled		Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
vTPH C6 - C9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	94	99	88	85	89

vTPH & BTEX in Soil						
Our Reference:	UNITS	19282-34	19282-37	19282-40	19282-43	19282-46
Your Reference		120508-246	120508-249	120508-252	120508-255	120508-258
		-KW	-KW	-KW	-KW	-KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
vTPH C6 - C9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	93	102	98	87	101



vTPH & BTEX in Soil Our Reference:	UNITS	19282-47	19282-62	19282-63
Your Reference		120508-259 -KW	Trip Blank	Trip Spike 1
Date Sampled		12/05/2008	13/05/2008	13/05/2008
Type of sample Sample Matrix Code Time Sampled		Soil SO 00:00	Soil SO 00:00	Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008
vTPH C6 - C9	mg/kg	<25	<25	[NA]
Benzene	mg/kg	<0.5	<0.5	76%
Toluene	mg/kg	<0.5	<0.5	73%
Ethylbenzene	mg/kg	<1.0	<1.0	84%
m+p-xylene	mg/kg	<2.0	<2.0	98%
o-Xylene	mg/kg	<1.0	<1.0	117%
Surrogate aaa-Trifluorotoluene	%	91	90	101



sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19282-16	19282-17	19282-24	19282-32	19282-33
Your Reference		120508-227	120508-228	120508-236	120508-244	120508-245
		-KW	-KW	-KW	-KW	-KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	17/05/2008	17/05/2008	17/05/2008
TPH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	100	97	98	94	93

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19282-34	19282-37	19282-40	19282-43	19282-46
Your Reference		120508-246 -KW	120508-249 -KW	120508-252 -KW	120508-255 -KW	120508-258 -KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
TPH C10 - C14	mg/kg	<50	<50	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	95	98	95	93	92

sTPH in Soil (C10-C36)		
Our Reference:	UNITS	19282-47
Your Reference		120508-259
		-KW
Date Sampled		12/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date extracted	-	16/05/2008
Date analysed	-	17/05/2008
TPH C10 - C14	mg/kg	<50
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100
TPH C29 - C36	mg/kg	<100
Surrogate o-Terphenyl	%	92



PAHs in Soil						
Our Reference:	UNITS	19282-2	19282-7	19282-8	19282-9	19282-10
Your Reference		120508-212 -KW	120508-218 -KW	120508-219 -KW	120508-220 -KW	120508-221 -KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO 00:00	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	0.3
Pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	0.3
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Chrysene	mg/kg	<0.1	<0.1	0.1	<0.1	0.2
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.4
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.08	<0.05	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Surrogate p-Terphenyl-d <sub>14</sub>	%	93	114	117	108	112



PAHs in Soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19282-32 120508-244 -KW 12/05/2008 Soil SO 00:00	19282-33 120508-245 -KW 12/05/2008 Soil SO 00:00	19282-34 120508-246 -KW 12/05/2008 Soil SO 00:00	19282-40 120508-252 -KW 12/05/2008 Soil SO 00:00	19282-43 120508-255 -KW 12/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.09	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d <sub>14</sub>	%	114	110	109	111	112



PAHs in Soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19282-46 120508-258 -KW 12/05/2008 Soil SO 00:00	19282-47 120508-259 -KW 12/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Surrogate p-Terphenyl-d <sub>14</sub>	%	111	112



Organochlorine Pesticides in soil						
Our Reference:	UNITS	19282-4	19282-12	19282-15	19282-20	19282-23
Your Reference		120508-214 -KW	120508-223 -KW	120508-226 -KW	120508-232 -KW	120508-235 -KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code Time Sampled		SO 00:00	SO 00:00	SO 00:00	SO 00:00	SO 00:00
<u> </u>						
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	7.0	70	73	73	73



Organochlorine Pesticides in soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19282-31 120508-243 -KW 12/05/2008 Soil SO 00:00	19282-36 120508-248 -KW 12/05/2008 Soil SO 00:00	19282-39 120508-251 -KW 12/05/2008 Soil SO 00:00	19282-45 120508-257 -KW 12/05/2008 Soil SO 00:00	19282-67 120508-275 -KW 12/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	73	71	71	75	76



Organophosphorus Pesticides						
Our Reference:	UNITS	19282-4	19282-12	19282-15	19282-20	19282-23
Your Reference		120508-214	120508-223	120508-226	120508-232	120508-235
		-KW	-KW	-KW	-KW	-KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	73	70	73	73	73

Organophosphorus Pesticides						
Our Reference:	UNITS	19282-31	19282-36	19282-39	19282-45	19282-67
Your Reference		120508-243	120508-248	120508-251	120508-257	120508-275
		-KW	-KW	-KW	-KW	-KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	73	71	71	75	76



PCBs in Soil						
Our Reference:	UNITS	19282-4	19282-12	19282-15	19282-20	19282-23
Your Reference		120508-214	120508-223	120508-226	120508-232	120508-235
		-KW	-KW	-KW	-KW	-KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample Sample Matrix Code		Soil SO	Soil SO	Soil SO	Soil SO	Soil SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	_	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed		16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
·	-					
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	73	70	73	73	73
		T				
PCBs in Soil	LINUTO	40000 04	40000.00	40000 00	40000 45	40000 07
Our Reference: Your Reference	UNITS	19282-31 120508-243	19282-36 120508-248	19282-39 120508-251	19282-45 120508-257	19282-67 120508-275
Your Reference		-KW	-KW	-KW	-KW	-KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	so
Time Campled			00.00	00:00	00:00	00:00
Time Sampled		00:00	00:00	00.00		00.00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date extracted	- - mg/kg	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date extracted  Date analysed	- - mg/kg mg/kg	16/05/2008 16/05/2008	16/05/2008 16/05/2008	16/05/2008 16/05/2008	16/05/2008 16/05/2008	16/05/2008 16/05/2008
Date extracted  Date analysed  Arochlor 1016		16/05/2008 16/05/2008 <0.1	16/05/2008 16/05/2008 <0.1	16/05/2008 16/05/2008 <0.1	16/05/2008 16/05/2008 <0.1	16/05/2008 16/05/2008 <0.1
Date extracted Date analysed Arochlor 1016 Arochlor 1232	mg/kg	16/05/2008 16/05/2008 <0.1 <0.1	16/05/2008 16/05/2008 <0.1 <0.1	16/05/2008 16/05/2008 <0.1 <0.1	16/05/2008 16/05/2008 <0.1 <0.1	16/05/2008 16/05/2008 <0.1 <0.1
Date extracted Date analysed Arochlor 1016 Arochlor 1232 Arochlor 1242	mg/kg mg/kg	16/05/2008 16/05/2008 <0.1 <0.1 <0.1	16/05/2008 16/05/2008 <0.1 <0.1 <0.1	16/05/2008 16/05/2008 <0.1 <0.1 <0.1	16/05/2008 16/05/2008 <0.1 <0.1 <0.1	16/05/2008 16/05/2008 <0.1 <0.1 <0.1

<0.1

73

<0.1

71

Envirolab Reference: 19282 Revision No: R 00

Arochlor 1260

Surrogate TCLMX

mg/kg

%



<0.1

76

<0.1

71

<0.1

75

Total Phenolics in Soil					
Our Reference:	UNITS	19282-9	19282-17	19282-46	19282-47
Your Reference		120508-220 -KW	120508-228 -KW	120508-258 -KW	120508-259 -KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0	<5.0	<5.0



Acid Extractable metals in soil						
Our Reference:	UNITS	19282-2	19282-5	19282-8	19282-9	19282-12
Your Reference		120508-212	120508-215	120508-219	120508-220	120508-223
		-KW	-KW	-KW	-KW	-KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	<4.0	<4.0	9.9	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	2.2	1.6	20	3.8	2.3
Copper	mg/kg	3.1	<1.0	7,500	12	6.4
Lead	mg/kg	10	1.0	350	7.2	23
Mercury	mg/kg	0.56	0.14	<0.10	<0.10	<0.10
Nickel	mg/kg	1.3	<1.0	59	3.7	1.2
Zinc	mg/kg	11	2.1	540	13	26
Phosphorus	mg/kg	[NA]	[NA]	[NA]	[NA]	84

Acid Extractable metals in soil						
Our Reference:	UNITS	19282-16	19282-17	19282-18	19282-21	19282-24
Your Reference		120508-227 -KW	120508-228 -KW	120508-229 -KW	120508-233 -KW	120508-236 -KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample Sample Matrix Code Time Sampled		Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00
Date digested	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	5.8	4.7	<4.0	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	15	5.1	<1.0	1.4	1.3
Copper	mg/kg	15	8.3	1.2	1.0	6.5
Lead	mg/kg	18	21	<1.0	2.9	5.3
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	2.8	2.3	<1.0	<1.0	<1.0
Zinc	mg/kg	59	32	2.1	5.4	5.6



Acid Extractable metals in soil Our Reference: Your Reference	UNITS	19282-26 120508-238	19282-27 120508-239	19282-28 120508-240	19282-30 120508-242	19282-3 120508-2
Date Sampled Type of sample Sample Matrix Code Time Sampled		-KW 12/05/2008 Soil SO 00:00	-KW 12/05/2008 Soil SO 00:00	-KW 12/05/2008 Soil SO 00:00	-KW 12/05/2008 Soil SO 00:00	-KW 12/05/200 Soil SO 00:00
Date digested	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/200
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/200
Arsenic	mg/kg	[NA]	<4.0	<4.0	4.7	[NA]
Cadmium	mg/kg	[NA]	<1.0	<1.0	<1.0	[NA]
Chromium	mg/kg	[NA]	1.6	1.5	5.2	[NA]
Copper	mg/kg	[NA]	3.2	2.9	1.4	[NA]
Lead	mg/kg	[NA]	24	4.5	3.7	[NA]
Mercury	mg/kg	[NA]	<0.10	<0.10	<0.10	[NA]
Nickel	mg/kg	[NA]	<1.0	<1.0	<1.0	[NA]
Zinc	mg/kg	[NA]	26	12	2.7	[NA]
Phosphorus	mg/kg	77	[NA]	[NA]	[NA]	210
Acid Extractable metals in soil						
Our Reference:	UNITS	19282-32	19282-33	19282-34	19282-36	19282-3
Your Reference		120508-244 -KW	120508-245 -KW	120508-246 -KW	120508-248 -KW	120508-2 -KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/20
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code Time Sampled		SO 00:00	SO 00:00	SO 00:00	SO 00:00	SO 00:00
Date digested	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/200
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/20
Arsenic	mg/kg	<4.0	<4.0	<4.0	4.8	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	4.1	<1.0	<1.0	4.3	2.8
Copper	mg/kg	22	<1.0	1.1	12	8.7
ooppo.						
Lead	mg/kg	100	<1.0	1.3	38	300

Envirolab Reference: 19282 Revision No: R 00

Nickel

Zinc



1.6

130

<1.0

1.9

<1.0

3.4

4.5

28

mg/kg

mg/kg

1.5

29

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled	UNITS	19282-41 120508-253 -KW 12/05/2008	19282-43 120508-255 -KW 12/05/2008	19282-45 120508-257 -KW 12/05/2008	19282-46 120508-258 -KW 12/05/2008	19282-47 120508-259 -KW 12/05/2008
Type of sample Sample Matrix Code Time Sampled		Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00
Date digested	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	<4.0	<4.0	8.6	10	16
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	3.3	8.0	21	1.9	2.7
Copper	mg/kg	1.2	11	30	<1.0	1.0
Lead	mg/kg	1.1	33	50	<1.0	1.2
Mercury	mg/kg	<0.10	<0.10	0.21	<0.10	<0.10
Nickel	mg/kg	<1.0	<1.0	1.8	<1.0	<1.0
Zinc	mg/kg	9.6	21	20	1.6	2.0
Phosphorus	mg/kg	[NA]	[NA]	1,700	[NA]	[NA]
Acid Extractable metals in soil						
Our Reference: Your Reference	UNITS	19282-48 120508-261 -KW	19282-51 120508-264 -KW	19282-54 120508-267 -KW	19282-56 120508-269 -KW	19282-57 120508-27 -KW
Date Sampled Type of sample Sample Matrix Code Time Sampled		12/05/2008 Soil SO 00:00	12/05/2008 Soil SO 00:00	12/05/2008 Soil SO 00:00	12/05/2008 Soil SO 00:00	12/05/200 Soil SO 00:00
Date digested	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/200
Date analysed	_	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008

	SO 00:00	SO	SO	SO	60
	00.00		- 0	, 50	SO
	00.00	00:00	00:00	00:00	00:00
-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
mg/kg	6.9	20	150	12	[NA]
mg/kg	<1.0	<1.0	<1.0	<1.0	[NA]
mg/kg	5.8	12	14	1.5	[NA]
mg/kg	14	16	33	1.0	[NA]
mg/kg	22	39	99	2.8	[NA]
mg/kg	<0.10	<0.10	0.26	<0.10	[NA]
mg/kg	1.6	1.3	10	<1.0	[NA]
mg/kg	19	17	54	2.1	[NA]
mg/kg	1,000	1,500	[NA]	[NA]	200
	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	- 20/05/2008 mg/kg 6.9 mg/kg <1.0 mg/kg 5.8 mg/kg 14 mg/kg 22 mg/kg <0.10 mg/kg 1.6 mg/kg 19	- 20/05/2008 20/05/2008  mg/kg 6.9 20  mg/kg <1.0 <1.0  mg/kg 5.8 12  mg/kg 14 16  mg/kg 22 39  mg/kg <0.10 <0.10  mg/kg 1.6 1.3  mg/kg 19 17	- 20/05/2008 20/05/2008 20/05/2008 mg/kg 6.9 20 150	-         20/05/2008         20/05/2008         20/05/2008         20/05/2008           mg/kg         6.9         20         150         12           mg/kg         <1.0



Acid Extractable metals in soil Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19282-58 120508-271 -KW 12/05/2008 Soil SO 00:00	19282-59 120508-272 -KW 12/05/2008 Soil SO 00:00	19282-67 120508-275 -KW 12/05/2008 Soil SO 00:00
Date digested	-	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	20/05/2008	20/05/2008	20/05/2008
Arsenic	mg/kg	<4.0	4.5	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0
Chromium	mg/kg	8.9	15	4.6
Copper	mg/kg	6.3	5.8	11
Lead	mg/kg	47	23	28
Mercury	mg/kg	<0.10	<0.10	0.24
Nickel	mg/kg	1.7	1.7	2.6
Zinc	mg/kg	74	38	33



Miscellaneous Inorg - soil						
Our Reference:	UNITS	19282-12	19282-26	19282-31	19282-45	19282-48
Your Reference		120508-223 -KW	120508-238 -KW	120508-243 -KW	120508-257 -KW	120508-261 -KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample Sample Matrix Code Time Sampled		Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00
Date analysed	-	15/05/2008	15/05/2008	15/05/2008	15/05/2008	15/05/2008
Ammonia as N in soil	mg/kg	1.3	0.7	2.5	0.8	2.9
Nitrate as N in soil	mg/kg	<0.5	<0.5	0.8	<0.5	<0.5
Nitrite as N in soil	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/kg	1,700	240	2,000	5,100	17,000
Total Nitrogen in soil	mg/kg	1,700	240	2,000	5,100	17,000
pH 1:5 soil:water	pH Units	[NA]	8.6	6.8	[NA]	4.8
Electrical Conductivity 1:5 soil:water	μS/cm	[NA]	70	130	[NA]	99
Salinity as NACL *	mg/kg	[NA]	45	83	[NA]	63
Resistivity in soil*	ohm m	[NA]	140	77	[NA]	100
Chloride 1:5 soil:water	mg/kg	[NA]	<100	<100	[NA]	<100
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	<25	<25	[NA]	<25

Miscellaneous Inorg - soil			
Our Reference:	UNITS	19282-51	19282-57
Your Reference		120508-264	120508-270
		-KW	-KW
Date Sampled		12/05/2008	12/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	SO
Time Sampled		00:00	00:00
Date analysed	-	15/05/2008	15/05/2008
Ammonia as N in soil	mg/kg	0.9	2.4
Nitrate as N in soil	mg/kg	0.7	<0.5
Nitrite as N in soil	mg/kg	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/kg	710	520
Total Nitrogen in soil	mg/kg	710	520
pH 1:5 soil:water	pH Units	7.1	6.3
Electrical Conductivity 1:5 soil:water	μS/cm	90	84
Salinity as NACL *	mg/kg	58	54
Resistivity in soil*	ohm m	110	120
Chloride 1:5 soil:water	mg/kg	<100	<100
Sulphate, SO4 1:5 soil:water	mg/kg	<25	<25



Na:-4:						
Moisture Our Reference:	UNITS	19282-2	19282-4	19282-5	19282-7	19282-8
Your Reference:	UNITS	120508-212	120508-214	120508-215	120508-218	120508-219
Tour Reference		-KW	-KW	-KW	-KW	-KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	10	15	23	7.6	9.0
		T		T		
Moisture						
Our Reference:	UNITS	19282-9	19282-10	19282-12	19282-15	19282-16
Your Reference		120508-220 -KW	120508-221 -KW	120508-223 -KW	120508-226 -KW	120508-227 -KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	27	32	15	15	21
Moisture						
Our Reference:	UNITS	19282-17	19282-18	19282-20	19282-21	19282-23
Your Reference		120508-228	120508-229	120508-232	120508-233	120508-235
5. 6		-KW	-KW	-KW	-KW	-KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil SO	Soil SO	Soil SO	Soil	Soil SO
Sample Matrix Code Time Sampled		00:00	00:00	00:00	SO 00:00	00:00
·						
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	23	19	16	5.7	2.7
NA - i - A · · · · -						
Moisture	LINITO	10000 04	10000 00	10000 07	10000 00	10000 00
Our Reference:	UNITS	19282-24	19282-26	19282-27	19282-28	19282-30
Your Reference		120508-236	120508-238 -KW	120508-239 -KW	120508-240 -KW	120508-242 -KW
		-KW	1277	1244		
Date Sampled		-KVV 12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		12/05/2008 Soil	12/05/2008 Soil	12/05/2008 Soil	Soil	Soil
Type of sample Sample Matrix Code		12/05/2008 Soil SO	12/05/2008 Soil SO	12/05/2008 Soil SO	Soil SO	Soil SO
Type of sample		12/05/2008 Soil	12/05/2008 Soil	12/05/2008 Soil	Soil	Soil
Type of sample Sample Matrix Code		12/05/2008 Soil SO	12/05/2008 Soil SO	12/05/2008 Soil SO	Soil SO	Soil SO
Type of sample Sample Matrix Code Time Sampled		12/05/2008 Soil SO 00:00	12/05/2008 Soil SO 00:00	12/05/2008 Soil SO 00:00	Soil SO 00:00	Soil SO 00:00



Moisture						
Our Reference:	UNITS	19282-31	19282-32	19282-33	19282-34	19282-36
Your Reference		120508-243 -KW	120508-244 -KW	120508-245 -KW	120508-246 -KW	120508-248 -KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		so	so	so	so	so
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	7.8	11	5.3	5.2	20
Moisture	LINUTO	40000 07	40000 00	40000 40	40000 44	40000 40
Our Reference: Your Reference	UNITS	19282-37	19282-39	19282-40	19282-41	19282-42
Your Reference		120508-249 -KW	120508-251 -KW	120508-252 -KW	120508-253 -KW	120508-254 -KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	18	15	29	24	34
Moisture	LINUTO	40000 40	40000 45	40000 40	40000 47	40000 40
Our Reference: Your Reference	UNITS	19282-43 120508-255	19282-45 120508-257	19282-46 120508-258	19282-47 120508-259	19282-48 120508-261
Your Releience		-KW	-KW	-KW	-KW	-KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	14	13	19	18	13
Moisture	LINUTO	40000 54	40000 54	40000 50	40000 50	40000 50
Our Reference:	UNITS	19282-51	19282-54	19282-56	19282-58	19282-59
Your Reference		120508-264 -KW	120508-267 -KW	120508-269 -KW	120508-271 -KW	120508-272 -KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	19	18	22	14	14



Moisture Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19282-62 Trip Blank 13/05/2008 Soil SO 00:00	19282-67 120508-275 -KW 12/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008
Moisture	%	0.30	21



Herbicides in Soil						
Our Reference:	UNITS	19282-20	19282-32	19282-36	19282-42	19282-51
Your Reference		120508-232	120508-244	120508-248	120508-254	120508-264
		-KW	-KW	-KW	-KW	-KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	12/05/2008	12/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Date Extracted	-	22/05/2008	22/05/2008	22/05/2008	22/05/2008	22/05/2008
Dicamba	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
MCPA	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorprop	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-D	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-T	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-TP	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-DB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
MCPP	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Triclopyr	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1

Herbicides in Soil		
Our Reference:	UNITS	19282-67
Your Reference		120508-275
		-KW
Date Sampled		12/05/2008
Type of sample		Soil
Sample Matrix Code		SO
Time Sampled		00:00
Date analysed	-	20/05/2008
Date Extracted	-	22/05/2008
Dicamba	mg/kg	<0.1
MCPA	mg/kg	<0.1
Dichlorprop	mg/kg	<0.1
2,4-D	mg/kg	<0.1
2,4,5-T	mg/kg	<0.1
2,4,5-TP	mg/kg	<0.1
2,4-DB	mg/kg	<0.1
MCPP	mg/kg	<0.1
Triclopyr	mg/kg	<0.1



Asbestos ID - materials				
Our Reference:	UNITS	19282-64	19282-65	19282-66
	UNITS			
Your Reference		120508-A1-	120508-A2-	120508-A3-
		KW	KW	KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008
Type of sample		Material	Material	Material
Sample Matrix Code		SO	SO	SO
Time Sampled		00:00	00:00	00:00
Date analysed	-	14/05/2008	14/05/2008	14/05/2008
Sample Description	_	200g fibre	15g fibre	15g fibre
· ·		cement sheet	cement sheet	cement sheet
		fragments	fragments	fragments
Asbestos ID in materials	-	Chrysotile	Chrysotile	Chrysotile
		asbestos	asbestos	asbestos
		detected	detected	detected
		Amosite		
		asbestos		
		detected		
		Crocidolite		
		asbestos		
		detected		



Method ID	Methodology Summary
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP- AES	Determination of various metals by ICP-AES.
Metals.21 CV- AAS	Determination of Mercury by Cold Vapour AAS.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
LAB.55	Nitrate water extractable - determined colourimetrically based on EPA114A.
LAB.56	Nitrite water extractable - determined colourimetrically based on EPA116A.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
LAB.66	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen.
LAB.1	pH - Measured using pH meter and electrode in accordance with APHA 20th ED, 4500-H+.
LAB.2	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA2510 20th ED and Rayment & Higginson.
LAB.11	Chloride determined by argentometric titration.
LAB.9	Sulphate determined turbidimetrically.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
AS4964-2004	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOC's in soil						Base II Duplicate II %RPD		recovery
Date extracted	-			16/5/08	19282-8	16/05/2008    16/05/2008	LCS-2	16/5/08%
Date analysed	-			18/5/08	19282-8	18/05/2008    18/05/2008	LCS-2	18/5/08%
Dichlorodifluoromethane	mg/kg	10	GC.14	<10	19282-8	<10    <10	[NR]	[NR]
Chloromethane	mg/kg	10	GC.14	<10	19282-8	<10    <10	[NR]	[NR]
Vinyl Chloride	mg/kg	10	GC.14	<10	19282-8	<10    <10	[NR]	[NR]
Bromomethane	mg/kg	10	GC.14	<10	19282-8	<10    <10	[NR]	[NR]
Chloroethane	mg/kg	10	GC.14	<10	19282-8	<10    <10	[NR]	[NR]
Trichlorofluoromethane	mg/kg	10	GC.14	<10	19282-8	<10    <10	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	LCS-2	93%
cis-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
bromochloromethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
chloroform	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	LCS-2	84%
2,2-dichloropropane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	LCS-2	87%
1,1,1-trichloroethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	LCS-2	81%
1,1-dichloropropene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
carbon tetrachloride	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
Benzene	mg/kg	0.5	GC.14	<0.5	19282-8	<0.5    <0.5	[NR]	[NR]
dibromomethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
trichloroethene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	LCS-2	116%
bromodichloromethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	LCS-2	114%
trans-1,3- dichloropropene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
Toluene	mg/kg	0.5	GC.14	<0.5	19282-8	<0.5    <0.5	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
dibromochloromethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	LCS-2	111%
1,2-dibromoethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
tetrachloroethene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	LCS-2	111%
1,1,1,2- tetrachloroethane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
chlorobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
Ethylbenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
bromoform	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
m+p-xylene	mg/kg	2	GC.14	<2.0	19282-8	<2.0    <2.0	[NR]	[NR]
styrene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,1,2,2- tetrachloroethane	mg/kg	1	GC.14	<1.0	19282-8		[NR]	[NR]
o-Xylene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]



QUALITY CONTROL  VOC's in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results  Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
VOC S III SOII						Base ii Dupiicate ii %RPD		
1,2,3-trichloropropane*	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
isopropylbenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
bromobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
n-propyl benzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
2-chlorotoluene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
4-chlorotoluene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
tert-butyl benzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
sec-butyl benzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
n-butyl benzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,2-dibromo-3- chloropropane	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	GC.14	<1.0	19282-8	<1.0    <1.0	[NR]	[NR]
Surrogate Dibromofluorometha	%		GC.14	87	19282-8	68    87    RPD: 25	LCS-2	85%
Surrogate aaa- Trifluorotoluene	%		GC.14	89	19282-8	107    87    RPD: 21	LCS-2	105%
Surrogate Toluene-d8	%		GC.14	94	19282-8	89    93    RPD: 4	LCS-2	92%
Surrogate 4- Bromofluorobenzene	%		GC.14	83	19282-8	79    79    RPD: 0	LCS-2	70%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
vTPH & BTEX in Soil					Jiii#	Base II Duplicate II %RPD		Necovery
Date extracted	-			16/5/08	19282-16	16/05/2008    16/05/2008	LCS-2	16/5/08%
Date analysed	-			17/5/08	19282-16	17/05/2008    17/05/2008	LCS-2	17/5/08%
vTPH C6 - C9	mg/kg	25	GC.16	<25	19282-16	<25    <25	LCS-2	129%
Benzene	mg/kg	0.5	GC.14	<0.5	19282-16	<0.5    <0.5	LCS-2	122%
Toluene	mg/kg	0.5	GC.14	<0.5	19282-16	<0.5    <0.5	LCS-2	135%
Ethylbenzene	mg/kg	1	GC.14	<1.0	19282-16	<1.0    <1.0	LCS-2	125%
m+p-xylene	mg/kg	2	GC.14	<2.0	19282-16	<2.0    <2.0	LCS-2	131%
o-Xylene	mg/kg	1	GC.14	<1.0	19282-16	<1.0    <1.0	LCS-2	134%
Surrogate aaa- Trifluorotoluene	%		GC.14	94	19282-16	94    87    RPD: 8	LCS-2	104%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTPH in Soil (C10-C36)						Base II Duplicate II %RPD		-
Date extracted	-			[NT]	19282-16	16/05/2008    16/05/2008	LCS-2	16/5/08%
Date analysed	-			[NT]	19282-16	16/05/2008    16/05/2008	LCS-2	17/5/08%
TPH C <sub>10</sub> - C <sub>14</sub>	mg/kg	50	GC.3	<50	19282-16	<50    <50	LCS-2	95%
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	GC.3	<100	19282-16	<100    <100	LCS-2	89%
TPH C29 - C36	mg/kg	100	GC.3	<100	19282-16	<100    <100	LCS-2	102%
Surrogate o-Terphenyl	%	501	GC.3	[NT]	19282-16	100    98    RPD: 2	LCS-2	109%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			[NT]	19282-2	16/05/2008    16/05/2008	LCS-2	16/5/08%
Date analysed	-			[NT]	19282-2	17/05/2008    17/05/2008	LCS-2	17/5/08%
Naphthalene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    <0.1	LCS-2	114%
Acenaphthylene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    <0.1	LCS-2	107%
Phenanthrene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    0.4	LCS-2	107%
Anthracene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    0.3	LCS-2	107%
Pyrene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    0.3	LCS-2	111%
Benzo(a)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    0.1	LCS-2	116%
Benzo(b+k)fluoranthene	mg/kg	0.2	GC.12 subset	<0.2	19282-2	<0.2    <0.2	[NR]	[NR]



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
DAIL : 2 ::					Sm#	B		Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	19282-2	<0.05    0.07	LCS-2	108%
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    <0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	19282-2	<0.1    <0.1	[NR]	[NR]
Surrogate p-Terphenyl-	%		GC.12 subset	[NT]	19282-2	93    111    RPD: 18	LCS-2	123%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Organochlorine Pesticides in soil						Base II Duplicate II %RPD		Recovery
Date extracted	-			16/5/08	19282-4	16/05/2008    16/05/2008	LCS-2	16/5/08%
Date analysed	-			16/5/08	19282-4	16/05/2008    16/05/2008	LCS-2	16/5/08%
HCB	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	LCS-2	118%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	LCS-2	121%
Heptachlor	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	LCS-2	127%
delta-BHC	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	LCS-2	119%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	LCS-2	123%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	LCS-2	121%
Dieldrin	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	LCS-2	122%
Endrin	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	LCS-2	106%
pp-DDD	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	LCS-2	110%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	LCS-2	129%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	97	19282-4	7.0    72    RPD: 165	LCS-2	104%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Organophosphorus Pesticides					Ollin	Base II Duplicate II %RPD		ROOVETY
Date extracted	-			16/5/08	19282-4	16/05/2008    16/05/2008	LCS-2	16/5/08%
Date analysed	-			16/5/08	19282-4	16/05/2008    16/05/2008	LCS-2	16/5/08%
Diazinon	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1    <0.1	LCS-2	106%
Fenitrothion	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1    <0.1	LCS-2	92%
Bromophos-ethyl	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	GC.8	<0.1	19282-4	<0.1    <0.1	LCS-2	130%
Surrogate TCLMX	%		GC.8	97	19282-4	73    72    RPD: 1	LCS-2	85%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	-			16/5/08	19282-4	16/05/2008    16/05/2008	LCS-2	16/5/08%
Date analysed	-			16/5/08	19282-4	16/05/2008    16/05/2008	LCS-2	16/5/08%
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	19282-4	<0.1    <0.1	LCS-2	109%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	19282-4	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	97	19282-4	73    72    RPD: 1	LCS-2	91%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		Necovery
Date extracted	-			16/5/08	19282-9	16/05/2008    16/05/2008	LCS-1	1/5/08%
Date analysed	-			19/5/08	19282-9	19/05/2008    19/05/2008	LCS-1	19/5/08%
Total Phenolics (as Phenol)	mg/kg	5	LAB.30	<5.0	19282-9	<5.0    <5.0	LCS-1	114%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			16/05/0 8	19282-2	16/05/2008    16/05/2008	LCS-2	16/05/08%
Date analysed	-			20/05/0	19282-2	20/05/2008    20/05/2008	LCS-2	20/05/08%
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4.0	19282-2	<4.0    <4.0	LCS-2	92%
Cadmium	mg/kg	1	Metals.20 ICP-AES	<1.0	19282-2	<1.0    <1.0	LCS-2	97%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1.0	19282-2	2.2    2.2    RPD: 0	LCS-2	97%
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Envirolab Reference: 19282 Revision No: R 00



Page 30 of 40

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil					J	Base II Duplicate II %RPD		
Copper	mg/kg	1	Metals.20 ICP-AES	<1.0	19282-2	3.1    3.7    RPD: 18	LCS-2	100%
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	19282-2	19282-2 10    10    RPD: 0		95%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.10	19282-2	0.56    0.57    RPD: 2	LCS-2	104%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1.0	19282-2	1.3    1.6    RPD: 21	LCS-2	97%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1.0	19282-2	11    12    RPD: 9	LCS-2	98%
Phosphorus	mg/kg	10	Metals.20 ICP-AES	<10	[NT]	[NT]	LCS-2	90%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Miscellaneous Inorg - soil						Base II Duplicate II %RPD		Recovery
Ammonia as N in soil	mg/kg	0.5	LAB.57	<0.5	19282-12	1.3    1.3    RPD: 0	LCS-1	107%
Nitrate as N in soil	mg/kg	0.5	LAB.55	<0.5	19282-12	<0.5    <0.5	LCS-1	98%
Nitrite as N in soil	mg/kg	0.1	LAB.56	<0.1	19282-12	<0.1    <0.1	LCS-1	106%
Total Kjeldahl Nitrogen	mg/kg	30	Ext-020	<30	19282-12	1700    [N/T]	[NR]	[NR]
Total Nitrogen in soil	mg/kg	10	LAB.66	<10	19282-12	1700    [N/T]	[NR]	[NR]
pH 1:5 soil:water	pH Units		LAB.1	[NT]	[NT]	[NT]	LCS-1	100%
Electrical Conductivity 1:5 soil:water	μS/cm	1	LAB.2	<1.0	[NT]	[NT]	LCS-1	102%
Salinity as NACL *	mg/kg	1	LAB.2	<1.0	[NT]	[NT]	LCS-1	102%
Resistivity in soil*	ohm m	1	LAB.2	<1.0	[NT]	[NT]	LCS-1	102%
Chloride 1:5 soil:water	mg/kg	100	LAB.11	<100	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4 1:5 soil:water	mg/kg	25	LAB.9	<25	[NT]	[NT]	LCS-1	106%
QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD		
Date prepared	-			16/5/08	19282-2	16/05/2008    16/05/2008	-	
Date analysed	_			16/5/08	19282-2	16/05/2008    16/05/2008		
Moisture	%	0.1	LAB.8	<0.10	19282-2	10    10    RPD: 0		
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Herbicides in Soil						Base II Duplicate II %RPD		,
Dicamba	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	98%
MCPA	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	114%
Dichlorprop	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	114%
2,4-D	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	126%
2,4,5-T	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	125%
2,4,5-TP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	112%
2,4-DB	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	104%
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#### CES050706-BCC Area A **Client Reference:**

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Herbicides in Soil					J	Base II Duplicate II %R	ספ	
MCPP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	100%
Triclopyr	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	136%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank				
Asbestos ID - materials								
Date analysed	-			[NT]				
QUALITY CONTROL	UNITS		Dup. Sm#		Duplicate	Spike Sm#	Spike % Recovery	
VOC's in soil				Base +	Duplicate + %RPD			
Date extracted	-		[NT]		[NT]	19282-11	16/5/08%	
Date analysed	-		[NT]		[NT]	19282-11	18/5/08%	
Dichlorodifluoromethane	mg/kg		[NT]		[NT]	[NR]	[NR]	
Chloromethane	mg/kg		[NT]		[NT]	[NR]	[NR]	
Vinyl Chloride	mg/kg		[NT]		[NT]	[NR]	[NR]	
Bromomethane	mg/kg		[NT]		[NT]	[NR]	[NR]	
Chloroethane	mg/kg		[NT]		[NT]	[NR]	[NR]	
Trichlorofluoromethane	mg/kg		[NT]		[NT]	[NR]	[NR]	
1,1-Dichloroethene	mg/kg		[NT]		[NT]	[NR]	[NR]	
trans-1,2-dichloroethene	mg/kg		[NT]		[NT]	[NR]	[NR]	
1,1-dichloroethane	mg/kg		[NT]		[NT]	19282-11	89%	
cis-1,2-dichloroethene	mg/kg		[NT]		[NT]	[NR]	[NR]	
bromochloromethane	mg/kg		[NT]		[NT]	[NR]	[NR]	
chloroform	mg/kg		[NT]		[NT]	19282-11	80%	
2,2-dichloropropane	mg/kg		[NT]		[NT]	[NR]	[NR]	
1,2-dichloroethane	mg/kg		[NT]		[NT]	19282-11	83%	
1,1,1-trichloroethane	mg/kg		[NT]		[NT]	19282-11	79%	
1,1-dichloropropene	mg/kg		[NT]		[NT]	[NR]	[NR]	
carbon tetrachloride	mg/kg		[NT]		[NT]	[NR]	[NR]	
Benzene	mg/kg		[NT]		[NT]	[NR]	[NR]	
dibromomethane	mg/kg		[NT]		[NT]	[NR]	[NR]	
1,2-dichloropropane	mg/kg		[NT]		[NT]	[NR]	[NR]	
trichloroethene	mg/kg		[NT]		[NT]	19282-11	109%	
bromodichloromethane	mg/kg		[NT]		[NT]	19282-11	107%	
trans-1,3-dichloropropene	mg/kg		[NT]		 [NT]	[NR]	[NR]	
cis-1,3-dichloropropene	mg/kg		[NT]		[NT]	[NR]	[NR]	
1,1,2-trichloroethane	mg/kg		[NT]		[NT]	[NR]	[NR]	
Toluene	mg/kg		[NT]		[NT]	[NR]	[NR]	
1,3-dichloropropane	mg/kg		[NT]		[NT]	[NR]	[NR]	
dibromochloromethane	mg/kg		[NT]		[NT]	19282-11	104%	
1,2-dibromoethane	mg/kg		[NT]		[NT]	[NR]	[NR]	

Envirolab Reference: 19282 Revision No: R 00



QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
VOC's in soil			Base + Duplicate + %RPD		
tetrachloroethene	mg/kg	[NT]	[NT]	19282-11	102%
1,1,1,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
chlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromoform	mg/kg	[NT]	[NT]	[NR]	[NR]
m+p-xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
styrene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	mg/kg	[NT]	[NT]	[NR]	[NR]
o-Xylene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	mg/kg	[NT]	[NT]	[NR]	[NR]
isopropylbenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
bromobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
tert-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
sec-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3- chloropropane	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
hexachlorobutadiene	mg/kg	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluorometha	%	[NT]	[NT]	19282-11	81%
Surrogate aaa- Trifluorotoluene	%	[NT]	[NT]	19282-11	98%
Surrogate Toluene-d8	%	[NT]	[NT]	19282-11	91%
Surrogate 4- Bromofluorobenzene	%	[NT]	[NT]	19282-11	69%



QUALITY CONTROL vTPH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery	
Date extracted	-	19282-47	16/05/2008    16/05/2008	19282-17	16/5/08%	
Date analysed	-	19282-47	17/05/2008    17/05/2008	19282-17	17/5/08%	
vTPH C6 - C9	mg/kg	19282-47	<25    <25	19282-17	104%	
Benzene	mg/kg	19282-47	<0.5    <0.5	19282-17	111%	
Toluene	mg/kg	19282-47	<0.5    <0.5	19282-17	106%	
Ethylbenzene	mg/kg	19282-47	<1.0    <1.0	19282-17	97%	
m+p-xylene	mg/kg	19282-47	<2.0    <2.0	19282-17	103%	
o-Xylene	mg/kg	19282-47	<1.0    <1.0	19282-17	107%	
Surrogate aaa- Trifluorotoluene	%	19282-47	91    90    RPD: 1	19282-17	92%	
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery	
Date extracted	-	19282-46	16/05/2008    16/05/2008	19282-17	16/5/08%	
Date analysed	-	19282-46	17/05/2008    17/05/2008	19282-17	17/5/08%	
TPH C10 - C14	mg/kg	19282-46	<50    <50	19282-17	91%	
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	19282-46	<100    <100	19282-17	86%	
TPH C29 - C36	mg/kg	19282-46	<100    <100	19282-17	95%	
Surrogate o-Terphenyl	%	19282-46	92    94    RPD: 2	19282-17	110%	
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recover	
Date extracted	-	19282-46	16/05/2008    16/05/2008	19282-7	16/5/08%	
Date analysed	-	19282-46	17/05/2008    17/05/2008	19282-7	16/5/08%	
Naphthalene	mg/kg	19282-46	<0.1    <0.1	19282-7	90%	
Acenaphthylene	mg/kg	19282-46	<0.1    <0.1	[NR]	[NR]	
Acenaphthene	mg/kg	19282-46	<0.1    <0.1	[NR]	[NR]	
Fluorene	mg/kg	19282-46	<0.1    <0.1	19282-7	97%	
Phenanthrene	mg/kg	19282-46	<0.1    <0.1	19282-7	100%	
Anthracene	mg/kg	19282-46	<0.1    <0.1	[NR]	[NR]	
Fluoranthene	mg/kg	19282-46	<0.1    <0.1	19282-7	99%	
Pyrene	mg/kg	19282-46	<0.1    <0.1	19282-7	104%	
Benzo(a)anthracene	mg/kg	19282-46	<0.1    <0.1	[NR]	[NR]	
Chrysene	mg/kg	19282-46	<0.1    <0.1	19282-7	108%	
Benzo(b+k)fluoranthene	mg/kg	19282-46	<0.2    <0.2	[NR]	[NR]	
Benzo(a)pyrene	mg/kg	19282-46	<0.05    <0.05	19282-7	86%	
Dibenzo(a,h)anthracene	mg/kg	19282-46	<0.1    <0.1	[NR]	[NR]	
ndeno(1,2,3-c,d)pyrene	mg/kg	19282-46	<0.1    <0.1	[NR]	[NR]	
Benzo(g,h,i)perylene	mg/kg	19282-46	<0.1    <0.1	[NR]	[NR]	
Surrogate p-Terphenyl-	%	19282-46	111    110    RPD: 1	19282-7	108%	



QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19282-12	16/5/08%
Date analysed	-	[NT]	[NT]	19282-12	16/5/08%
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	19282-12	101%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	19282-12	110%
Heptachlor	mg/kg	[NT]	[NT]	19282-12	113%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	19282-12	105%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	19282-12	107%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	19282-12	105%
Dieldrin	mg/kg	[NT]	[NT]	19282-12	107%
Endrin	mg/kg	[NT]	[NT]	19282-12	94%
pp-DDD	mg/kg	[NT]	[NT]	19282-12	96%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	19282-12	95%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19282-12	71%



QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19282-12	16/5/08%
Date analysed	-	[NT]	[NT]	19282-12	16/5/08%
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	19282-12	107%
Fenitrothion	mg/kg	[NT]	[NT]	19282-12	88%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	19282-12	129%
Surrogate TCLMX	%	[NT]	[NT]	19282-12	75%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19282-12	16/5/08%
Date analysed	-	[NT]	[NT]	[NT] 19282-12	
Arochlor 1016	mg/kg	[NT]	[NT]	[NT] [NR]	
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	19282-12	103%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19282-12	105%
QUALITY CONTROL Total Phenolics in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19282-17	16/5/08%
Date analysed	-	[NT]	[NT]	19282-17	19/5/08%
Total Phenolics (as Phenol)	mg/kg	[NT]	[NT]	19282-17	100%
QUALITY CONTROL  Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19282-26	16/05/2008    16/05/2008	LCS-3	16/05/08%
Date analysed	-	19282-26	20/05/2008    20/05/2008	LCS-3	20/05/08%
Arsenic	mg/kg	[NT]	[NT]	LCS-3	92%
Cadmium	mg/kg	[NT]	[NT]	LCS-3	97%
Chromium	mg/kg	[NT]	[NT]	LCS-3	96%
Copper	mg/kg	[NT]	[NT]	LCS-3	99%
Lead	mg/kg	[NT]	[NT]	LCS-3	95%
Mercury	mg/kg	[NT]	[NT]	LCS-3	106%



QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Spike Sm#  Base + Duplicate + %RPD		Spike % Recovery
Nickel	mg/kg	[NT]	[NT]	LCS-3	96%
Zinc	mg/kg	[NT]	[NT]	LCS-3	96%
Phosphorus	mg/kg	19282-26	77    63    RPD: 20	LCS-3	87%
QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Ammonia as N in soil	mg/kg	[NT]	[NT]	19282-26	85%
Nitrate as N in soil	mg/kg	[NT]	[NT]	19282-26	90%
Nitrite as N in soil	mg/kg	[NT]	[NT]	19282-26	93%
Total Kjeldahl Nitrogen	mg/kg	[NT]	[NT]	[NR]	[NR]
Total Nitrogen in soil	mg/kg	[NT]	[NT]	[NR]	[NR]
pH 1:5 soil:water	pH Units	[NT]	[NT]	[NR]	[NR]
Electrical Conductivity 1:5 soil:water	μS/cm	[NT]	[NT]	[NR]	[NR]
Salinity as NACL *	mg/kg	[NT]	[NT]	[NR]	[NR]
Resistivity in soil*	ohm m	[NT]	[NT]	[NR]	[NR]
Chloride 1:5 soil:water	mg/kg	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4 1:5 soil:water	mg/kg	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate		
Moisture			Base + Duplicate + %RPD		
Date prepared	-	19282-8	16/05/2008    16/05/2008		
Date analysed	-	19282-8	16/05/2008    16/05/2008		
Moisture	%	19282-8	9.0    9.0    RPD: 0		
QUALITY CONTROL  Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19282-41	16/05/2008    16/05/2008	19282-5	16/05/08%
Date analysed	_	19282-41	20/05/2008    20/05/2008	19282-5	20/05/08%
Arsenic	mg/kg	19282-41	<4.0    <4.0	19282-5	100%
Cadmium	mg/kg	19282-41	<1.0    <1.0	19282-5	100%
Chromium	mg/kg	19282-41	3.3    2.9    RPD: 13	19282-5	102%
Copper	mg/kg	19282-41	1.2    1.1    RPD: 9	19282-5	105%
Lead	mg/kg	19282-41	1.1    1.2    RPD: 9	19282-5	99%
Mercury	mg/kg	19282-41	<0.10    <0.10	19282-5	105%
Nickel	mg/kg	19282-41	<1.0    <1.0	19282-5	102%
Zinc	mg/kg	19282-41	9.6    9.0    RPD: 6	19282-5	103%
Phosphorus	mg/kg	[NT]	[NT]	19282-5	99%



QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD		
Date prepared	-	19282-16	16/05/2008    16/05/2008		
Date analysed	_	19282-16	16/05/2008    16/05/2008		
Moisture	%	19282-16	21    21    RPD: 0		
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19282-58	16/05/2008    16/05/2008	19282-43	16/05/08%
Date analysed	_	19282-58	20/05/2008    20/05/2008	19282-43	20/05/08%
Arsenic	mg/kg	19282-58	<4.0    5.2	19282-43	95%
Cadmium	mg/kg	19282-58	<1.0    <1.0	19282-43	98%
Chromium	mg/kg	19282-58	8.9    13    RPD: 37	19282-43	101%
Copper	mg/kg	19282-58	6.3    6.8    RPD: 8	19282-43	104%
Lead	mg/kg	19282-58	47    36    RPD: 27	19282-43	102%
Mercury	mg/kg	19282-58	<0.10    <0.10	19282-43	108%
Nickel	mg/kg	19282-58	1.7    2.2    RPD: 26	19282-43	100%
Zinc	mg/kg	19282-58	74    67    RPD: 10	19282-43	98%
Phosphorus	mg/kg	[NT]	[NT]	19282-43	#
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate		
Moisture			Base + Duplicate + %RPD		
Date prepared	-	19282-26	16/05/2008    16/05/2008		
Date analysed	-	19282-26	16/05/2008    16/05/2008		
Moisture	%	19282-26	2.5    2.5    RPD: 0		
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate		
Moisture			Base + Duplicate + %RPD		
Date prepared	-	19282-41	16/05/2008    16/05/2008		
Date analysed	-	19282-41	16/05/2008    16/05/2008		
Moisture	%	19282-41	24    24    RPD: 0		
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate		
Moisture			Base + Duplicate + %RPD		
Date prepared	-	19282-46	16/05/2008    16/05/2008		
Date analysed	-	19282-46	16/05/2008    16/05/2008		
Moisture	%	19282-46	19    19    RPD: 0		
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date prepared	-	19282-47	16/05/2008    16/05/2008		
Date analysed	-	19282-47	16/05/2008    16/05/2008		
Moisture	%	19282-47	18    18    RPD: 0		



QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD
Date prepared	-	19282-58	16/05/2008    16/05/2008
Date analysed	-	19282-58	16/05/2008    16/05/2008
Moisture	%	19282-58	14    14    RPD: 0



### **Report Comments:**

**Texture Classification:** 

26 = Sand

31 = Sandy Loam

48 = Sandy Loam

51 = Sandy Loam

57 = Sandy Loam

Trace Elements: An accurate spike could not be calculated due to the high level of this analyte in the sample.

TKN alaysed by NMI: Report Number - RN680565.

Asbestos was analysed by Approved Identifier: Joshua Lim

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

NR: Not requested <: Less than >: Greater than

### **Quality Control Definitions**

**Blank**: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. **Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

### **Laboratory Acceptance Criteria:**

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for

SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for

SVOC and speciated phenols.





Envirolab Services Pty Ltd

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Chemist

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# **CERTIFICATE OF ANALYSIS 19325**

Client:

**Consulting Earth Scientists** 

Suite 121, 26-32 Pirrama Rd Pyrmont NSW 2009

Attention: Luke Jenkins / Kelly Weir

Sample log in details:

Your Reference: CES050706-BCC Area A

No. of samples: 77 Soils, 1 Material

Date samples received: 14/05/08
Date completed instructions received: 14/05/08

**Analysis Details:** 

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

**Report Details:** 

Date results requested by: 26/05/08

Date of Preliminary Report: Not Issued Issue Date: 26/05/08

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This document is issued in accordance with NATA's accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Tests not covered by NATA are denoted with \*.

**Results Approved By:** 

Business Development & Quality Manager

Envirolab Reference: 19325 Page 1 of 41

Revision No: R 00



VOC's in soil					
Our Reference:	UNITS	19325-8	19325-11	19325-12	19325-77
Your Reference		130508-283	130508-286	130508-287	Trip Blank
		-KW	-KW	-KW	
Depth		-	-	-	-
Date Sampled Type of sample		13/05/2008 Soil	13/05/2008 Soil	13/05/2008 Soil	13/05/2008 Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008
Dichlorodifluoromethane	mg/kg	<10	<10	<10	<10
Chloromethane	mg/kg	<10	<10	<10	<10
Vinyl Chloride	mg/kg	<10	<10	<10	<10
Bromomethane	mg/kg	<10	<10	<10	<10
Chloroethane	mg/kg	<10	<10	<10	<10
Trichlorofluoromethane	mg/kg	<10	<10	<10	<10
1,1-Dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
trans-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
cis-1,2-dichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0
chloroform	mg/kg	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0
carbon tetrachloride	mg/kg	<1.0	<1.0	<1.0	<1.0
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5
dibromomethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
trichloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromodichloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
dibromochloromethane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	mg/kg	<1.0	<1.0	<1.0	<1.0
tetrachloroethene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
chlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromoform	mg/kg	<1.0	<1.0	<1.0	<1.0



VOC's in soil	LINUTO	40205.0	40205 44	40205 40	40225 77
Our Reference:	UNITS	19325-8	19325-11	19325-12	19325-77
Your Reference		130508-283 -KW	130508-286 -KW	130508-287 -KW	Trip Blank
Depth		-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code Time Sampled		SO 00:00	SO 00:00	SO 00:00	SO 00:00
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0
styrene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	mg/kg	<1.0	<1.0	<1.0	<1.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	mg/kg	<1.0	<1.0	<1.0	<1.0
isopropylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
bromobenzene		<1.0	<1.0	<1.0	<1.0
	mg/kg	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	mg/kg				
2-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
tert-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
sec-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
hexachlorobutadiene	mg/kg	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	mg/kg	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluorometha	%	88	91	84	75
Surrogate aaa-Trifluorotoluene	%	87	87	87	103
Surrogate Toluene-ds	%	91	93	94	90
Surrogate 4-Bromofluorobenzene	%	78	77	75	79



vTPH & BTEX in Soil						
Our Reference:	UNITS	19325-2	19325-6	19325-24	19325-38	19325-43
Your Reference		130508-277	130508-281	130508-302	130508-316	130508-321
		-KW	-KW	-KW	-KW	-KW
Depth		-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample Sample Matrix Code		Soil SO	Soil SO	Soil SO	Soil SO	Soil SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
<u>'</u>						
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
vTPH C <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	94	92	109	107	93
		1		T		
vTPH & BTEX in Soil		10005 15	10005 10	10005 51	10005 51	10005 77
Our Reference:	UNITS	19325-45	19325-46	19325-51	19325-54	19325-77
Your Reference		130508-323 -KW	130508-324 -KW	130508-329 -KW	130508-300 -KW	Trip Blank
Depth		-1200	-1200	-1244	-1277	_
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	17/05/2008	17/05/2008	17/05/2008	17/05/2008	17/05/2008
vTPH C6 - C9	mg/kg	<25	<25	<25	<25	<25
			1	1	1	

<0.5

<0.5

<1.0

<2.0

<1.0

123

< 0.5

<0.5

<1.0

<2.0

<1.0

110

< 0.5

<0.5

<1.0

<2.0

<1.0

111

< 0.5

<0.5

<1.0

<2.0

<1.0

97

< 0.5

<0.5

<1.0

<2.0

<1.0

103

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

%

Envirolab Reference: 19325 Revision No: R 00

Benzene

Toluene

Ethylbenzene

m+p-xylene

o-Xylene

Surrogate aaa-Trifluorotoluene



vTPH & BTEX in Soil Our Reference: Your Reference Depth	UNITS	19325-78 Trip Spike -
Date Sampled Type of sample Sample Matrix Code Time Sampled		13/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008
Date analysed	-	17/05/2008
Benzene	mg/kg	80%
Toluene	mg/kg	73%
Ethylbenzene	mg/kg	65%
m+p-xylene	mg/kg	65%
o-Xylene	mg/kg	60%
Surrogate aaa-Trifluorotoluene	%	96



sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19325-2	19325-6	19325-24	19325-38	19325-43
Your Reference		130508-277	130508-281	130508-302	130508-316	130508-321
		-KW	-KW	-KW	-KW	-KW
Depth		-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
TPH C <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	88	90	91	89	89

sTPH in Soil (C10-C36)					
Our Reference:	UNITS	19325-45	19325-46	19325-51	19325-54
Your Reference		130508-323	130508-324	130508-329	130508-300
		-KW	-KW	-KW	-KW
Depth		-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
TPH C10 - C14	mg/kg	<50	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100	<100
Surrogate o-Terphenyl	%	88	86	88	88



PAHs in Soil						
Our Reference:	UNITS	19325-6	19325-8	19325-24	19325-31	19325-38
Your Reference		130508-281	130508-283	130508-302	130508-309	130508-316
		-KW	-KW	-KW	-KW	-KW
Depth		-	-	-	-	-
Date Sampled Type of sample		13/05/2008 Soil	13/05/2008 Soil	13/05/2008 Soil	13/05/2008 Soil	13/05/2008 Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Naphthalene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	1.7	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	3.4	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	4.0	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	1.9	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	2.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	3.9	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	2.5	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	2.0	0.2	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	1.6	0.2	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	106	107	103	106	107



PAHs in Soil Our Reference: Your Reference  Depth Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19325-43 130508-321 -KW - 13/05/2008 Soil SO 00:00	19325-45 130508-323 -KW - 13/05/2008 Soil SO 00:00	19325-46 130508-324 -KW - 13/05/2008 Soil SO 00:00	19325-47 130508-325 -KW - 13/05/2008 Soil SO 00:00	19325-48 130508-326 -KW - 13/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.5
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	1.0
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	1.0
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.5
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.5
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	0.7
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.4
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Surrogate p-Terphenyl-d <sub>14</sub>	%	108	108	107	108	105



PAHs in Soil Our Reference: Your Reference  Depth Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19325-49 130508-327 -KW - 13/05/2008 Soil SO 00:00	19325-50 130508-328 -KW - 13/05/2008 Soil SO 00:00	19325-51 130508-329 -KW - 13/05/2008 Soil SO 00:00	19325-52 130508-330 -KW - 13/05/2008 Soil SO 00:00	19325-54 130508-300 -KW - 13/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.8	<0.1	0.1	0.6	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Fluoranthene	mg/kg	2.7	<0.1	0.2	1.2	<0.1
Pyrene	mg/kg	2.8	<0.1	0.2	1.3	<0.1
Benzo(a)anthracene	mg/kg	1.3	<0.1	<0.1	0.6	<0.1
Chrysene	mg/kg	1.8	<0.1	0.1	0.5	<0.1
Benzo(b+k)fluoranthene	mg/kg	3.0	<0.2	0.2	0.9	<0.2
Benzo(a)pyrene	mg/kg	1.5	0.09	0.1	0.5	<0.05
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	1.2	<0.1	<0.1	0.3	<0.1
Benzo(g,h,i)perylene	mg/kg	1.1	<0.1	<0.1	0.3	<0.1
Surrogate p-Terphenyl-d <sub>14</sub>	%	101	110	110	109	108



Organochlorine Pesticides in soil						
Our Reference:	UNITS	19325-7	19325-13	19325-19	19325-26	19325-27
Your Reference		130508-282 -KW	130508-289 -KW	130508-296 -KW	130508-304 -KW	130508-305 -KW
Depth		-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code Time Sampled		SO 00:00	SO 00:00	SO 00:00	SO 00:00	SO 00:00
<u>'</u>						
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	77	77	79	77	88



Organochlorine Pesticides in soil Our Reference: Your Reference	UNITS	19325-30 130508-308 -KW	19325-36 130508-314 -KW	19325-41 130508-319 -KW	19325-44 130508-322 -KW
Depth Date Sampled Type of sample Sample Matrix Code Time Sampled		13/05/2008 Soil SO 00:00	13/05/2008 Soil SO 00:00	13/05/2008 Soil SO 00:00	13/05/2008 Soil SO 00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	79	91	81	83



Organophosphorus Pesticides						
Our Reference:	UNITS	19325-7	19325-13	19325-19	19325-26	19325-27
Your Reference		130508-282	130508-289	130508-296	130508-304	130508-305
		-KW	-KW	-KW	-KW	-KW
Depth		-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	77	77	79	77	88

Organophosphorus Pesticides					
Our Reference:	UNITS	19325-30	19325-36	19325-41	19325-44
Your Reference		130508-308 -KW	130508-314 -KW	130508-319 -KW	130508-322 -KW
Depth		-	-	-	-
Date Sampled		13/05/2008 Soil	13/05/2008 Soil	13/05/2008 Soil	13/05/2008
Type of sample Sample Matrix Code		SO	SO	SO	Soil SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	79	91	81	83



PCBs in Soil						
Our Reference:	UNITS	19325-7	19325-13	19325-19	19325-26	19325-27
Your Reference		130508-282 -KW	130508-289 -KW	130508-296 -KW	130508-304 -KW	130508-305 -KW
Depth		-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	77	77	79	77	88

PCBs in Soil					
Our Reference:	UNITS	19325-30	19325-36	19325-41	19325-44
Your Reference		130508-308 -KW	130508-314 -KW	130508-319 -KW	130508-322 -KW
Depth		-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	79	91	81	83



Total Phenolics in Soil					
Our Reference:	UNITS	19325-38	19325-45	19325-46	19325-49
Your Reference		130508-316	130508-323	130508-324	130508-327
		-KW	-KW	-KW	-KW
Depth		-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	19/5/08	19/5/08	19/5/08	19/5/08
Date analysed	-	20/5/08	20/5/08	20/5/08	20/5/08
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0	<5.0	<5.0



Acid Extractable metals in soil						
Our Reference:	UNITS	19325-1	19325-5	19325-6	19325-7	19325-8
Your Reference		130508-276	130508-280	130508-281	130508-282	130508-283
		-KW	-KW	-KW	-KW	-KW
Depth		-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	21/05/2008	21/05/2008	21/05/2008	21/05/2008	21/05/2008
Arsenic	mg/kg	<4.0	12	<4.0	4.5	4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	4.5	7.3	8.4	16	19
Copper	mg/kg	78	15	2.0	45	66
Lead	mg/kg	52	45	4.3	110	120
Mercury	mg/kg	0.37	0.15	<0.10	0.16	0.16
Nickel	mg/kg	8.8	3.9	1.1	11	18
Zinc	mg/kg	81	14	3.6	150	110
Phosphorus	mg/kg	[NA]	[NA]	[NA]	380	[NA]

Acid Extractable metals in soil						
Our Reference:	UNITS	19325-11	19325-12	19325-14	19325-16	19325-17
Your Reference		130508-286	130508-287	130508-290	130508-292	130508-293
		-KW	-KW	-KW	-KW	-KW
Depth		-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	21/05/2008	21/05/2008	21/05/2008	21/05/2008	21/05/2008
Arsenic	mg/kg	<4.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	<1.0	<1.0	1.9	5.3	2.8
Copper	mg/kg	<1.0	<1.0	2.3	8.6	3.7
Lead	mg/kg	<1.0	<1.0	5.5	25	13
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	<1.0	<1.0	<1.0	2.5	<1.0
Zinc	mg/kg	3.5	1.3	6.5	38	17



Acid Extractable metals in soil						
Our Reference:	UNITS	19325-19	19325-20	19325-24	19325-26	19325-27
Your Reference		130508-296 -KW	130508-297 -KW	130508-302 -KW	130508-304 -KW	130508-30 -KW
Depth		-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO 00:00	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	21/05/2008	21/05/2008	21/05/2008	21/05/2008	21/05/2008
Arsenic	mg/kg	[NA]	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	[NA]	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	[NA]	1.0	<1.0	4.1	4.8
Copper	mg/kg	[NA]	<1.0	<1.0	13	17
Lead	mg/kg	[NA]	1.4	1.0	72	81
Mercury	mg/kg	[NA]	<0.10	<0.10	0.12	0.18
Nickel	mg/kg	[NA]	<1.0	<1.0	2.0	2.2
Zinc	mg/kg	[NA]	5.2	1.7	120	110
Phosphorus	mg/kg	200	[NA]	[NA]	340	340
Acid Extractable metals in soil						
Our Reference:	UNITS	19325-29	19325-30	19325-31	19325-33	19325-34
Your Reference		130508-307	130508-308	130508-309	130508-311	130508-31
		-KW	-KW	-KW	-KW	-KW
Depth		-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/200
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/200
Date analysed	-	21/05/2008	21/05/2008	21/05/2008	21/05/2008	21/05/2008

24

1.3

59

36

92

0.58

15

250

12

<1.0

8.8

20

36

0.29

4.5

42

<4.0

<1.0

<1.0

1.8

<1.0

<0.10

<1.0

<1.0

<4.0

<1.0

<1.0

1.3

2.7

<0.10

<1.0

5.1

Envirolab Reference: 19325 Revision No: R 00

Arsenic

Cadmium

Chromium

Copper

Lead

Mercury

Nickel

Zinc

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg

mg/kg



<4.0

<1.0

<1.0

<1.0

1.2

<0.10

<1.0

<1.0

Acid Extractable metals in soil Our Reference:	UNITS	19325-38	19325-40	19325-41	19325-44	19325-45
Your Reference		130508-316 -KW	130508-318 -KW	130508-319 -KW	130508-322 -KW	130508-323 -KW
Depth Date Sampled Type of sample Sample Matrix Code Time Sampled		- 13/05/2008 Soil SO 00:00	- 13/05/2008 Soil SO 00:00	- 13/05/2008 Soil SO 00:00	- 13/05/2008 Soil SO 00:00	13/05/2008 Soil SO 00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	21/05/2008	21/05/2008	21/05/2008	21/05/2008	21/05/2008
Arsenic	mg/kg	<4.0	<4.0	12	[NA]	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	[NA]	<1.0
Chromium	mg/kg	4.0	<1.0	12	[NA]	1.6
Copper	mg/kg	6.1	<1.0	20	[NA]	1.1
Lead	mg/kg	12	<1.0	21	[NA]	1.1
Mercury	mg/kg	<0.10	<0.10	<0.10	[NA]	<0.10
Nickel	mg/kg	<1.0	<1.0	2.6	[NA]	<1.0
Zinc	mg/kg	13	<1.0	36	[NA]	1.5
Phosphorus	mg/kg	[NA]	[NA]	[NA]	64	[NA]

Acid Extractable metals in soil						
Our Reference:	UNITS	19325-46	19325-47	19325-49	19325-50	19325-52
Your Reference		130508-324	130508-325	130508-327	130508-328	130508-330
		-KW	-KW	-KW	-KW	-KW
Depth		-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date digested	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date analysed	-	21/05/2008	21/05/2008	21/05/2008	21/05/2008	21/05/2008
Arsenic	mg/kg	<4.0	<4.0	8.4	<4.0	19
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	2.4
Chromium	mg/kg	<1.0	1.4	28	6.5	50
Copper	mg/kg	<1.0	1.1	14	9.4	40
Lead	mg/kg	<1.0	2.9	45	56	120
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	0.65
Nickel	mg/kg	<1.0	1.3	1.3	3.6	15
Zinc	mg/kg	<1.0	9.7	20	42	260



Acid Extractable metals in soil Our Reference: Your Reference	UNITS	19325-54 130508-300 -KW	
Depth Date Sampled Type of sample Sample Matrix Code Time Sampled		- 13/05/2008 Soil SO 00:00	
Date digested	-	19/05/2008	
Date analysed	-	21/05/2008	
Arsenic	mg/kg	4.2	
Cadmium	mg/kg	<1.0	
Chromium	mg/kg	13	
Copper	mg/kg	18	
Lead	mg/kg	41	
Mercury	mg/kg	<0.10	
Nickel	mg/kg	2.1	
Zinc	mg/kg	31	



Miscellaneous Inorg - soil						
Our Reference:	UNITS	19325-7	19325-10	19325-19	19325-22	19325-26
Your Reference		130508-282	130508-285	130508-296	130508-299	130508-304
		-KW	-KW	-KW	-KW	-KW
Depth		-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date analysed	-	19/05/2008	19/05/2008	19/05/2008	19/05/2008	19/05/2008
Ammonia as N in soil	mg/kg	1.6	[NA]	5.1	[NA]	<0.5
Nitrate as N in soil	mg/kg	<0.5	[NA]	2.3	[NA]	<0.5
Nitrite as N in soil	mg/kg	<0.1	[NA]	<0.1	[NA]	<0.1
Total Kjeldahl Nitrogen	mg/kg	610	[NA]	530	[NA]	480
Total Nitrogen in soil	mg/kg	610	[NA]	530	[NA]	480
pH 1:5 soil:water	pH Units	[NA]	7.3	[NA]	8.4	7.7
Electrical Conductivity 1:5 soil:water	μS/cm	[NA]	110	[NA]	90	110
Salinity as NACL *	mg/kg	[NA]	70	[NA]	58	70
Resistivity in soil*	ohm m	[NA]	91	[NA]	110	91
Chloride 1:5 soil:water	mg/kg	[NA]	<100	[NA]	<100	<100
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	<25	[NA]	<25	<25

Miscellaneous Inorg - soil			
Our Reference:	UNITS	19325-27	19325-44
Your Reference		130508-305	130508-322
		-KW	-KW
Depth		-	-
Date Sampled		13/05/2008	13/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO 00:00	SO 00:00
Time Sampled		00.00	00.00
Date analysed	-	19/05/2008	19/05/2008
Ammonia as N in soil	mg/kg	0.6	2.2
Nitrate as N in soil	mg/kg	<0.5	<0.5
Nitrite as N in soil	mg/kg	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/kg	560	300
Total Nitrogen in soil	mg/kg	560	300
pH 1:5 soil:water	pH Units	7.7	[NA]
Electrical Conductivity 1:5 soil:water	μS/cm	110	[NA]
Salinity as NACL *	mg/kg	70	[NA]
Resistivity in soil*	ohm m	91	[NA]
Chloride 1:5 soil:water	mg/kg	<100	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	<25	[NA]



Moisture						
Our Reference:	UNITS	19325-1	19325-2	19325-5	19325-6	19325-7
Your Reference		130508-276	130508-277	130508-280	130508-281	130508-282
		-KW	-KW	-KW	-KW	-KW
Depth		-	-	-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	29	16	38	31	7.8
Moisture	1/2/70	40007.0	10007.11	10007.10	10007 10	10007.11
Our Reference:	UNITS	19325-8	19325-11	19325-12	19325-13	19325-14
Your Reference		130508-283 -KW	130508-286 -KW	130508-287 -KW	130508-289 -KW	130508-290 -KW
Depth		-r\v	-r\v	-17.00	-1277	-r\v
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	7.9	12	12	6.8	3.7
Moisture		10005 10	10005 17	10005 10	40005.00	40005.04
Our Reference:	UNITS	19325-16	19325-17	19325-19	19325-20	19325-24
Your Reference		130508-292 -KW	130508-293 -KW	130508-296 -KW	130508-297 -KW	130508-302 -KW
Depth		-1244	-1244	-1244	-1244	-1244
Date Sampled		13/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Sample Matrix Code		so	SO	SO	SO	SO
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	10	8.9	61	15	1.9



Moisture Our Reference: Your Reference  Depth Date Sampled	UNITS	19325-26 130508-304 -KW - 13/05/2008	19325-27 130508-305 -KW - 13/05/2008	19325-29 130508-307 -KW - 13/05/2008	19325-30 130508-308 -KW - 13/05/2008	19325-31 130508-309 -KW - 13/05/2008
Type of sample Sample Matrix Code Time Sampled		Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00	Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	5.7	4.8	56	4.0	1.8
Moisture Our Reference: Your Reference	UNITS	19325-33 130508-311	19325-34 130508-312	19325-36 130508-314	19325-38 130508-316	19325-40 130508-318
Depth Date Sampled Type of sample Sample Matrix Code Time Sampled		-KW - 13/05/2008 Soil SO 00:00	-KW - 13/05/2008 Soil SO 00:00	-KW - 13/05/2008 Soil SO 00:00	-KW - 13/05/2008 Soil SO 00:00	-KW - 13/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	_	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	2.6	7.7	8.3	16	4.2
Moisture Our Reference: Your Reference	UNITS	19325-41 130508-319 -KW	19325-43 130508-321 -KW	19325-44 130508-322 -KW	19325-45 130508-323 -KW	19325-46 130508-324 -KW
Depth Date Sampled Type of sample Sample Matrix Code Time Sampled		- 13/05/2008 Soil SO 00:00	- 13/05/2008 Soil SO 00:00	- 13/05/2008 Soil SO 00:00	- 13/05/2008 Soil SO 00:00	- 13/05/2008 Soil SO 00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008	16/05/2008	16/05/2008
Moisture	%	7.8	15	3.5	9.1	7.4



Moisture Our Reference: Your Reference	UNITS	19325-47 130508-325 -KW	19325-48 130508-326 -KW	19325-49 130508-327 -KW	19325-50 130508-328 -KW	19325-51 130508-329 -KW
Depth Date Sampled Type of sample Sample Matrix Code Time Sampled		- 13/05/2008 Soil SO 00:00	- 13/05/2008 Soil SO 00:00	- 13/05/2008 Soil SO 00:00	- 13/05/2008 Soil SO 00:00	- 13/05/2008 Soil SO 00:00
Date prepared  Date analysed		16/05/2008 16/05/2008	16/05/2008 16/05/2008	16/05/2008 16/05/2008	16/05/2008 16/05/2008	16/05/2008 16/05/2008
Moisture	%	3.8	24	13	7.5	26

Moisture				
Our Reference:	UNITS	19325-52	19325-54	19325-77
Your Reference		130508-330	130508-300	Trip Blank
		-KW	-KW	
Depth		-	-	-
Date Sampled		13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil
Sample Matrix Code		SO	SO	SO
Time Sampled		00:00	00:00	00:00
Date prepared	-	16/05/2008	16/05/2008	16/05/2008
Date analysed	-	16/05/2008	16/05/2008	16/05/2008
Moisture	%	47	19	0.10



Herbicides in Soil						
Our Reference:	UNITS	19325-10	19325-22	19325-26	19325-27	19325-44
Your Reference		130508-285 -KW	130508-299 -KW	130508-304 -KW	130508-305 -KW	130508-322 -KW
Depth		-	-	-	-	-
Date Sampled Type of sample Sample Matrix Code Time Sampled		13/05/2008 Soil SO 00:00	13/05/2008 Soil SO 00:00	13/05/2008 Soil SO 00:00	13/05/2008 Soil SO 00:00	13/05/2008 Soil SO 00:00
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Date Extracted	-	22/05/2008	22/05/2008	22/05/2008	22/05/2008	22/05/2008
Dicamba	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
MCPA	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorprop	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-D	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-T	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-TP	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-DB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
MCPP	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Triclopyr	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1



Asbestos ID - materials		
Our Reference:	UNITS	19325-53
Your Reference		130508-A1-
		KW
Depth		-
Date Sampled		13/05/2008
Type of sample		Material
Sample Matrix Code		SO
Time Sampled		00:00
Date analysed	-	16/05/2008
Sample Description	-	60x80x4mm
		fibre cement
		sheet
Asbestos ID in materials	-	Chrysotile
		asbestos
		detected



sPOCAS						
Our Reference:	UNITS	19325-59	19325-67	19325-68	19325-75	19325-76
Your Reference		ABH255	ABH278	ABH274	ABH273	ABH276
Depth		2.4-2.6	2.6-2.8	2.5-2.7	2.4-2.6	2.6-2.8
Date Sampled		8/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil SO	Soil SO	Soil SO	Soil SO	Soil SO
Sample Matrix Code Time Sampled		00:00	00:00	00:00	00:00	00:00
pH kcl	pH units	8.4	5.8	7.1	6.8	6.4
TAA pH 6.5	moles H <sup>+</sup> /	<5	<5	<5	<5	<5
	tonne		<5		75	< 5
s-TAA pH 6.5	%w/w S	<0.01	<0.01	<0.01	<0.01	<0.01
pH ox	pH units	2.5	2.3	2.4	2.2	2.3
TPA pH 6.5	moles H <sup>+</sup> / tonne	213	240	338	505	418
s-TPA pH 6.5	%w/w S	0.34	0.39	0.54	0.81	0.67
TSA pH 6.5	moles H <sup>+</sup> / tonne	213	240	338	505	418
s-TSA pH 6.5	%w/w S	0.34	0.39	0.54	0.81	0.67
ANCE	% CaCO <sub>3</sub>	<0.05	<0.05	<0.05	<0.05	<0.05
a-ANCe	moles H <sup>+</sup> /	<5	<5	<5	<5	<5
s-ANCe	%w/w S	<0.05	<0.05	<0.05	<0.05	<0.05
Skci	%w/w	0.072	0.038	0.031	0.034	0.058
Sp	%w/w	0.58	0.68	0.81	1.1	1.2
Spos	%w/w	0.51	0.65	0.78	1.0	1.1
a-Spos	moles H <sup>+</sup> /	317	402	489	645	692
Саксі	%w/w	0.19	0.082	0.14	0.21	0.10
Сар	%w/w	0.25	0.090	0.20	0.26	0.10
Сад	%w/w	0.060	0.008	0.056	0.049	<0.005
Мдксі	%w/w	0.034	0.005	0.062	0.060	0.037
Mg <sub>P</sub>	%w/w	0.027	0.007	0.073	0.065	0.039
MgA	%w/w	<0.005	<0.005	0.010	0.005	<0.005
SRAS	%w/w	<0.005	<0.005	<0.005	<0.005	<0.005
Shci	%w/w	0.057	0.029	0.057	0.041	0.058
SNAS	%w/w	<0.005	<0.005	0.026	0.007	<0.005
a-Snas	moles H <sup>+</sup> /	<5	<5	12	<5	<5
s-Snas	%w/w S	<0.01	<0.01	0.019	<0.01	<0.01
a-Net Acidity	moles H <sup>+</sup> /	247	402	388	552	692
Liming rate	kg CaCO3/ton ne	19	30	29	41	52



Method ID	Methodology Summary
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP- AES	Determination of various metals by ICP-AES.
Metals.21 CV- AAS	Determination of Mercury by Cold Vapour AAS.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
LAB.55	Nitrate water extractable - determined colourimetrically based on EPA114A.
LAB.56	Nitrite water extractable - determined colourimetrically based on EPA116A.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
LAB.66	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen.
LAB.1	pH - Measured using pH meter and electrode in accordance with APHA 20th ED, 4500-H+.
LAB.2	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA2510 20th ED and Rayment & Higginson.
LAB.11	Chloride determined by argentometric titration.
LAB.9	Sulphate determined turbidimetrically.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
AS4964-2004	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.
LAB.64	sPOCAS determined using titrimetric and ICP-AES techniques. Based on Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004.



Method ID	Methodology Summary



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOC's in soil						Base II Duplicate II %RPD		Recovery
Date extracted	-			16/5/08	19325-8	16/05/2008    16/05/2008	LCS-2	16/5/08%
Date analysed	-			17/5/08	19325-8	17/05/2008    17/05/2008	LCS-2	17/5/08%
Dichlorodifluoromethane	mg/kg	10	GC.14	<10	19325-8	<10    <10	[NR]	[NR]
Chloromethane	mg/kg	10	GC.14	<10	19325-8	<10    <10	[NR]	[NR]
Vinyl Chloride	mg/kg	10	GC.14	<10	19325-8	<10    <10	[NR]	[NR]
Bromomethane	mg/kg	10	GC.14	<10	19325-8	<10    <10	[NR]	[NR]
Chloroethane	mg/kg	10	GC.14	<10	19325-8	<10    <10	[NR]	[NR]
Trichlorofluoromethane	mg/kg	10	GC.14	<10	19325-8	<10    <10	[NR]	[NR]
1,1-Dichloroethene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
trans-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,1-dichloroethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	LCS-2	93%
cis-1,2-dichloroethene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
bromochloromethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
chloroform	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	LCS-2	84%
2,2-dichloropropane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,2-dichloroethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	LCS-2	87%
1,1,1-trichloroethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	LCS-2	81%
1,1-dichloropropene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
carbon tetrachloride	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
Benzene	mg/kg	0.5	GC.14	<0.5	19325-8	<0.5    <0.5	[NR]	[NR]
dibromomethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,2-dichloropropane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
trichloroethene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	LCS-2	116%
bromodichloromethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	LCS-2	114%
trans-1,3- dichloropropene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
cis-1,3-dichloropropene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,1,2-trichloroethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
Toluene	mg/kg	0.5	GC.14	<0.5	19325-8	<0.5    <0.5	[NR]	[NR]
1,3-dichloropropane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
dibromochloromethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	LCS-2	111%
1,2-dibromoethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
tetrachloroethene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	LCS-2	111%
1,1,1,2- tetrachloroethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
chlorobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
Ethylbenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
bromoform	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
m+p-xylene	mg/kg	2	GC.14	<2.0	19325-8	<2.0    <2.0	[NR]	[NR]
styrene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,1,2,2- tetrachloroethane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
o-Xylene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]



QUALITY CONTROL  VOC's in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results  Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
VOC 5 III 50II						Base ii Dupiicate ii 70KPD		
1,2,3-trichloropropane*	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
isopropylbenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
bromobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
n-propyl benzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
2-chlorotoluene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
4-chlorotoluene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,3,5-trimethyl benzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
tert-butyl benzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,2,4-trimethyl benzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,3-dichlorobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
sec-butyl benzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,4-dichlorobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
4-isopropyl toluene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,2-dichlorobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
n-butyl benzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,2-dibromo-3- chloropropane	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,2,4-trichlorobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
hexachlorobutadiene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
1,2,3-trichlorobenzene	mg/kg	1	GC.14	<1.0	19325-8	<1.0    <1.0	[NR]	[NR]
Surrogate Dibromofluorometha	%		GC.14	87	19325-8	88    85    RPD: 3	LCS-2	85%
Surrogate aaa- Trifluorotoluene	%		GC.14	89	19325-8	87    93    RPD: 7	LCS-2	105%
Surrogate Toluene-da	%		GC.14	94	19325-8	91    90    RPD: 1	LCS-2	92%
Surrogate 4- Bromofluorobenzene	%		GC.14	93	19325-8	78    75    RPD: 4	LCS-2	70%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
vTPH & BTEX in Soil					3111#	Base II Duplicate II %RPD		Recovery
Date extracted	-			16/5/08	19325-2	16/05/2008    16/05/2008	LCS-3	16/5/08%
Date analysed	-			17/5/08	19325-2	17/05/2008    17/05/2008	LCS-3	17/5/08%
vTPH C6 - C9	mg/kg	25	GC.16	<25	19325-2	<25    <25	LCS-3	112%
Benzene	mg/kg	0.5	GC.14	<0.5	19325-2	<0.5    <0.5	LCS-3	115%
Toluene	mg/kg	0.5	GC.14	<0.5	19325-2	<0.5    <0.5	LCS-3	122%
Ethylbenzene	mg/kg	1	GC.14	<1.0	19325-2	<1.0    <1.0	LCS-3	113%
m+p-xylene	mg/kg	2	GC.14	<2.0	19325-2	<2.0    <2.0	LCS-3	125%
o-Xylene	mg/kg	1	GC.14	<1.0	19325-2	<1.0    <1.0	LCS-3	127%
Surrogate aaa- Trifluorotoluene	%		GC.14	94	19325-2	94    93    RPD: 1	LCS-3	78%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTPH in Soil (C10-C36)						Base II Duplicate II %RPD		
Date extracted	-			16/5/08	19325-6	16/05/2008    16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19325-6	16/05/2008    16/05/2008	LCS-3	16/5/08%
TPH C10 - C14	mg/kg	50	GC.3	<50	19325-6	<50    <50	LCS-3	75%
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	100	GC.3	<100	19325-6	<100    <100	LCS-3	81%
TPH C29 - C36	mg/kg	100	GC.3	<100	19325-6	<100    <100	LCS-3	92%
Surrogate o-Terphenyl	%		GC.3	94	19325-6	90    88    RPD: 2	LCS-3	87%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			16/5/08	19325-6	16/05/2008    16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19325-6	16/05/2008    16/05/2008	LCS-3	16/5/08%
Naphthalene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	LCS-3	108%
Acenaphthylene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	LCS-3	104%
Phenanthrene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	LCS-3	105%
Anthracene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	LCS-3	107%
Pyrene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	LCS-3	110%
Benzo(a)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	LCS-3	113%
Benzo(b+k)fluoranthene	mg/kg	0.2	GC.12 subset	<0.2	19325-6	<0.2    <0.2	[NR]	[NR]



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
PAHs in Soil					Sm#	Page II Duplicate II 9/ PPD		Recovery
PAHS IN SOII						Base II Duplicate II %RPD		
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	19325-6	<0.05    <0.05	LCS-3	108%
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	19325-6	<0.1    <0.1	[NR]	[NR]
Surrogate p-Terphenyl- d <sub>14</sub>	%		GC.12 subset	113	19325-6	106    107    RPD: 1	LCS-3	109%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Organochlorine Pesticides in soil						Base II Duplicate II %RPD		Recovery
Date extracted	-			16/5/08	19325-7	16/05/2008    16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19325-7	16/05/2008    16/05/2008	LCS-3	16/5/08%
HCB	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	LCS-3	91%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	LCS-3	106%
Heptachlor	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	LCS-3	101%
delta-BHC	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	LCS-3	98%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	LCS-3	100%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	LCS-3	103%
Dieldrin	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	LCS-3	103%
Endrin	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	LCS-3	94%
pp-DDD	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	LCS-3	107%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	LCS-3	100%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	81	19325-7	77    78    RPD: 1	LCS-3	84%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
Organophosphorus Pesticides					Sm#	Base II Duplicate II %RPD		Recovery
Date extracted	-			16/5/08	19325-7	16/05/2008    16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19325-7	16/05/2008    16/05/2008	LCS-3	16/5/08%
Diazinon	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1    <0.1	LCS-3	100%
Fenitrothion	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1    <0.1	LCS-3	91%
Bromophos-ethyl	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	GC.8	<0.1	19325-7	<0.1    <0.1	LCS-3	122%
Surrogate TCLMX	%		GC.8	81	19325-7	77    78    RPD: 1	LCS-3	88%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	-			16/5/08	19325-7	16/05/2008    16/05/2008	LCS-3	16/5/08%
Date analysed	-			16/5/08	19325-7	16/05/2008    16/05/2008	LCS-3	16/5/08%
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	19325-7	<0.1    <0.1	LCS-3	95%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	19325-7	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	81	19325-7	77    78    RPD: 1	LCS-3	130%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			19/5/08	[NT]	[NT]	LCS-1	19/5/08%
Date analysed	_			20/5/08	[NT]	[NT]	LCS-1	20/5/08%
Total Phenolics (as Phenol)	mg/kg	5	LAB.30	<5.0	[NT]	[NT]	LCS-1	115%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		,
Date digested	-			19/05/0 8	19325-1	19/05/2008    19/05/2008	LCS-3	19/05/08%
Date analysed	-			21/05/0	19325-1	21/05/2008    21/05/2008	LCS-3	21/05/08%
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4.0	19325-1	<4.0    <4.0	LCS-3	97%
Cadmium	mg/kg	1	Metals.20 ICP-AES	<1.0	19325-1	<1.0    <1.0	LCS-3	102%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1.0	19325-1	4.5    4.6    RPD: 2	LCS-3	102%

Envirolab Reference: 19325 Revision No: R 00



Page 32 of 41

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Acid Extractable metals in soil					Ollim	Base II Duplicate II %RPD		110001619
Copper	mg/kg	1	Metals.20 ICP-AES	<1.0	19325-1	78    79    RPD: 1	LCS-3	103%
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	19325-1	52    54    RPD: 4	LCS-3	98%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.10	19325-1	0.37    0.45    RPD: 20	LCS-3	109%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1.0	19325-1	8.8    9.2    RPD: 4	LCS-3	102%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1.0	19325-1	81    87    RPD: 7	LCS-3	101%
Phosphorus	mg/kg	10	Metals.20 ICP-AES	<10	[NT]	[NT]	LCS-3	96%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorg - soil						Base II Duplicate II %RPD		
Ammonia as N in soil	mg/kg	0.5	LAB.57	<0.5	[NT]	[NT]	LCS-1	84%
Nitrate as N in soil	mg/kg	0.5	LAB.55	<0.5	[NT]	[NT]	LCS-1	101%
Nitrite as N in soil	mg/kg	0.1	LAB.56	<0.1	[NT]	[NT]	LCS-1	104%
Total Kjeldahl Nitrogen	mg/kg	30	Ext-020	<30	[NT]	[NT]	LCS-1	116%
Total Nitrogen in soil	mg/kg	10	LAB.66	<10	[NT]	[NT]	[NR]	[NR]
pH 1:5 soil:water	pH Units		LAB.1	[NT]	19325-10	7.3    7.3    RPD: 0	LCS-1	100%
Electrical Conductivity 1:5 soil:water	μS/cm	1	LAB.2	<1.0	19325-10	 110    110    RPD: 0	LCS-1	104%
Salinity as NACL *	mg/kg	1	LAB.2	<1.0	19325-10	70    70    RPD: 0	[NR]	[NR]
Resistivity in soil*	ohm m	1	LAB.2	<1.0	19325-10	91    91    RPD: 0	[NR]	[NR]
Chloride 1:5 soil:water	mg/kg	100	LAB.11	<100	19325-10	<100    [N/T]	LCS-1	109%
Sulphate, SO4 1:5 soil:water	mg/kg	25	LAB.9	<25	19325-10	<25    [N/T]	LCS-1	109%
QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD		
Date prepared	-			16/5/08	19325-2	16/05/2008    16/05/2008		
Date analysed	_			16/5/08	19325-2	16/05/2008    16/05/2008		
Moisture	%	0.1	LAB.8	<0.10	19325-2	16    16    RPD: 0		
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Herbicides in Soil						Base II Duplicate II %RPD		Recovery
Dicamba	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	98%
MCPA	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	114%
Dichlorprop	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	114%
2,4-D	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	126%
2,4,5-T	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	125%
2,4,5-TP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	112%
2,4,5-11 2,4-DB		0.1	Ext-020	<0.1		[NT]	LCS-1	104%
Z,4-DD	mg/kg	0.1	LXI-020	~0.1	[NT]	[141]	LU3-1	10470



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Herbicides in Soil					JIII#	Base II Duplicate II %RPD		Recovery
MCPP	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	100%
Triclopyr	mg/kg	0.1	Ext-020	<0.1	[NT]	[NT]	LCS-1	136%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank				
Asbestos ID - materials								
Date analysed	-			16/5/08				
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
sPOCAS						Base II Duplicate II %RPD		Recovery
pH kcl	pH units		LAB.64	[NT]	[NT]	[NT]	LCS	100%
TAA pH 6.5	moles H <sup>+</sup> / tonne	5	LAB.64	<5	[NT]	[NT]	LCS	91%
s-TAA pH 6.5	%w/w S	0.01	LAB.64	<0.01	[NT]	[NT]	[NR]	[NR]
pH ox	pH units		LAB.64	[NT]	[NT]	[NT]	LCS	96%
TPA pH 6.5	moles H <sup>+</sup> / tonne	5	LAB.64	<5.0	[NT]	[NT]	LCS	92%
s-TPA pH 6.5	%w/w S	0.01	LAB.64	<0.01	[NT]	[NT]	[NR]	[NR]
TSA pH 6.5	moles H <sup>+</sup> / tonne	5	LAB.64	<5.0	[NT]	[NT]	LCS	92%
s-TSA pH 6.5	%w/w S	0.01	LAB.64	<0.01	[NT]	[NT]	[NR]	[NR]
ANCE	% CaCO <sub>3</sub>	0.05	LAB.64	<0.05	[NT]	[NT]	[NR]	[NR]
a-ANCE	moles H <sup>+</sup> / tonne	5	LAB.64	<5	[NT]	[NT]	[NR]	[NR]
s-ANCE	%w/w S	0.05	LAB.64	<0.05	[NT]	[NT]	[NR]	[NR]
Skci	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	93%
Sp	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	94%
Spos	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
a-Spos	moles H <sup>+</sup> / tonne	5	LAB.64	<5.0	[NT]	[NT]	[NR]	[NR]
Саксі	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	97%
Сар	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	100%
Сад	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
Мдксі	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	92%
MgP	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	93%
MgA	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
SRAS	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	<b>,</b>	Spike Sm#	Spike % Recovery
sPOCAS					O.III.	Base II Duplicate II %	RPD		recovery
Shci	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]		LCS	92%
Snas	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]		[NR]	[NR]
a-Snas	moles H <sup>+</sup> / tonne	5	LAB.64	<5	[NT]	[NT]		[NR]	[NR]
s-Snas	%w/w S	0.01	LAB.64	<0.01	[NT]	[NT]		[NR]	[NR]
a-Net Acidity	moles H <sup>+</sup> / tonne	10	LAB.64	<10	[NT]	[NT]		LCS	94%
Liming rate	kg CaCO3 /tonne	0.75	LAB.64	<0.75	[NT]	[NT]		[NR]	[NR]
QUALITY CONTROL	UNITS	1	Dup. Sm#		Duplicate	Spike Sm#	Spil	ke % Recovery	
vTPH & BTEX in Soil				Base + [	Ouplicate + %RPD				
Date extracted	-		[NT]		[NT]	19325-6		16/5/08%	
Date analysed	-		[NT]		[NT]	19325-6		17/5/08%	
vTPH C6 - C9	mg/kg		[NT]		[NT]	19325-6		103%	
Benzene	mg/kg		[NT]	[NT] 19325-6			108%		
Toluene	mg/kg		[NT]		[NT]	19325-6		112%	
Ethylbenzene	mg/kg		[NT]		[NT]	19325-6		106%	
m+p-xylene	mg/kg		[NT]		[NT]	19325-6		113%	
o-Xylene	mg/kg		[NT]		[NT]	19325-6		115%	
Surrogate aaa- Trifluorotoluene	%		[NT]		[NT]	19325-6		89%	
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	]	Oup. Sm#		Duplicate Duplicate + %RPD	Spike Sm#	Spil	ke % Recovery	
Date extracted	-		[NT]		[NT]	19325-24		16/5/08%	
Date analysed	-		[NT]		[NT]	19325-24		16/5/08%	
TPH C10 - C14	mg/kg		[NT]		[NT]	19325-24		77%	
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg		[NT]		[NT]	19325-24		83%	
TPH C29 - C36	mg/kg		[NT]		[NT]	19325-24		94%	
Surrogate o-Terphenyl	%		[NT]		[NT]	19325-24		90%	
QUALITY CONTROL	UNITS	[	Dup. Sm#		Duplicate	Spike Sm#	Spil	ke % Recovery	
PAHs in Soil				Base + [	Ouplicate + %RPD				
Date extracted	-		19325-49	16/05/2	008    16/05/2008	19325-24		16/5/08%	
Date analysed	-		19325-49	16/05/2	008    16/05/2008	19325-24		16/5/08%	
Naphthalene	mg/kg		19325-49	<	:0.1    <0.1	19325-24		105%	
Acenaphthylene	mg/kg		19325-49	<	(0.1    < 0.1	[NR]		[NR]	
Acenaphthene	mg/kg		19325-49	<	(0.1    < 0.1	[NR]		[NR]	
Fluorene	mg/kg		19325-49		<0.1    0.1	19325-24		104%	

Envirolab Reference: 19325 Revision No: R 00



QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Phenanthrene	mg/kg	19325-49	0.8    1.4    RPD: 55	19325-24	107%
Anthracene	mg/kg	19325-49	0.1    0.3    RPD: 100	[NR]	[NR]
Fluoranthene	mg/kg	19325-49	2.7    3.9    RPD: 36	19325-24	107%
Pyrene	mg/kg	19325-49	2.8    4.1    RPD: 38	19325-24	110%
Benzo(a)anthracene	mg/kg	19325-49	1.3    2.1    RPD: 47	[NR]	[NR]
Chrysene	mg/kg	19325-49	1.8    2.6    RPD: 36	19325-24	117%
Benzo(b+k)fluoranthene	mg/kg	19325-49	3.0    4.6    RPD: 42	[NR]	[NR]
Benzo(a)pyrene	mg/kg	19325-49	1.5    2.5    RPD: 50	19325-24	111%
Dibenzo(a,h)anthracene	mg/kg	19325-49	<0.1    0.1	[NR]	[NR]
Indeno(1,2,3-c,d)pyrene	mg/kg	19325-49	1.2    2.1    RPD: 55	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	19325-49	1.1    1.8    RPD: 48	[NR]	[NR]
Surrogate p-Terphenyl- d <sub>14</sub>	%	19325-49	101    60    RPD: 51	19325-24	107%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19325-13	16/5/08%
Date analysed	-	[NT]	[NT]	19325-13	16/5/08%
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	19325-13	98%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	19325-13	108%
Heptachlor	mg/kg	[NT]	[NT]	19325-13	108%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	19325-13	102%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	19325-13	102%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	19325-13	100%
Dieldrin	mg/kg	[NT]	[NT]	19325-13	102%
Endrin	mg/kg	[NT]	[NT]	19325-13	96%
pp-DDD	mg/kg	[NT]	[NT]	19325-13	101%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	19325-13	95%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19325-13	91%



QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19325-13	16/5/08%
Date analysed	-	[NT]	[NT]	19325-13	16/5/08%
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	19325-13	86%
Fenitrothion	mg/kg	[NT]	[NT]	19325-13	78%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	19325-13	103%
Surrogate TCLMX	%	[NT]	[NT]	19325-13	81%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19325-13	16/5/08%
Date analysed	-	[NT]	[NT]	19325-13	16/5/08%
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	19325-13	80%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19325-13	121%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19325-19	19/05/2008    19/05/2008	LCS-4	19/05/08%
Date analysed	-	19325-19	21/05/2008    21/05/2008	LCS-4	21/05/08%
Arsenic	mg/kg	[NT]	[NT]	LCS-4	98%
Cadmium	mg/kg	[NT]	[NT]	LCS-4	103%
Chromium	mg/kg	[NT]	[NT]	LCS-4	103%
Copper	mg/kg	[NT]	[NT]	LCS-4	103%
Lead	mg/kg	[NT]	[NT]	LCS-4	99%
Mercury	mg/kg	[NT]	[NT]	LCS-4	107%
Nickel	mg/kg	[NT]	[NT]	LCS-4	103%
Zinc	mg/kg	[NT]	[NT]	LCS-4	101%
Phosphorus	mg/kg	19325-19	200    200    RPD: 0	LCS-4	96%



QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Ammonia as N in soil	mg/kg	19325-7	1.6    1.6    RPD: 0	19325-19	81%
Nitrate as N in soil	mg/kg	19325-7	<0.5    <0.5	19325-19	91%
Nitrite as N in soil	mg/kg	19325-7	<0.1    <0.1	19325-19	100%
pH 1:5 soil:water	pH Units	[NT]	[NT]	[NR]	[NR]
Electrical Conductivity 1:5 soil:water	μS/cm	[NT]	[NT]	[NR]	[NR]
Salinity as NACL *	mg/kg	[NT]	[NT]	[NR]	[NR]
Resistivity in soil*	ohm m	[NT]	[NT]	[NR]	[NR]
Chloride 1:5 soil:water	mg/kg	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4 1:5 soil:water	mg/kg	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD		
Date prepared	-	19325-6	16/05/2008    16/05/2008		
Date analysed	-	19325-6	16/05/2008    16/05/2008		
Moisture	%	19325-6	31    31    RPD: 0		
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19325-38	19/05/2008    19/05/2008	19325-5	19/05/08%
Date analysed	-	19325-38	21/05/2008    21/05/2008	19325-5	21/05/08%
Arsenic	mg/kg	19325-38	<4.0    <4.0	19325-5	106%
Cadmium	mg/kg	19325-38	<1.0    <1.0	19325-5	102%
Chromium	mg/kg	19325-38	4.0    3.2    RPD: 22	19325-5	107%
Copper	mg/kg	19325-38	6.1    6.5    RPD: 6	19325-5	105%
Lead	mg/kg	19325-38	12    12    RPD: 0	19325-5	98%
Mercury	mg/kg	19325-38	<0.10    <0.10	19325-5	102%
Nickel	mg/kg	19325-38	<1.0    <1.0	19325-5	104%
Zinc	mg/kg	19325-38	13    17    RPD: 27	19325-5	105%
Phosphorus	mg/kg	[NT]	[NT]	[NR]	[NR]



QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD		
Date prepared	-	19325-7	16/05/2008    16/05/2008		
Date analysed	-	19325-7	16/05/2008    16/05/2008		
Moisture	%	19325-7	7.8    7.8    RPD: 0		
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	19325-54	19/05/2008    19/05/2008	19325-40	19/05/08%
Date analysed	-	19325-54	21/05/2008    21/05/2008	19325-40	21/05/08%
Arsenic	mg/kg	19325-54	4.2    <4.0	19325-40	116%
Cadmium	mg/kg	19325-54	<1.0    <1.0	19325-40	103%
Chromium	mg/kg	19325-54	13    12    RPD: 8	19325-40	108%
Copper	mg/kg	19325-54	18    22    RPD: 20	19325-40	113%
Lead	mg/kg	19325-54	41    50    RPD: 20	19325-40	101%
Mercury	mg/kg	19325-54	<0.10    <0.10	19325-40	112%
Nickel	mg/kg	19325-54	2.1    3.2    RPD: 42	19325-40	104%
Zinc	mg/kg	19325-54	31    44    RPD: 35	19325-40	101%
Phosphorus	mg/kg	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date prepared	-	19325-8	16/05/2008    16/05/2008		
Date analysed	_	19325-8	16/05/2008    16/05/2008		
Moisture	%	19325-8	7.9    7.9    RPD: 0		
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD		
Date prepared	-	19325-49	16/05/2008    16/05/2008		
Date analysed	-	19325-49	16/05/2008    16/05/2008		
Moisture	%	19325-49	13    13    RPD: 0		
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD		
Date prepared	-	19325-1	16/05/2008    16/05/2008		
Date analysed	-	19325-1	16/05/2008    16/05/2008		
Moisture	%	19325-1	29    29    RPD: 0		
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD		
Date prepared	-	19325-19	16/05/2008    16/05/2008		
Date analysed	_	19325-19	16/05/2008    16/05/2008		
<b>,</b> - <b></b> -			11 11 11 11 11 11 11 11 11 11 11 11 11		



QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate
Moisture			Base + Duplicate + %RPD
Date prepared	-	19325-38	16/05/2008    16/05/2008
Date analysed	-	19325-38	16/05/2008    16/05/2008
Moisture	%	19325-38	16    16    RPD: 0
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate
Moisture			Base + Duplicate + %RPD
Date prepared	-	19325-54	16/05/2008    16/05/2008
Date analysed	-	19325-54	16/05/2008    16/05/2008
Moisture	%	19325-54	19    19    RPD: 0



### **Report Comments:**

**Texture Classification:** 

10 = Sandy Loam

22 = Sandy Loam

26 = Sandy Loam

27 = Sandy Loam

TKN and Herbicides analysed by NMI: Report Number - RN680686

Asbestos was analysed by Approved Identifier: Joshua Lim

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

NR: Not requested <: Less than >: Greater than

### **Quality Control Definitions**

**Blank**: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. **Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample

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

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

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

### **Laboratory Acceptance Criteria:**

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for

SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for

SVOC and speciated phenols.





**Envirolab Services Pty Ltd** 

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

## **CERTIFICATE OF ANALYSIS 19429**

Client:

**Consulting Earth Scientists** 

Suite 121, 26-32 Pirrama Rd Pyrmont NSW 2009

**Attention:** Kelly Weir / Luke Jenkins

Sample log in details:

Your Reference: CES050706-BCC Area A

No. of samples:34 SoilsDate samples received:16/05/08Date completed instructions received:16/05/08

### **Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

**Report Details:** 

Date results requested by:

Date of Preliminary Report:

Issue Date:

23/05/08

not issued
20/05/08

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**Results Approved By:** 

Approved identifier & Signatory

Envirolab Reference: 19429 Revision No: R 00



Page 1 of 6

Asbestos ID - soils						
Our Reference:	UNITS	19429-1	19429-2	19429-3	19429-4	19429-5
Your Reference		060508-52-K	090508-208-	060508-46-K	080508-161-	090508-207-
		W	KW	W	KW	KW
Date Sampled		6/05/2008	9/05/2008	6/05/2008	8/05/2008	9/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil				
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected				
Asbestos ID - soils	LINUTO	40400.0	40400 7	40400.0	40400.0	40.400.40
Our Reference:	UNITS	19429-6	19429-7	19429-8	19429-9	19429-10
Your Reference		070508-70-K W	060508-43-K W	060508-04-K W	080508-158- KW	070508-76-K W
Date Sampled		7/05/2008	6/05/2008	6/05/2008	8/05/2008	7/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil				
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	_	Respirable	Respirable	Respirable	Respirable	Respirable
,		fibres not				
		detected	detected	detected	detected	detected
Asbestos ID - soils						
Our Reference:	UNITS	19429-11	19429-12	19429-13	19429-14	19429-15
Your Reference		060508-33-K W	060508-10-K W	080508-151- KW	080508-141- KW	080508-102- KW
Date Sampled		6/05/2008	6/05/2008	8/05/2008	8/05/2008	8/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil				
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable	Respirable	Respirable	Respirable	Respirable
j		fibres not				
		detected	detected	detected	detected	detected



Asbestos ID - soils Our Reference: Your Reference  Date Sampled Type of sample	UNITS	19429-16 080508-116- KW 8/05/2008 Soil	19429-17 070508-84-K W 7/05/2008 Soil	19429-18 080508-136- KW 8/05/2008 Soil	19429-19 080508-105- KW 8/05/2008 Soil	19429-20 120508-261- KW 12/05/2008 Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil	30g soil	30g soil	30g soil	30g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected
Asbestos ID - soils						
Our Reference: Your Reference	UNITS	19429-21 1250508-254- KW	19429-22 120508-263- KW	19429-23 120508-228- KW	19429-24 130508-282- KW	19429-25 130508-308- KW
Date Sampled		12/05/2008	12/05/2008	12/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil	30g soil	30g soil	30g soil	30g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected
Asbestos ID - soils						
Our Reference:	UNITS	19429-26	19429-27	19429-28	19429-29	19429-30
Your Reference		150508-391- KW	130508-328- KW	130508-289- KW	130508-317- KW	130508-302- KW
Date Sampled		15/05/2008	13/05/2008	13/05/2008	13/05/2008	13/05/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil	30g soil	30g soil	30g soil	30g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected



Asbestos ID - soils Our Reference:	UNITS	19429-31	19429-32	19429-33	19429-34
Your Reference		150508-381- KW	150508-378/3 79-KW	150508-352/3 53/354-KW	150508-367- KW
Date Sampled		15/05/2008	15/05/2008	15/05/2008	15/05/2008
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	20/05/2008	20/05/2008	20/05/2008	20/05/2008
Sample Description	-	30g soil	30g soil	30g soil	30g soil
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected



Method ID	Methodology Summary		
ASB.1	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.		



#### **Report Comments:**

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample.

Envirolab recommends supplying 30-40g of sample in it's own container.

Asbestos was analysed by Approved Identifier: Steven Dale

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

NR: Not requested <: Less than >: Greater than

### **Quality Control Definitions**

**Blank**: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. **Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

#### **Laboratory Acceptance Criteria:**

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for

SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for

SVOC and speciated phenols.





Envirolab Services Pty Ltd

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

## **CERTIFICATE OF ANALYSIS 19432-A**

Client:

**Consulting Earth Scientists** 

Suite 121, 26-32 Pirrama Rd Pyrmont NSW 2009

Attention: Luke Jenkins / Kelly Weir

Sample log in details:

Your Reference: CES050706-BCC Area A

No. of samples: Additional Testing on 2 Soils

Date samples received: 16/05/08

Date completed instructions received: 29/05/08

**Analysis Details:** 

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

**Report Details:** 

Date results requested by: 5/06/08

Date of Preliminary Report: Not Issued Issue Date: 3/06/08

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### **Results Approved By:**

Jacinta/Hurst Operations Manager



vTPH & BTEX in Soil			
Our Reference:	UNITS	19432-A-8	19432-A-16
Your Reference		150508-347- KW	150508-346- KW
Date Sampled		15/05/2008	15/05/2008
Type of sample Sample Matrix Code Time Sampled		Soil SO 00:00	Soil SO 00:00
Date extracted	-	30/05/2008	30/05/2008
Date analysed	-	31/05/2008	31/05/2008
vTPH C6 - C9	mg/kg	<25	<25
Benzene	mg/kg	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	92	61



sTPH in Soil (C10-C36)			
Our Reference:	UNITS	19432-A-8	19432-A-16
Your Reference		150508-347- KW	150508-346- KW
Date Sampled		15/05/2008	15/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	SO
Time Sampled		00:00	00:00
Date extracted	-	30/05/2008	30/05/2008
Date analysed	-	30/05/2008	30/05/2008
TPH C10 - C14	mg/kg	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100
TPH C29 - C36	mg/kg	<100	<100
Surrogate o-Terphenyl	%	83	79



Moisture			
Our Reference:	UNITS	19432-A-8	19432-A-16
Your Reference		150508-347- KW	150508-346- KW
Date Sampled		15/05/2008	15/05/2008
Type of sample		Soil	Soil
Sample Matrix Code		SO	so
Time Sampled		00:00	00:00
Date prepared	-	30/05/2008	30/05/2008
Date analysed	-	30/05/2008	30/05/2008
Moisture	%	18	22



Method ID	Methodology Summary
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.



QUALITY CONTROL UNITS PQL METHOD Blank Duplicate Sm# Duplicate results Spik  vTPH & BTEX in Soil Base II Duplicate II %RPD	ke Sm# Spike % Recovery
vTPH & BTEX in Soil Base II Duplicate II %RPD	
Date extracted         -         30/5/08         [NT]         [NT]         LC	CS-2 30/5/08%
Date analysed         -         31/5/08         [NT]         [NT]         L0	CS-2 31/5/08%
vTPH C6 - C9         mg/kg         25         GC.16         <25         [NT]         [NT]         L0	CS-2 117%
Benzene         mg/kg         0.5         GC.14         <0.5         [NT]         [NT]         L0	CS-2 103%
Toluene mg/kg 0.5 GC.14 <0.5 [NT] [NT] L0	CS-2 135%
Ethylbenzene         mg/kg         1         GC.14         <1.0         [NT]         [NT]         L0	CS-2 117%
m+p-xylene mg/kg 2 GC.14 <2.0 [NT] [NT] L0	CS-2 114%
o-Xylene mg/kg 1 GC.14 <1.0 [NT] [NT] L(	CS-2 118%
Surrogate % GC.14 110 [NT] [NT] L0	CS-2 113%
QUALITY CONTROL UNITS PQL METHOD Blank Duplicate Sm# Duplicate results Spik	ke Sm# Spike %
-TPU in Onit (040,000)	Recovery
sTPH in Soil (C10-C36)  Base II Duplicate II %RPD	
Date extracted         -         30/5/08         [NT]         [NT]         L0	CS-2 30/5/08%
Date analysed         -         30/5/08         [NT]         [NT]         L0	CS-2 30/5/08%
TPH C <sub>10</sub> - C <sub>14</sub> mg/kg         50         GC.3         <50         [NT]         [NT]         LC	CS-2 88%
TPH C <sub>15</sub> - C <sub>28</sub> mg/kg 100 GC.3 <100 [NT] [NT] L0	CS-2 88%
TPH C <sub>29</sub> - C <sub>36</sub> mg/kg 100 GC.3 <100 [NT] [NT] L(	CS-2 104%
Surrogate % GC.3 82 [NT] [NT] L0	CS-2 81%
QUALITY CONTROL UNITS PQL METHOD Blank Moisture	
Date prepared - 30/5/08	
Date analysed - 30/5/08	



### **Report Comments:**

Asbestos was analysed by Approved Identifier: Not applicable for this job

selected should be one where the analyte concentration is easily measurable.

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

NR: Not requested <: Less than >: Greater than

### **Quality Control Definitions**

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### **Laboratory Acceptance Criteria:**

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Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for

sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for

SVOC and speciated phenols.





**Envirolab Services Pty Ltd** 

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# **CERTIFICATE OF ANALYSIS 19834**

Client:

**Consulting Earth Scientists** 

Suite 121, 26-32 Pirrama Rd Pyrmont NSW 2009

Attention: Luke Jenkins

Sample log in details:

Your Reference: CES050706-BCC, Area A Water

No. of samples: 15 Waters
Date samples received: 30/05/08
Date completed instructions received: 30/05/08

**Analysis Details:** 

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

**Report Details:** 

Date results requested by: 10/06/08

Date of Preliminary Report: Not Issued Issue Date: 10/06/08

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**Results Approved By:** 

David Springer()

Business Development & Quality Manager



VOCs in water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-	290508-04-	290508-05-	290508-06-	290508-08
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample Sample Matrix Code		Water WG	Water WG	Water WG	Water WG	Water WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Dichlorodifluoromethane	μg/L	<10	<10	<10	<10	<10
Chloromethane	μg/L	<10	<10	<10	<10	<10
Vinyl Chloride	μg/L	<10	<10	<10	<10	<10
Bromomethane	μg/L	<10	<10	<10	<10	<10
Chloroethane	μg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	μg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,2-dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Cis-1,2-dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromomethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	μg/L	<2.0	<2.0	<2.0	<2.0	<2.0



VOCs in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS 	19834-1 290508-01- 29/05/2008 Water WG 00:00	19834-4 290508-04- 29/05/2008 Water WG 00:00	19834-5 290508-05- 29/05/2008 Water WG 00:00	19834-6 290508-06- 29/05/2008 Water WG 00:00	19834-7 290508-08- 29/05/2008 Water WG 00:00
Styrene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
o-xylene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Tert-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Sec-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%	92	92	89	86	85
Surrogate toluene-d8	%	92	93	94	92	87
Surrogate 4-BFB	%	86	89	84	89	73



VOCs in water Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference		290508-09-	290508-10-	290508-11-	290508-12-
Date Sampled Type of sample		30/05/2008 Water	30/05/2008 Water	30/05/2008 Water	30/05/2008 Water
Sample Matrix Code		WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Dichlorodifluoromethane	μg/L	<10	<10	<10	<10
Chloromethane	μg/L	<10	<10	<10	<10
Vinyl Chloride	μg/L	<10	<10	<10	<10
Bromomethane	μg/L	<10	<10	<10	<10
Chloroethane	μg/L	<10	<10	<10	<10
Trichlorofluoromethane	μg/L	<10	<10	<10	<10
1,1-Dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0
Trans-1,2-dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0
Cis-1,2-dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	μg/L	<1.0	<1.0	<1.0	<1.0
Chloroform	μg/L	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	μg/L	<1.0	<1.0	<1.0	<1.0
Benzene	μg/L	<1.0	<1.0	<1.0	<1.0
Dibromomethane	μg/L	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0
Trichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	μg/L	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0
Toluene	μg/L	<1.0	<1.0	<1.0	<1.0
1,3-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	μg/L	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	μg/L	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	μg/L	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	μg/L	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	μg/L	<1.0	<1.0	<1.0	<1.0
Bromoform	μg/L	<1.0	<1.0	<1.0	<1.0
m+p-xylene	μg/L	<2.0	<2.0	<2.0	<2.0
Styrene	μg/L	<1.0	<1.0	<1.0	<1.0



VOCs in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19834-8 290508-09- 30/05/2008 Water WG 00:00	19834-9 290508-10- 30/05/2008 Water WG 00:00	19834-10 290508-11- 30/05/2008 Water WG 00:00	19834-11 290508-12- 30/05/2008 Water WG 00:00
1,1,2,2-tetrachloroethane	μg/L	<1.0	<1.0	<1.0	<1.0
o-xylene	μg/L	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	μg/L	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	μg/L	<1.0	<1.0	<1.0	<1.0
Bromobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	μg/L	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	μg/L	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0
Tert-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
Sec-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	μg/L	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	μg/L	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	μg/L	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%	85	86	95	86
Surrogate toluene-d8	%	89	92	88	90
Surrogate 4-BFB	%	79	83	84	80



vTPH & BTEX in Water						
Our Reference:	UNITS	19834-1	19834-2	19834-3	19834-4	19834-5
Your Reference		290508-01-	290508-02-	290508-03-	290508-04-	290508-05-
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C6 - C9	μg/L	<10	650	72	<10	<10
Benzene	μg/L	[NA]	190	3.8	[NA]	[NA]
Toluene	μg/L	[NA]	70	<1.0	[NA]	[NA]
Ethylbenzene	μg/L	[NA]	60	1.0	[NA]	[NA]
m+p-xylene	μg/L	[NA]	150	18	[NA]	[NA]
o-xylene	μg/L	[NA]	30	8.0	[NA]	[NA]
Surrogate Dibromofluoromethane	%	92	81	75	92	89
Surrogate toluene-d8	%	92	108	108	93	94
Surrogate 4-BFB	%	86	100	98	89	84
vTPH & BTEX in Water						
Our Reference:	UNITS	19834-6	19834-7	19834-8	19834-9	19834-10
Your Reference		290508-06-	290508-08-	290508-09-	290508-10-	290508-11-
Date Sample		29/05/2008 Water	29/05/2008 Water	30/05/2008 Water	30/05/2008 Water	30/05/2008 Water
Type of sample Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C6 - C9	μg/L	<10	<10	<10	<10	<10
Surrogate Dibromofluoromethane	%	86	85	85	86	95
Surrogate toluene-d8	%	92	87	89	92	88
Surrogate 4-BFB	%	89	73	79	83	84
Ţ.						
vTPH & BTEX in Water						
Our Reference:	UNITS	19834-11	19834-12	19834-13	19834-14	19834-15
Your Reference		290508-12-	290508-13-	290508-14-	Trip Spike	Trip Blank
Date Sampled		30/05/2008	30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample Sample Matrix Code		Water WG	Water WG	Water WG	Water WG	Water WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	_	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date extracted  Date analysed	_	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C6 - C9	- ua/l	<10	<10	<10	[NA]	[NA]
Benzene	μg/L		<1.0	<1.0	[NA] 89%	(NA) <1.0
Toluene	μg/L	[NA]				
	μg/L	[NA]	<1.0	<1.0	121%	<1.0
Ethylbenzene	μg/L	[NA]	<1.0	<1.0	123%	<1.0
m+p-xylene	μg/L	[NA]	<2.0	<2.0	122%	<2.0



vTPH & BTEX in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19834-11 290508-12- 30/05/2008 Water WG 00:00	19834-12 290508-13- 30/05/2008 Water WG 00:00	19834-13 290508-14- 30/05/2008 Water WG 00:00	19834-14 Trip Spike 30/05/2008 Water WG 00:00	19834-15 Trip Blank 30/05/2008 Water WG 00:00
o-xylene	μg/L	[NA]	<1.0	<1.0	123%	<1.0
Surrogate Dibromofluoromethane	%	86	78	76	81	85
Surrogate toluene-d8	%	90	102	98	103	100
Surrogate 4-BFB	%	80	99	95	96	100



UNITS	19834-1	19834-2	19834-3	19834-4	19834-5
	290508-01-	290508-02-	290508-03-	290508-04-	290508-05-
	29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
	Water	Water	Water	Water	Water
	WG	WG	WG	WG	WG
	00:00	00:00	00:00	00:00	00:00
-	3/06/2008	3/06/2008	4/06/2008	3/06/2008	3/06/2008
-	3/06/2008	3/06/2008	4/06/2008	3/06/2008	3/06/2008
μg/L	<50	550	<50	<50	<50
μg/L	<100	<100	<100	<100	<100
μg/L	<100	<100	<100	<100	<100
%	118	137	102	102	111
	- - - - - - - - - - - - - - - - - - -				

sTPH in Water (C10-C36)						
Our Reference:	UNITS	19834-6	19834-7	19834-8	19834-9	19834-10
Your Reference		290508-06-	290508-08-	290508-09-	290508-10-	290508-11-
Date Sampled		29/05/2008	29/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C10 - C14	μg/L	<50	<50	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	μg/L	<100	<100	<100	<100	<100
TPH C29 - C36	μg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	119	63	99	88	83

Surrogate o-Terphenyl	%	91
TPH C29 - C36	μg/L	<100
TPH C15 - C28	μg/L	<100
TPH C10 - C14	μg/L	<50
Date analysed	-	3/06/2008
Date extracted	-	3/06/2008
Time Sampled		00:00
Type of sample Sample Matrix Code		WG
Date Sampled		Water
Your Reference		290508-12- 30/05/2008
Our Reference:	UNITS	19834-11
sTPH in Water (C10-C36)		



PAHs in Water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-	290508-04-	290508-05-	290508-06-	290508-08-
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Naphthalene	μg/L	<1	<1	<1	<1	<1
Acenaphthylene	μg/L	<1	<1	<1	<1	<1
Acenaphthene	μg/L	<1	<1	<1	<1	<1
Fluorene	μg/L	<1	<1	<1	<1	<1
Phenanthrene	μg/L	<1	<1	<1	<1	<1
Anthracene	μg/L	<1	<1	<1	<1	<1
Fluoranthene	μg/L	<1	<1	<1	<1	<1
Pyrene	μg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	μg/L	<1	<1	<1	<1	<1
Chrysene	μg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	μg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	μg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	μg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	μg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	μg/L	<1	<1	<1	<1	<1
Surrogate p-Terphenyl-d <sub>14</sub>	%	91	104	100	109	87



PAHs in Water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19834-8 290508-09- 30/05/2008 Water WG 00:00	19834-9 290508-10- 30/05/2008 Water WG 00:00	19834-10 290508-11- 30/05/2008 Water WG 00:00	19834-11 290508-12- 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Naphthalene	μg/L	<1	<1	<1	<1
Acenaphthylene	μg/L	<1	<1	<1	<1
Acenaphthene	μg/L	<1	<1	<1	<1
Fluorene	μg/L	<1	<1	<1	<1
Phenanthrene	μg/L	<1	<1	<1	<1
Anthracene	μg/L	<1	<1	<1	<1
Fluoranthene	μg/L	<1	<1	<1	<1
Pyrene	μg/L	<1	<1	<1	<1
Benzo(a)anthracene	μg/L	<1	<1	<1	<1
Chrysene	μg/L	<1	<1	<1	<1
Benzo(b+k)fluoranthene	μg/L	<2	<2	<2	<2
Benzo(a)pyrene	μg/L	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	μg/L	<1	<1	<1	<1
Dibenzo(a,h)anthracene	μg/L	<1	<1	<1	<1
Benzo(g,h,i)perylene	μg/L	<1	<1	<1	<1
Surrogate p-Terphenyl-d <sub>14</sub>	%	115	116	99	95



OCP in water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-	290508-04-	290508-05-	290508-06-	290508-08-
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code Time Sampled		WG 00:00	WG 00:00	WG 00:00	WG 00:00	WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
HCB	μg/L	<0.2	<2	<0.2	<0.2	<0.2
alpha-BHC	μg/L	<0.2	<2	<0.2	<0.2	<0.2
gamma-BHC	μg/L	<0.2	<2	<0.2	<0.2	<0.2
beta-BHC	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Heptachlor	μg/L	<0.2	<2	<0.2	<0.2	<0.2
delta-BHC	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Aldrin	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Heptachlor Epoxide	μg/L	<0.2	<2	<0.2	<0.2	<0.2
gamma-Chlordane	μg/L	<0.2	<2	<0.2	<0.2	<0.2
alpha-Chlordane	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Endosulfan I	μg/L	<0.2	<2	<0.2	<0.2	<0.2
pp-DDE	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Dieldrin	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Endrin	μg/L	<0.2	<2	<0.2	<0.2	<0.2
pp-DDD	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Endosulfan II	μg/L	<0.2	<2	<0.2	<0.2	<0.2
DDT	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Endrin Aldehyde	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Endosulfan Sulphate	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	95	82	92	94	65



OCP in water Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS 	19834-8 290508-09- 30/05/2008 Water WG 00:00	19834-9 290508-10- 30/05/2008 Water WG 00:00	19834-10 290508-11- 30/05/2008 Water WG 00:00	19834-11 290508-12- 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
HCB	μg/L	<0.2	<0.2	<0.2	<0.2
alpha-BHC	μg/L	<0.2	<0.2	<0.2	<0.2
gamma-BHC	μg/L	<0.2	<0.2	<0.2	<0.2
beta-BHC	μg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor	μg/L	<0.2	<0.2	<0.2	<0.2
delta-BHC	μg/L	<0.2	<0.2	<0.2	<0.2
Aldrin	μg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	μg/L	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	μg/L	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	μg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan I	μg/L	<0.2	<0.2	<0.2	<0.2
pp-DDE	μg/L	<0.2	<0.2	<0.2	<0.2
Dieldrin	μg/L	<0.2	<0.2	<0.2	<0.2
Endrin	μg/L	<0.2	<0.2	<0.2	<0.2
pp-DDD	μg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan II	μg/L	<0.2	<0.2	<0.2	<0.2
DDT	μg/L	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	μg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	μg/L	<0.2	<0.2	<0.2	<0.2
Methoxychlor	μg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	101	93	91	107



OP Pesticides in water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-	290508-04-	290508-05-	290508-06-	290508-08-
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Diazinon	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Dimethoate	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Ronnel	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Chlorpyriphos	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Fenitrothion	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Bromophos ethyl	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Ethion	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	95	82	92	94	65

OP Pesticides in water					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference		290508-09-	290508-10-	290508-11-	290508-12-
Date Sampled		30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Diazinon	μg/L	<0.2	<0.2	<0.2	<0.2
Dimethoate	μg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	μg/L	<0.2	<0.2	<0.2	<0.2
Ronnel	μg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	μg/L	<0.2	<0.2	<0.2	<0.2
Fenitrothion	μg/L	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	μg/L	<0.2	<0.2	<0.2	<0.2
Ethion	μg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	101	93	91	107



PCBs in Water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-	290508-04-	290508-05-	290508-06-	290508-08-
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Arochlor 1016	μg/L	<2	<20	<2	<2	<2
Arochlor 1232	μg/L	<2	<20	<2	<2	<2
Arochlor 1242	μg/L	<2	<20	<2	<2	<2
Arochlor 1248	μg/L	<2	<20	<2	<2	<2
Arochlor 1254	μg/L	<2	<20	<2	<2	<2
Arochlor 1260	μg/L	<2	<20	<2	<2	<2
Surrogate TCLMX	%	95	82	92	94	65

PCBs in Water					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference		290508-09-	290508-10-	290508-11-	290508-12-
Date Sampled		30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Arochlor 1016	μg/L	<2	<2	<2	<2
Arochlor 1232	μg/L	<2	<2	<2	<2
Arochlor 1242	μg/L	<2	<2	<2	<2
Arochlor 1248	μg/L	<2	<2	<2	<2
Arochlor 1254	μg/L	<2	<2	<2	<2
Arochlor 1260	μg/L	<2	<2	<2	<2
Surrogate TCLMX	%	101	93	91	107



Total Phenolics in Water		
Our Reference:	UNITS	19834-1
Your Reference		290508-01-
Date Sampled		29/05/2008
Type of sample		Water
Sample Matrix Code		WG
Time Sampled		00:00
Date extracted	-	2/06/2008
Date analysed	-	3/06/2008
Total Phenolics (as Phenol)	mg/L	<0.050



Ion Balance						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-	290508-04-	290508-05-	290508-06-	290508-08-
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample Sample Matrix Code Time Sampled		Water WG 00:00	Water WG 00:00	Water WG 00:00	Water WG 00:00	Water WG 00:00
Date prepared	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Date analysed	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Calcium - Dissolved	mg/L	320	260	81	78	230
Potassium - Dissolved	mg/L	63	43	19	19	47
Sodium - Dissolved	mg/L	2,000	760	120	120	620
Magnesium - Dissolved	mg/L	220	89	24	24	110
Carbonate Alkalinity as CaCO3	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	630	540	150	150	490
Sulphate, SO4	mg/L	360	410	140	130	650
Chloride (titration) - water	mg/L	3,300	1,300	210	230	1,100

Ion Balance					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference		290508-09-	290508-10-	290508-11-	290508-12-
Date Sampled		30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00
Date prepared	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Date analysed	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Calcium - Dissolved	mg/L	600	610	610	110
Potassium - Dissolved	mg/L	130	93	92	68
Sodium - Dissolved	mg/L	4,600	1,600	1,500	2,100
Magnesium - Dissolved	mg/L	450	330	320	230
Carbonate Alkalinity as CaCO3	mg/L	<0.1	<0.1	<0.1	<0.1
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	470	810	810	110
Sulphate, SO4	mg/L	1,300	2,300	2,400	390
Chloride (titration) - water	mg/L	8,900	2,000	2,100	3,300



HM in water - dissolved						
Our Reference:	UNITS	19834-1	19834-2	19834-3	19834-4	19834-5
Your Reference		290508-01-	290508-02-	290508-03-	290508-04-	290508-05-
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Date analysed	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Arsenic-Dissolved	μg/L	9.5	[NA]	[NA]	5.6	11
Cadmium-Dissolved	μg/L	0.20	[NA]	[NA]	<0.10	<0.10
Chromium-Dissolved	μg/L	<1.0	[NA]	[NA]	2.7	<1.0
Copper-Dissolved	μg/L	3.9	[NA]	[NA]	2.1	<1.0
Lead-Dissolved	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury-Dissolved	μg/L	<0.50	[NA]	[NA]	<0.50	<0.50
Nickel-Dissolved	μg/L	5.9	[NA]	[NA]	2.6	1.1
Zinc-Dissolved	μg/L	<1.0	[NA]	[NA]	1.2	<1.0

HM in water - dissolved						
Our Reference:	UNITS	19834-6	19834-7	19834-8	19834-9	19834-10
Your Reference		290508-06-	290508-08-	290508-09-	290508-10-	290508-11-
Date Sampled		29/05/2008	29/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Date analysed	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Arsenic-Dissolved	μg/L	11	6.1	14	5.7	5.5
Cadmium-Dissolved	μg/L	<0.10	0.30	0.20	0.20	0.10
Chromium-Dissolved	μg/L	1.1	5.3	11	1.5	1.5
Copper-Dissolved	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Lead-Dissolved	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury-Dissolved	μg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Nickel-Dissolved	μg/L	1.0	4.4	64	11	11
Zinc-Dissolved	μg/L	<1.0	5.9	82	5.9	5.7



HM in water - dissolved Our Reference: Your Reference Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS 	19834-11 290508-12- 30/05/2008 Water WG 00:00	19834-13 290508-14- 30/05/2008 Water WG 00:00
Date prepared	-	6/06/2008	6/06/2008
Date analysed	-	6/06/2008	6/06/2008
Arsenic-Dissolved	μg/L	4.9	[NA]
Cadmium-Dissolved	μg/L	0.10	[NA]
Chromium-Dissolved	μg/L	1.6	[NA]
Copper-Dissolved	μg/L	<1.0	[NA]
Lead-Dissolved	μg/L	<1.0	<1.0
Mercury-Dissolved	μg/L	<0.50	[NA]
Nickel-Dissolved	μg/L	<1.0	[NA]
Zinc-Dissolved	μg/L	<1.0	[NA]



UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
	290508-01-	290508-04-	290508-05-	290508-06-	290508-08-
	29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
	Water	Water	Water	Water	Water
	WG	WG	WG	WG	WG
	00:00	00:00	00:00	00:00	00:00
-	31/05/2008	31/05/2008	31/05/2008	31/05/2008	31/05/2008
-	31/05/2008	31/05/2008	31/05/2008	31/05/2008	31/05/2008
mg/L	4.1	2.4	2.0	2.1	7.2
mg/L	5.0	5.1	3.4	3.4	6.0
mg/L	0.87	0.81	1.3	1.1	0.28
g/L	7.0	3.3	<1.0	<1.0	2.9
mg/L	7,500	3,600	800	900	3,600

Miscellaneous Inorganics					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference		290508-09-	290508-10-	290508-11-	290508-12-
Date Sampled		30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample Sample Matrix Code Time Sampled		Water WG 00:00	Water WG 00:00	Water WG 00:00	Water WG 00:00
Date prepared	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Date analysed	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Ammonia as N in water	mg/L	5.1	3.1	3.1	1.9
Total Nitrogen	mg/L	7.8	7.0	6.9	2.7
Phosphorus - Total	mg/L	0.24	1.1	1.3	<0.05
Salinity as NaCl	g/L	15	6.2	6.1	6.4
Total Dissolved Solids (grav)	mg/L	16,000	8,900	7,600	8,600



Method ID	Methodology Summary
GC.13	Water samples are analysed directly by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
LAB.6	Alkalinity - determined titrimetrically in accordance with APHA 20th ED, 2320-B.
LAB.9	Sulphate determined turbidimetrically.
LAB.11	Chloride determined by argentometric titration.
Metals.22 ICP-MS	Determination of various metals by ICP-MS.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
LAB.2	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA2510 20th ED and Rayment & Higginson.
LAB.18	Total Dissolved Solids - determined gravimetrically by drying the sample, in accordance with APHA 20th ED, 2540-C.



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			4/6/08	[NT]	[NT]	LCS-W1	4/6/08%
Dichlorodifluoromethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethen e	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	72%
Cis-1,2-dichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chloroform	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	84%
2,2-dichloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	92%
1,1,1-trichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	90%
1,1-dichloropropene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromomethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	93%
Bromodichloromethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	108%
trans-1,3-dichloropropen	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
е								
cis-1,3-dichloropropene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Toluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	115%
1,2-dibromoethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	120%
1,1,1,2-tetrachloroethan e	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromoform	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
m+p-xylene	μg/L	2	GC.13	<2.0	[NT]	[NT]	[NR]	[NR]
Styrene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethan	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
е								



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water					Jili#	Base II Duplicate II %RPD		Recovery
o-xylene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropro pane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		GC.13	128	[NT]	[NT]	LCS-W1	87%
Surrogate toluene-d8	%		GC.13	89	[NT]	[NT]	LCS-W1	110%
Surrogate 4-BFB	%		GC.13	87	[NT]	[NT]	LCS-W1	97%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTPH & BTEX in Water					Jili#	Base II Duplicate II %RPD		Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
TPH C6 - C9	μg/L	10	GC.16	<10	[NT]	[NT]	LCS-W1	117%
Benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	96%
Toluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	121%
Ethylbenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	123%
m+p-xylene	μg/L	2	GC.13	<2.0	[NT]	[NT]	LCS-W1	123%
o-xylene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	124%
Surrogate Dibromofluoromethane	%		GC.13	128	[NT]	[NT]	LCS-W1	87%
Surrogate toluene-d8	%		GC.13	89	[NT]	[NT]	LCS-W1	105%
Surrogate 4-BFB	%		GC.13	87	[NT]	[NT]	LCS-W1	105%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTPH in Water (C10-C36)						Base II Duplicate II %RPD		
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
TPH C10 - C14	μg/L	50	GC.3	<50	[NT]	[NT]	LCS-W1	85%
TPH C <sub>15</sub> - C <sub>28</sub>	μg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	99%
TPH C29 - C36	μg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	106%
Surrogate o-Terphenyl	%		GC.3	111	[NT]	[NT]	LCS-W1	119%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
PAHs in Water						Base II Duplicate II %RPD		Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Naphthalene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	99%
Acenaphthylene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	76%
Phenanthrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	96%
Anthracene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	92%
Pyrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	97%
Benzo(a)anthracene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
<b></b>					Sm#			Recovery
PAHs in Water						Base II Duplicate II %RPD		
Chrysene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	115%
Benzo(b+k)fluoranthene	μg/L	2	GC.12 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	82%
Indeno(1,2,3-c,d)pyrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d <sub>14</sub>	%		GC.12 subset	140	[NT]	[NT]	LCS-W1	107%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
000:								Recovery
OCP in water						Base II Duplicate II %RPD		
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
HCB	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	128%
gamma-BHC	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
beta-BHC	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	114%
Heptachlor	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	96%
delta-BHC	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Aldrin	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	95%
Heptachlor Epoxide	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	97%
gamma-Chlordane	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan I	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDE	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	110%
Dieldrin	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	99%
Endrin	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	112%
pp-DDD	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	121%
Endosulfan II	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
DDT	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	101%
Methoxychlor	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-5	89	[NT]	[NT]	LCS-W1	101%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
OP Pesticides in water						Base II Duplicate II %RPD		-
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Diazinon	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Dimethoate	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ronnel	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	103%
Fenitrothion	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	79%
Bromophos ethyl	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ethion	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	129%
Surrogate TCLMX	%		GC.8	89	[NT]	[NT]	LCS-W1	110%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
PCBs in Water						Base II Duplicate II %RPD		Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Arochlor 1016	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	μg/L	2	GC-6	<2	[NT]	[NT]	LCS-W1	88%
Arochlor 1260	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-6	89	[NT]	[NT]	LCS-W1	71%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Total Phenolics in Water						Base II Duplicate II %RPD		Recovery
Date extracted	-			2/6/08	[NT]	[NT]	LCS-W1	2/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Total Phenolics (as Phenol)	mg/L	0.05	LAB.30	<0.050	[NT]	[NT]	LCS-W1	107%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Ion Balance						Base II Duplicate II %RPD		Recovery
Date prepared	-			2/6/08	19834-1	2/06/2008    2/06/2008	LCS-W1	2/6/08%
Date analysed	-			2/6/08	19834-1	2/06/2008    2/06/2008	LCS-W1	2/6/08%
Calcium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	320    [N/T]	LCS-W1	105%
Potassium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	63    [N/T]	LCS-W1	103%
Sodium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	2000    [N/T]	LCS-W1	107%
Magnesium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	220    [N/T]	LCS-W1	104%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Ion Balance						Base II Duplicate II %RPD		
Carbonate Alkalinity as CaCO3	mg/L	0.1	LAB.6	<0.1	19834-1	<0.1    <0.1	LCS-W1	100%
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	0.1	LAB.6	<0.1	19834-1	630    610    RPD: 3	LCS-W1	100%
Sulphate, SO4	mg/L	5	LAB.9	<5	19834-1	360    360    RPD: 0	LCS-W1	110%
Chloride (titration) - water	mg/L	20	LAB.11	<20	19834-1	3300    3300    RPD: 0	LCS-W1	105%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Date prepared	-			6/6/08	[NT]	[NT]	LCS-W1	6/6/08%
Date analysed	-			6/6/08	[NT]	[NT]	LCS-W1	6/6/08%
Arsenic-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	104%
Cadmium-Dissolved	μg/L	0.1	Metals.22 ICP-MS	<0.10	[NT]	[NT]	LCS-W1	107%
Chromium-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	102%
Copper-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	103%
Lead-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	102%
Mercury-Dissolved	μg/L	0.5	Metals.21 CV-AAS	<0.50	[NT]	[NT]	LCS-W1	82%
Nickel-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	100%
Zinc-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	114%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results		Spike Sm#	Spike %
Miscellaneous Inorganics						Base II Duplicate II %F	RPD		,
Date prepared	-			31/5/08	19834-1	31/05/2008    31/05/20	08	LCS-W1	31/5/08%
Date analysed	-			31/5/08	19834-1	31/05/2008    31/05/20	80	LCS-W1	31/5/08%
Ammonia as N in water	mg/L	0.1	LAB.57	<0.1	19834-1	4.1    3.9    RPD: 5		LCS-W1	113%
Total Nitrogen	mg/L	0.05	Ext-020	<0.05	19834-1	5.0    4.6    RPD: 8		LCS-W1	102%
Phosphorus - Total	mg/L	0.05	Metals.20 ICP-AES	<0.05	19834-1	0.87    0.80    RPD: 8		LCS-W1	94%
Salinity as NaCl	g/L	1	LAB.2	<1.0	19834-1	7.0    7.0    RPD: 0		LCS-W1	103%
Total Dissolved Solids (grav)	mg/L	5	LAB.18	<5	19834-1	7500    [N/T]		LCS-W1	95%
QUALITY CONTROL	UNITS		Dup. Sm#		Duplicate				
Ion Balance				Base + [	Ouplicate + %RPD				
Date prepared	-		19834-8	2/06/2	008    2/06/2008				
Date analysed	-		19834-8	2/06/2	008    2/06/2008				
Calcium - Dissolved	mg/L		19834-8	600	610    RPD: 2				
Potassium - Dissolved	mg/L		19834-8	130	130    RPD: 0				
Sodium - Dissolved	mg/L		19834-8	4600	4600    RPD: 0				
Magnesium - Dissolved	mg/L		19834-8	450	450    RPD: 0				
QUALITY CONTROL	UNITS		Dup. Sm#		Duplicate	Spike Sm#	Spik	ke % Recovery	
Miscellaneous Inorganics				Base + [	Ouplicate + %RPD				
Date prepared	-		[NT]		[NT]	19834-1		31/5/08%	
Date analysed	-		[NT]		[NT]	19834-1		31/5/08%	
Ammonia as N in water	mg/L		[NT]		[NT]	[NR]		[NR]	
Total Nitrogen	mg/L		[NT]		[NT]	19834-1		104%	
Phosphorus - Total	mg/L		[NT]		[NT]	[NR]		[NR]	
Salinity as NaCl	g/L		[NT]		[NT]	[NR]		[NR]	
Total Dissolved Solids (grav)	mg/L		[NT]		[NT]	[NR]		[NR]	



#### **Report Comments:**

Nitrate and Nitrite: PQL raised due to matrix interferences.

OCP/OP/PCB's in soil: Sample 4 - PQL raised due to sample matrix.

Total Nitrogen as N analysed by NMI: Report Nummber - RN682954.

Ammonia in water: Spike recovery failed due to high amount of analyte present in the sample.

Asbestos was analysed by Approved Identifier: Not applicable for this job

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

NR: Not requested <: Less than >: Greater than

#### **Quality Control Definitions**

**Blank**: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. **Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

#### **Laboratory Acceptance Criteria:**

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for

SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for

SVOC and speciated phenols.





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## **CERTIFICATE OF ANALYSIS 19834**

Client:

**Consulting Earth Scientists** 

Suite 121, 26-32 Pirrama Rd Pyrmont NSW 2009

Attention: Luke Jenkins

Sample log in details:

Your Reference: CES050706-BCC, Area A Water

No. of samples: 15 Waters
Date samples received: 30/05/08
Date completed instructions received: 30/05/08

**Analysis Details:** 

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

**Report Details:** 

Date results requested by: 10/06/08

Date of Preliminary Report: Not Issued Issue Date: 16/06/08

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Tests not covered by NATA are denoted with \*.

**Results Approved By:** 

Jacinta/Hurst David Springer

Operations Manager Business Development & Quality Manager



VOCs in water Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-LJ	290508-04-LJ	290508-05-LJ	290508-06-LJ	290508-08-LJ
Date Sampled Type of sample		29/05/2008 Water	29/05/2008 Water	29/05/2008 Water	29/05/2008 Water	29/05/2008 Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Dichlorodifluoromethane	μg/L	<10	<10	<10	<10	<10
Chloromethane	μg/L	<10	<10	<10	<10	<10
Vinyl Chloride	μg/L	<10	<10	<10	<10	<10
Bromomethane	μg/L	<10	<10	<10	<10	<10
Chloroethane	μg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	μg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,2-dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Cis-1,2-dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromomethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	μg/L	<2.0	<2.0	<2.0	<2.0	<2.0



VOCs in water Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19834-1 290508-01-L J 29/05/2008 Water WG 00:00	19834-4 290508-04-L J 29/05/2008 Water WG 00:00	19834-5 290508-05-L J 29/05/2008 Water WG 00:00	19834-6 290508-06-L J 29/05/2008 Water WG 00:00	19834-7 290508-08-L J 29/05/2008 Water WG 00:00
Styrene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
o-xylene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Tert-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Sec-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%	92	92	89	86	85
Surrogate toluene-d8	%	92	93	94	92	87
Surrogate 4-BFB	%	86	89	84	89	73



VOCs in water					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference		290508-09-L	290508-10-L	290508-11-L	290508-12-L
Date Sampled Type of sample Sample Matrix Code		J 30/05/2008 Water WG	J 30/05/2008 Water WG	J 30/05/2008 Water WG	J 30/05/2008 Water WG
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Dichlorodifluoromethane	μg/L	<10	<10	<10	<10
Chloromethane	μg/L	<10	<10	<10	<10
Vinyl Chloride	μg/L	<10	<10	<10	<10
Bromomethane	μg/L	<10	<10	<10	<10
Chloroethane	μg/L	<10	<10	<10	<10
Trichlorofluoromethane	μg/L	<10	<10	<10	<10
1,1-Dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0
Trans-1,2-dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0
Cis-1,2-dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	μg/L	<1.0	<1.0	<1.0	<1.0
Chloroform	μg/L	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	μg/L	<1.0	<1.0	<1.0	<1.0
Benzene	μg/L	<1.0	<1.0	<1.0	<1.0
Dibromomethane	μg/L	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0
Trichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	μg/L	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0
Toluene	μg/L	<1.0	<1.0	<1.0	<1.0
1,3-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	μg/L	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	μg/L	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	μg/L	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	μg/L	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	μg/L	<1.0	<1.0	<1.0	<1.0
Bromoform	μg/L	<1.0	<1.0	<1.0	<1.0
m+p-xylene	μg/L	<2.0	<2.0	<2.0	<2.0



VOCs in water	LIMITO	40024.0	40024.0	40024 40	40024.44
Our Reference: Your Reference	UNITS	19834-8 290508-09-L J	19834-9 290508-10-L J	19834-10 290508-11-L J	19834-11 290508-12-L J
Date Sampled Type of sample Sample Matrix Code Time Sampled		30/05/2008 Water WG 00:00	30/05/2008 Water WG 00:00	30/05/2008 Water WG 00:00	30/05/2008 Water WG 00:00
Styrene	μg/L	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	μg/L	<1.0	<1.0	<1.0	<1.0
o-xylene	μg/L	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	μg/L	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	μg/L	<1.0	<1.0	<1.0	<1.0
Bromobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	μg/L	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	μg/L	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0
Tert-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
Sec-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	μg/L	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	μg/L	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	μg/L	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%	85	86	95	86
Surrogate toluene-d8	%	89	92	88	90
Surrogate 4-BFB	%	79	83	84	80



vTPH & BTEX in Water Our Reference: Your Reference	UNITS	19834-1 290508-01-LJ	19834-2 290508-02-LJ	19834-3 290508-03-LJ	19834-4 290508-04-LJ	19834-5 290508-05-L
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C6 - C9	μg/L	<10	650	72	<10	<10
Benzene	μg/L	[NA]	190	3.8	[NA]	[NA]
Toluene	μg/L	[NA]	70	<1.0	[NA]	[NA]
Ethylbenzene	μg/L	[NA]	60	1.0	[NA]	[NA]
m+p-xylene	μg/L	[NA]	150	18	[NA]	[NA]
o-xylene	μg/L	[NA]	30	8.0	[NA]	[NA]
Surrogate Dibromofluoromethane	%	92	81	75	92	89
Surrogate toluene-d8	%	92	108	108	93	94
Surrogate 4-BFB	%	86	100	98	89	84
vTPH & BTEX in Water						
Our Reference:	UNITS	19834-6	19834-7	19834-8	19834-9	19834-10
Your Reference		290508-06-LJ	290508-08-LJ	290508-09-LJ	290508-10-LJ	290508-11-l
Date Sampled		29/05/2008	29/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code Time Sampled		WG 00:00	WG 00:00	WG 00:00	WG 00:00	WG 00:00
<u> </u>						
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C6 - C9	μg/L	<10	<10	<10	<10	<10
Surrogate Dibromofluoromethane	%	86	85	85	86	95
Surrogate toluene-d8	%	92	87	89	92	88
Surrogate 4-BFB	%	89	73	79	83	84

vTPH & BTEX in Water						
Our Reference:	UNITS	19834-11	19834-12	19834-13	19834-14	19834-15
Your Reference		290508-12-LJ	290508-13-LJ	290508-14-LJ	Trip Spike	Trip Blank
Date Sampled		30/05/2008	30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C6 - C9	μg/L	<10	<10	<10	[NA]	[NA]
Benzene	μg/L	[NA]	<1.0	<1.0	89%	<1.0
Toluene	μg/L	[NA]	<1.0	<1.0	121%	<1.0
Ethylbenzene	μg/L	[NA]	<1.0	<1.0	123%	<1.0
m+p-xylene	μg/L	[NA]	<2.0	<2.0	122%	<2.0



vTPH & BTEX in Water Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19834-11 290508-12-L J 30/05/2008 Water WG 00:00	19834-12 290508-13-L J 30/05/2008 Water WG 00:00	19834-13 290508-14-L J 30/05/2008 Water WG 00:00	19834-14 Trip Spike 30/05/2008 Water WG 00:00	19834-15 Trip Blank 30/05/2008 Water WG 00:00
o-xylene	μg/L	[NA]	<1.0	<1.0	123%	<1.0
Surrogate Dibromofluoromethane	%	86	78	76	81	85
Surrogate toluene-d8	%	90	102	98	103	100
Surrogate 4-BFB	%	80	99	95	96	100



sTPH in Water (C10-C36)						
Our Reference:	UNITS	19834-1	19834-2	19834-3	19834-4	19834-5
Your Reference		290508-01-LJ	290508-02-LJ	290508-03-LJ	290508-04-LJ	290508-05-LJ
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	4/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	4/06/2008	3/06/2008	3/06/2008
TPH C <sub>10</sub> - C <sub>14</sub>	μg/L	<50	550	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	μg/L	<100	<100	<100	<100	<100
TPH C29 - C36	μg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	118	137	102	102	111

sTPH in Water (C10-C36)						
Our Reference:	UNITS	19834-6	19834-7	19834-8	19834-9	19834-10
Your Reference		290508-06-LJ	290508-08-LJ	290508-09-LJ	290508-10-LJ	290508-11-LJ
Date Sampled		29/05/2008	29/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
TPH C10 - C14	μg/L	<50	<50	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	μg/L	<100	<100	<100	<100	<100
TPH C29 - C36	μg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	119	63	99	88	83

sTPH in Water (C10-C36)			
Our Reference:	UNITS	19834-11	19834-13
Your Reference		290508-12-LJ	290508-14-LJ
Date Sampled		30/05/2008	30/05/2008
Type of sample		Water	Water
Sample Matrix Code		WG	WG
Time Sampled		00:00	00:00
Date extracted	-	3/06/2008	13/06/2008
Date analysed	-	3/06/2008	13/06/2008
TPH C10 - C14	μg/L	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	μg/L	<100	<100
TPH C29 - C36	μg/L	<100	<100
Surrogate o-Terphenyl	%	91	103



PAHs in Water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-LJ	290508-04-LJ	290508-05-LJ	290508-06-LJ	290508-08-LJ
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code Time Sampled		WG 00:00	WG 00:00	WG 00:00	WG 00:00	WG 00:00
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Naphthalene	μg/L	<1	<1	<1	<1	<1
Acenaphthylene	μg/L	<1	<1	<1	<1	<1
Acenaphthene	μg/L	<1	<1	<1	<1	<1
Fluorene	μg/L	<1	<1	<1	<1	<1
Phenanthrene	μg/L	<1	<1	<1	<1	<1
Anthracene	μg/L	<1	<1	<1	<1	<1
Fluoranthene	μg/L	<1	<1	<1	<1	<1
Pyrene	μg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	μg/L	<1	<1	<1	<1	<1
Chrysene	μg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	μg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	μg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	μg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	μg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	μg/L	<1	<1	<1	<1	<1
Surrogate p-Terphenyl-d14	%	91	104	100	109	87



PAHs in Water					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference		290508-09-L	290508-10-L	290508-11-L	290508-12-L
B		J	J	J	J
Date Sampled		30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample Sample Matrix Code		Water WG	Water WG	Water WG	Water WG
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Naphthalene	μg/L	<1	<1	<1	<1
Acenaphthylene	μg/L	<1	<1	<1	<1
Acenaphthene	μg/L	<1	<1	<1	<1
Fluorene	μg/L	<1	<1	<1	<1
Phenanthrene	μg/L	<1	<1	<1	<1
Anthracene	μg/L	<1	<1	<1	<1
Fluoranthene	μg/L	<1	<1	<1	<1
Pyrene	μg/L	<1	<1	<1	<1
Benzo(a)anthracene	μg/L	<1	<1	<1	<1
Chrysene	μg/L	<1	<1	<1	<1
Benzo(b+k)fluoranthene	μg/L	<2	<2	<2	<2
Benzo(a)pyrene	μg/L	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	μg/L	<1	<1	<1	<1
Dibenzo(a,h)anthracene	μg/L	<1	<1	<1	<1
Benzo(g,h,i)perylene	μg/L	<1	<1	<1	<1
Surrogate p-Terphenyl-d <sub>14</sub>	%	115	116	99	95



OCP in water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-LJ	290508-04-LJ	290508-05-LJ	290508-06-LJ	290508-08-LJ
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code Time Sampled		WG 00:00	WG 00:00	WG 00:00	WG 00:00	WG 00:00
<u> </u>						
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
HCB	μg/L	<0.2	<2	<0.2	<0.2	<0.2
alpha-BHC	μg/L	<0.2	<2	<0.2	<0.2	<0.2
gamma-BHC	μg/L	<0.2	<2	<0.2	<0.2	<0.2
beta-BHC	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Heptachlor	μg/L	<0.2	<2	<0.2	<0.2	<0.2
delta-BHC	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Aldrin	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Heptachlor Epoxide	μg/L	<0.2	<2	<0.2	<0.2	<0.2
gamma-Chlordane	μg/L	<0.2	<2	<0.2	<0.2	<0.2
alpha-Chlordane	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Endosulfan I	μg/L	<0.2	<2	<0.2	<0.2	<0.2
pp-DDE	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Dieldrin	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Endrin	μg/L	<0.2	<2	<0.2	<0.2	<0.2
pp-DDD	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Endosulfan II	μg/L	<0.2	<2	<0.2	<0.2	<0.2
DDT	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Endrin Aldehyde	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Endosulfan Sulphate	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Methoxychlor	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	95	82	92	94	65



OCP in water Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19834-8 290508-09-L J 30/05/2008 Water WG 00:00	19834-9 290508-10-L J 30/05/2008 Water WG 00:00	19834-10 290508-11-L J 30/05/2008 Water WG 00:00	19834-11 290508-12-L J 30/05/2008 Water WG 00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
HCB	μg/L	<0.2	<0.2	<0.2	<0.2
alpha-BHC	μg/L	<0.2	<0.2	<0.2	<0.2
gamma-BHC	μg/L	<0.2	<0.2	<0.2	<0.2
beta-BHC	μg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor	μg/L	<0.2	<0.2	<0.2	<0.2
delta-BHC	μg/L	<0.2	<0.2	<0.2	<0.2
Aldrin	μg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	μg/L	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	μg/L	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	μg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan I	μg/L	<0.2	<0.2	<0.2	<0.2
pp-DDE	μg/L	<0.2	<0.2	<0.2	<0.2
Dieldrin	μg/L	<0.2	<0.2	<0.2	<0.2
Endrin	μg/L	<0.2	<0.2	<0.2	<0.2
pp-DDD	μg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan II	μg/L	<0.2	<0.2	<0.2	<0.2
DDT	μg/L	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	μg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	μg/L	<0.2	<0.2	<0.2	<0.2
Methoxychlor	μg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	101	93	91	107



OP Pesticides in water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-LJ	290508-04-LJ	290508-05-LJ	290508-06-LJ	290508-08-LJ
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Diazinon	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Dimethoate	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Ronnel	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Chlorpyriphos	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Fenitrothion	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Bromophos ethyl	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Ethion	μg/L	<0.2	<2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	95	82	92	94	65

OP Pesticides in water					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference		290508-09-LJ	290508-10-LJ	290508-11-LJ	290508-12-LJ
Date Sampled		30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Diazinon	μg/L	<0.2	<0.2	<0.2	<0.2
Dimethoate	μg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	μg/L	<0.2	<0.2	<0.2	<0.2
Ronnel	μg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	μg/L	<0.2	<0.2	<0.2	<0.2
Fenitrothion	μg/L	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	μg/L	<0.2	<0.2	<0.2	<0.2
Ethion	μg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	101	93	91	107



PCBs in Water						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-LJ	290508-04-LJ	290508-05-LJ	290508-06-LJ	290508-08-LJ
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Arochlor 1016	μg/L	<2	<20	<2	<2	<2
Arochlor 1232	μg/L	<2	<20	<2	<2	<2
Arochlor 1242	μg/L	<2	<20	<2	<2	<2
Arochlor 1248	μg/L	<2	<20	<2	<2	<2
Arochlor 1254	μg/L	<2	<20	<2	<2	<2
Arochlor 1260	μg/L	<2	<20	<2	<2	<2
Surrogate TCLMX	%	95	82	92	94	65

PCBs in Water					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference		290508-09-LJ	290508-10-LJ	290508-11-LJ	290508-12-LJ
Date Sampled		30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00
Date extracted	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Date analysed	-	3/06/2008	3/06/2008	3/06/2008	3/06/2008
Arochlor 1016	μg/L	<2	<2	<2	<2
Arochlor 1232	μg/L	<2	<2	<2	<2
Arochlor 1242	μg/L	<2	<2	<2	<2
Arochlor 1248	μg/L	<2	<2	<2	<2
Arochlor 1254	μg/L	<2	<2	<2	<2
Arochlor 1260	μg/L	<2	<2	<2	<2
Surrogate TCLMX	%	101	93	91	107



Total Phenolics in Water		
Our Reference:	UNITS	19834-1
Your Reference		290508-01-LJ
Date Sampled		29/05/2008
Type of sample Sample Matrix Code Time Sampled		Water WG 00:00
Date extracted	-	2/06/2008
Date analysed	-	3/06/2008
Total Phenolics (as Phenol)	mg/L	<0.050



Ion Balance						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-LJ	290508-04-LJ	290508-05-LJ	290508-06-LJ	290508-08-LJ
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample Sample Matrix Code Time Sampled		Water WG 00:00	Water WG 00:00	Water WG 00:00	Water WG 00:00	Water WG 00:00
Date prepared	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Date analysed	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Calcium - Dissolved	mg/L	320	260	81	78	230
Potassium - Dissolved	mg/L	63	43	19	19	47
Sodium - Dissolved	mg/L	2,000	760	120	120	620
Magnesium - Dissolved	mg/L	220	89	24	24	110
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	630	540	150	150	490
Sulphate, SO4	mg/L	360	410	140	130	650
Chloride (titration) - water	mg/L	3,300	1,300	210	230	1,100

Ion Balance					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference		290508-09-LJ	290508-10-LJ	290508-11-LJ	290508-12-LJ
Date Sampled		30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00
Date prepared	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Date analysed	-	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Calcium - Dissolved	mg/L	600	610	610	110
Potassium - Dissolved	mg/L	130	93	92	68
Sodium - Dissolved	mg/L	4,600	1,600	1,500	2,100
Magnesium - Dissolved	mg/L	450	330	320	230
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	<0.1	<0.1	<0.1	<0.1
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	470	810	810	110
Sulphate, SO4	mg/L	1,300	2,300	2,400	390
Chloride (titration) - water	mg/L	8,900	2,000	2,100	3,300



HM in water - dissolved						
Our Reference:	UNITS	19834-1	19834-2	19834-3	19834-4	19834-5
Your Reference		290508-01-LJ	290508-02-LJ	290508-03-LJ	290508-04-LJ	290508-05-LJ
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample Sample Matrix Code Time Sampled		Water WG 00:00	Water WG 00:00	Water WG 00:00	Water WG 00:00	Water WG 00:00
Date prepared	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Date analysed	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Arsenic-Dissolved	μg/L	9.5	[NA]	[NA]	5.6	11
Cadmium-Dissolved	μg/L	0.20	[NA]	[NA]	<0.10	<0.10
Chromium-Dissolved	μg/L	<1.0	[NA]	[NA]	2.7	<1.0
Copper-Dissolved	μg/L	3.9	[NA]	[NA]	2.1	<1.0
Lead-Dissolved	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury-Dissolved	μg/L	<0.50	[NA]	[NA]	<0.50	<0.50
Nickel-Dissolved	μg/L	5.9	[NA]	[NA]	2.6	1.1
Zinc-Dissolved	μg/L	<1.0	[NA]	[NA]	1.2	<1.0

HM in water - dissolved						
Our Reference:	UNITS	19834-6	19834-7	19834-8	19834-9	19834-10
Your Reference		290508-06-LJ	290508-08-LJ	290508-09-LJ	290508-10-LJ	290508-11-LJ
Date Sampled		29/05/2008	29/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Date analysed	-	6/06/2008	6/06/2008	6/06/2008	6/06/2008	6/06/2008
Arsenic-Dissolved	μg/L	11	6.1	14	5.7	5.5
Cadmium-Dissolved	μg/L	<0.10	0.30	0.20	0.20	0.10
Chromium-Dissolved	μg/L	1.1	5.3	11	1.5	1.5
Copper-Dissolved	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Lead-Dissolved	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury-Dissolved	μg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Nickel-Dissolved	μg/L	1.0	4.4	64	11	11
Zinc-Dissolved	μg/L	<1.0	5.9	82	5.9	5.7



HM in water - dissolved Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	19834-11 290508-12-L J 30/05/2008 Water WG 00:00	19834-13 290508-14-L J 30/05/2008 Water WG 00:00
Date prepared	-	6/06/2008	6/06/2008
Date analysed	-	6/06/2008	6/06/2008
Arsenic-Dissolved	μg/L	4.9	[NA]
Cadmium-Dissolved	μg/L	0.10	[NA]
Chromium-Dissolved	μg/L	1.6	[NA]
Copper-Dissolved	μg/L	<1.0	[NA]
Lead-Dissolved	μg/L	<1.0	<1.0
Mercury-Dissolved	μg/L	<0.50	[NA]
Nickel-Dissolved	μg/L	<1.0	[NA]
Zinc-Dissolved	μg/L	<1.0	[NA]



Miscellaneous Inorganics						
Our Reference:	UNITS	19834-1	19834-4	19834-5	19834-6	19834-7
Your Reference		290508-01-LJ	290508-04-LJ	290508-05-LJ	290508-06-LJ	290508-08-LJ
Date Sampled		29/05/2008	29/05/2008	29/05/2008	29/05/2008	29/05/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Date analysed	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Ammonia as N in water	mg/L	4.1	2.4	2.0	2.1	7.2
Total Nitrogen	mg/L	5.0	5.1	3.4	3.4	6.0
Phosphorus - Total	mg/L	0.87	0.81	1.3	1.1	0.28
Salinity as NaCl	g/L	7.0	3.3	<1.0	<1.0	2.9
Total Dissolved Solids (grav)	mg/L	7,500	3,600	800	900	3,600

Miscellaneous Inorganics					
Our Reference:	UNITS	19834-8	19834-9	19834-10	19834-11
Your Reference		290508-09-LJ	290508-10-LJ	290508-11-LJ	290508-12-LJ
Date Sampled		30/05/2008	30/05/2008	30/05/2008	30/05/2008
Type of sample Sample Matrix Code Time Sampled		Water WG 00:00	Water WG 00:00	Water WG 00:00	Water WG 00:00
Date prepared	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Date analysed	-	31/05/2008	31/05/2008	31/05/2008	31/05/2008
Ammonia as N in water	mg/L	5.1	3.1	3.1	1.9
Total Nitrogen	mg/L	7.8	7.0	6.9	2.7
Phosphorus - Total	mg/L	0.24	1.1	1.3	<0.05
Salinity as NaCl	g/L	15	6.2	6.1	6.4
Total Dissolved Solids (grav)	mg/L	16,000	8,900	7,600	8,600



Method ID	Methodology Summary
GC.13	Water samples are analysed directly by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
LAB.6	Alkalinity - determined titrimetrically in accordance with APHA 20th ED, 2320-B.
LAB.9	Sulphate determined turbidimetrically.
LAB.11	Chloride determined by argentometric titration.
Metals.22 ICP-MS	Determination of various metals by ICP-MS.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
LAB.2	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA2510 20th ED and Rayment & Higginson.
LAB.18	Total Dissolved Solids - determined gravimetrically by drying the sample, in accordance with APHA 20th ED, 2540-C.



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			4/6/08	[NT]	[NT]	LCS-W1	4/6/08%
Dichlorodifluoromethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethen e	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	72%
Cis-1,2-dichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chloroform	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	84%
2,2-dichloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	92%
1,1,1-trichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	90%
1,1-dichloropropene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromomethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	93%
Bromodichloromethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	108%
trans-1,3-dichloropropen	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
е								
cis-1,3-dichloropropene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Toluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	115%
1,2-dibromoethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	120%
1,1,1,2-tetrachloroethan e	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromoform	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
m+p-xylene	μg/L	2	GC.13	<2.0	[NT]	[NT]	[NR]	[NR]
Styrene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethan	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
е								



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water					3111#	Base II Duplicate II %RPD		Recovery
o-xylene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropro pane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		GC.13	128	[NT]	[NT]	LCS-W1	87%
Surrogate toluene-d8	%		GC.13	89	[NT]	[NT]	LCS-W1	110%
Surrogate 4-BFB	%		GC.13	87	[NT]	[NT]	LCS-W1	97%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTPH & BTEX in Water					Jili#	Base II Duplicate II %RPD		Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
TPH C6 - C9	μg/L	10	GC.16	<10	[NT]	[NT]	LCS-W1	117%
Benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	96%
Toluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	121%
Ethylbenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	123%
m+p-xylene	μg/L	2	GC.13	<2.0	[NT]	[NT]	LCS-W1	123%
o-xylene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	124%
Surrogate Dibromofluoromethane	%		GC.13	128	[NT]	[NT]	LCS-W1	87%
Surrogate toluene-d8	%		GC.13	89	[NT]	[NT]	LCS-W1	105%
Surrogate 4-BFB	%		GC.13	87	[NT]	[NT]	LCS-W1	105%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTPH in Water (C10-C36)						Base II Duplicate II %RPD		
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
TPH C10 - C14	μg/L	50	GC.3	<50	[NT]	[NT]	LCS-W1	85%
TPH C <sub>15</sub> - C <sub>28</sub>	μg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	99%
TPH C29 - C36	μg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	106%
Surrogate o-Terphenyl	%		GC.3	111	[NT]	[NT]	LCS-W1	119%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
PAHs in Water						Base II Duplicate II %RPD		Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Naphthalene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	99%
Acenaphthylene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	76%
Phenanthrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	96%
Anthracene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	92%
Pyrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	97%
Benzo(a)anthracene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
<b></b>					Sm#			Recovery
PAHs in Water						Base II Duplicate II %RPD		
Chrysene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	115%
Benzo(b+k)fluoranthene	μg/L	2	GC.12 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	82%
Indeno(1,2,3-c,d)pyrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d <sub>14</sub>	%		GC.12 subset	140	[NT]	[NT]	LCS-W1	107%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
000:								Recovery
OCP in water						Base II Duplicate II %RPD		
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
HCB	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	128%
gamma-BHC	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
beta-BHC	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	114%
Heptachlor	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	96%
delta-BHC	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Aldrin	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	95%
Heptachlor Epoxide	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	97%
gamma-Chlordane	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan I	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDE	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	110%
Dieldrin	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	99%
Endrin	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	112%
pp-DDD	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	121%
Endosulfan II	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
DDT	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	101%
Methoxychlor	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-5	89	[NT]	[NT]	LCS-W1	101%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
OP Pesticides in water					Gili#	Base II Duplicate II %RPD		ivecovei à
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Diazinon	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Dimethoate	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ronnel	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	103%
Fenitrothion	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	79%
Bromophos ethyl	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ethion	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	129%
Surrogate TCLMX	%		GC.8	89	[NT]	[NT]	LCS-W1	110%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
PCBs in Water						Base II Duplicate II %RPD		Recovery
Date extracted	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Arochlor 1016	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	μg/L	2	GC-6	<2	[NT]	[NT]	LCS-W1	88%
Arochlor 1260	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-6	89	[NT]	[NT]	LCS-W1	71%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Water						Base II Duplicate II %RPD		
Date extracted	-			2/6/08	[NT]	[NT]	LCS-W1	2/6/08%
Date analysed	-			3/6/08	[NT]	[NT]	LCS-W1	3/6/08%
Total Phenolics (as Phenol)	mg/L	0.05	LAB.30	<0.050	[NT]	[NT]	LCS-W1	107%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
Ion Balance						Base II Duplicate II %RPD		Recovery
Date prepared	-			2/6/08	19834-1	2/06/2008    2/06/2008	LCS-W1	2/6/08%
Date analysed	-			2/6/08	19834-1	2/06/2008    2/06/2008	LCS-W1	2/6/08%
Calcium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	320    [N/T]	LCS-W1	105%
Potassium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	63    [N/T]	LCS-W1	103%
Sodium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	2000    [N/T]	LCS-W1	107%
Magnesium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	19834-1	220    [N/T]	LCS-W1	104%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Ion Balance						Base II Duplicate II %RPD		
Carbonate Alkalinity as CaCO3	mg/L	0.1	LAB.6	<0.1	19834-1	<0.1    <0.1	LCS-W1	100%
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	0.1	LAB.6	<0.1	19834-1	630    610    RPD: 3	LCS-W1	100%
Sulphate, SO4	mg/L	5	LAB.9	<5	19834-1	360    360    RPD: 0	LCS-W1	110%
Chloride (titration) - water	mg/L	20	LAB.11	<20	19834-1	3300    3300    RPD: 0	LCS-W1	105%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Date prepared	-			6/6/08	[NT]	[NT]	LCS-W1	6/6/08%
Date analysed	-			6/6/08	[NT]	[NT]	LCS-W1	6/6/08%
Arsenic-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	104%
Cadmium-Dissolved	μg/L	0.1	Metals.22 ICP-MS	<0.10	[NT]	[NT]	LCS-W1	107%
Chromium-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	102%
Copper-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	103%
Lead-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	102%
Mercury-Dissolved	μg/L	0.5	Metals.21 CV-AAS	<0.50	[NT]	[NT]	LCS-W1	82%
Nickel-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	100%
Zinc-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	114%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	;	Spike Sm#	Spike % Recovery
Miscellaneous Inorganics						Base II Duplicate II %F	RPD		,
Date prepared	-			31/5/08	19834-1	31/05/2008    31/05/20	80	LCS-W1	31/5/08%
Date analysed	-			31/5/08	19834-1	31/05/2008    31/05/20	80	LCS-W1	31/5/08%
Ammonia as N in water	mg/L	0.1	LAB.57	<0.1	19834-1	4.1    3.9    RPD: 5		LCS-W1	113%
Total Nitrogen	mg/L	0.05	Ext-020	<0.05	19834-1	5.0    4.6    RPD: 8		LCS-W1	102%
Phosphorus - Total	mg/L	0.05	Metals.20 ICP-AES	<0.05	19834-1	0.87    0.80    RPD: 8		LCS-W1	94%
Salinity as NaCl	g/L	1	LAB.2	<1.0	19834-1	7.0    7.0    RPD: 0		LCS-W1	103%
Total Dissolved Solids (grav)	mg/L	5	LAB.18	<5	19834-1	7500    [N/T]		LCS-W1	95%
QUALITY CONTROL	UNITS		Dup. Sm#		Duplicate				
Ion Balance				Base + [	Ouplicate + %RPD				
Date prepared	-		19834-8	2/06/2	008    2/06/2008				
Date analysed	-		19834-8	2/06/2	008    2/06/2008				
Calcium - Dissolved	mg/L		19834-8	600	610    RPD: 2				
Potassium - Dissolved	mg/L		19834-8	130	130    RPD: 0				
Sodium - Dissolved	mg/L		19834-8	4600	4600    RPD: 0				
Magnesium - Dissolved	mg/L		19834-8	450	450    RPD: 0				
QUALITY CONTROL	UNITS		Dup. Sm#		Duplicate	Spike Sm#	Spik	ke % Recovery	
Miscellaneous Inorganics				Base + [	Ouplicate + %RPD				
Date prepared	-		[NT]		[NT]	19834-1		31/5/08%	
Date analysed	-		[NT]		[NT]	19834-1		31/5/08%	
Ammonia as N in water	mg/L		[NT]	[NT] [NR]			[NR]		
Total Nitrogen	mg/L		[NT]		[NT]	19834-1		104%	
Phosphorus - Total	mg/L		[NT]		[NT]	[NR]		[NR]	
Salinity as NaCl	g/L		[NT]		[NT]	[NR]		[NR]	
Total Dissolved Solids (grav)	mg/L		[NT]		[NT]	[NR]		[NR]	



#### **Report Comments:**

Nitrate and Nitrite: PQL raised due to matrix interferences.

OCP/OP/PCB's in soil: Sample 4 - PQL raised due to sample matrix.

Total Nitrogen as N analysed by NMI: Report Nummber - RN682954.

Ammonia in water: Spike recovery failed due to high amount of analyte present in the sample.

Asbestos was analysed by Approved Identifier: Not applicable for this job

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

NR: Not requested <: Less than >: Greater than

#### **Quality Control Definitions**

**Blank**: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. **Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

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

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

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

#### **Laboratory Acceptance Criteria:**

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for

SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for

SVOC and speciated phenols.





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# **CERTIFICATE OF ANALYSIS 20315**

Client:

**Consulting Earth Scientists** 

Suite 121, 26-32 Pirrama Rd Pyrmont NSW 2009

Attention: Luke Jenkins / Kelly Weir

Sample log in details:

Your Reference: CES050706-BCC, Area B

No. of samples: 7 Waters
Date samples received: 19/06/08
Date completed instructions received: 19/06/08

**Analysis Details:** 

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

**Report Details:** 

Date results requested by: 25/06/08

Date of Preliminary Report: Not Issued Issue Date: 26/06/08

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Tests not covered by NATA are denoted with \*.

**Results Approved By:** 

Jacinta/Hurst Operations Manager



VOCs in water Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference Date Sampled		170608-01-LJ 18/06/2008	170608-02-LJ 18/06/2008	170608-03-LJ 18/06/2008	170608-05-LJ 18/06/2008	180608-06-LJ 18/06/2008
Type of sample Sample Matrix Code Time Sampled		Water WG 00:00	Water WG 00:00	Water WG 00:00	Water WG 00:00	Water WG 00:00
Date extracted	-	22/06/2008	22/06/2008	22/06/2008	22/06/2008	22/06/2008
Date analysed	-	22/06/2008	22/06/2008	22/06/2008	22/06/2008	22/06/2008
Dichlorodifluoromethane	μg/L	<10	<10	<10	<10	<10
Chloromethane	μg/L	<10	<10	<10	<10	<10
Vinyl Chloride	μg/L	<10	<10	<10	<10	<10
Bromomethane	μg/L	<10	<10	<10	<10	<10
Chloroethane	μg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	μg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,2-dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Cis-1,2-dichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromomethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	μg/L	<1.0	<1.0	1.5	<1.0	<1.0
1,3-dichloropropane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	μg/L	<2.0	<2.0	<2.0	<2.0	<2.0



VOCs in water Our Reference: Your Reference  Date Sampled Type of sample Sample Matrix Code Time Sampled	UNITS	20315-1 170608-01-L J 18/06/2008 Water WG 00:00	20315-2 170608-02-L J 18/06/2008 Water WG 00:00	20315-3 170608-03-L J 18/06/2008 Water WG 00:00	20315-4 170608-05-L J 18/06/2008 Water WG 00:00	20315-5 180608-06-L J 18/06/2008 Water WG 00:00
Styrene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
o-xylene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane*	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Bromobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
n-propyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-chlorotoluene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Tert-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Sec-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-isopropyl toluene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
n-butyl benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%	71	81	101	86	73
Surrogate toluene-d8	%	103	101	97	103	101
Surrogate 4-BFB	%	85	89	97	79	85



vTPH & BTEX in Water						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference		170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled		18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	22/06/2008	22/06/2008	22/06/2008	22/06/2008	22/06/2008
Date analysed	-	22/06/2008	22/06/2008	22/06/2008	22/06/2008	22/06/2008
TPH C6 - C9	μg/L	<10	<10	<10	<10	<10
Benzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	μg/L	<1.0	<1.0	1.5	<1.0	<1.0
Ethylbenzene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	μg/L	<2.0	<2.0	<2.0	<2.0	<2.0
o-xylene	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%	71	81	101	86	73
Surrogate toluene-d8	%	103	101	97	103	101
Surrogate 4-BFB	%	85	90	97	79	85

vTPH & BTEX in Water			
Our Reference:	UNITS	20315-6	20315-7
Your Reference		Trip Spike	Trip Blank
Date Sampled		17/06/2008	17/06/2008
Type of sample		Water	Water
Sample Matrix Code		WG	WG
Time Sampled		00:00	00:00
Date extracted	-	22/06/2008	22/06/2008
Date analysed	-	22/06/2008	22/06/2008
TPH C6 - C9	μg/L	[NA]	<10
Benzene	μg/L	104%	<1.0
Toluene	μg/L	90%	<1.0
Ethylbenzene	μg/L	91%	<1.0
m+p-xylene	μg/L	89%	<2.0
o-xylene	μg/L	89%	<1.0
Surrogate Dibromofluoromethane	%	113	102
Surrogate toluene-d8	%	104	94
Surrogate 4-BFB	%	108	96



sTPH in Water (C10-C36)						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference		170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled		18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Date analysed	-	24/06/2008	24/06/2008	24/06/2008	24/06/2008	24/06/2008
TPH C10 - C14	μg/L	<50	<50	<50	<50	<50
TPH C <sub>15</sub> - C <sub>28</sub>	μg/L	<100	<100	<100	<100	<100
TPH C29 - C36	μg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	86	89	96	106	102



PAHs in Water						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference		170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled		18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Date analysed	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Naphthalene	μg/L	<1	<1	<1	<1	<1
Acenaphthylene	μg/L	<1	<1	<1	<1	<1
Acenaphthene	μg/L	<1	<1	<1	<1	<1
Fluorene	μg/L	<1	<1	<1	<1	<1
Phenanthrene	μg/L	<1	<1	<1	<1	<1
Anthracene	μg/L	<1	<1	<1	<1	<1
Fluoranthene	μg/L	<1	<1	<1	<1	<1
Pyrene	μg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	μg/L	<1	<1	<1	<1	<1
Chrysene	μg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	μg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	μg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	μg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	μg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	μg/L	<1	<1	<1	<1	<1
Surrogate p-Terphenyl-d <sub>14</sub>	%	75	86	83	76	81



OCP in water						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference		170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled		18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code Time Sampled		WG 00:00	WG 00:00	WG 00:00	WG 00:00	WG 00:00
·						
Date extracted	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Date analysed	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
HCB	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
alpha-BHC	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-BHC	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
beta-BHC	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
delta-BHC	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Aldrin	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan I	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDE	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dieldrin	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDD	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan II	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
DDT	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	91	82	83	94	94



OP Pesticides in water						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference		170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled		18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Date analysed	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Diazinon	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenitrothion	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCLMX	%	91	82	83	94	94



PCBs in Water						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference		170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled		18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date extracted	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Date analysed	-	23/06/2008	23/06/2008	23/06/2008	23/06/2008	23/06/2008
Arochlor 1016	μg/L	<2	<2	<2	<2	<2
Arochlor 1232	μg/L	<2	<2	<2	<2	<2
Arochlor 1242	μg/L	<2	<2	<2	<2	<2
Arochlor 1248	μg/L	<2	<2	<2	<2	<2
Arochlor 1254	μg/L	<2	<2	<2	<2	<2
Arochlor 1260	μg/L	<2	<2	<2	<2	<2
Surrogate TCLMX	%	91	82	83	94	94



HM in water - dissolved						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference		170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled		18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	20/06/2008	20/06/2008	20/06/2008	20/06/2008	20/06/2008
Date analysed	-	20/06/2008	20/06/2008	20/06/2008	20/06/2008	20/06/2008
Arsenic-Dissolved	μg/L	2.2	4.9	1.6	5.6	4.9
Cadmium-Dissolved	μg/L	<0.10	<0.10	0.20	<0.10	<0.10
Chromium-Dissolved	μg/L	<1.0	2.0	23	<1.0	2.5
Copper-Dissolved	μg/L	1.8	<1.0	6.6	<1.0	2.1
Lead-Dissolved	μg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury-Dissolved	μg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Nickel-Dissolved	μg/L	<1.0	3.1	2.5	1.7	1.7
Zinc-Dissolved	μg/L	6.3	<1.0	4.1	3.1	1.5



Ion Balance						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference		170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled		18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample Sample Matrix Code Time Sampled		Water WG 00:00	Water WG 00:00	Water WG 00:00	Water WG 00:00	Water WG 00:00
Date prepared	-	24/06/2008	24/06/2008	24/06/2008	24/06/2008	24/06/2008
Date analysed	-	24/06/2008	24/06/2008	24/06/2008	24/06/2008	24/06/2008
Calcium - Dissolved	mg/L	160	130	170	370	680
Potassium - Dissolved	mg/L	10	25	130	23	60
Sodium - Dissolved	mg/L	38	320	3,500	220	1,000
Magnesium - Dissolved	mg/L	22	3.0	30	71	110
Carbonate Alkalinity as CaCO3	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Bicarbonate Alkalinity as CaCO3	mg/L	420	620	280	560	590
Sulphate, SO4	mg/L	110	<5	830	880	1,400
Chloride (titration) - water	mg/L	27	500	5,900	330	1,400



Miscellaneous Inorganics						
Our Reference:	UNITS	20315-1	20315-2	20315-3	20315-4	20315-5
Your Reference		170608-01-LJ	170608-02-LJ	170608-03-LJ	170608-05-LJ	180608-06-LJ
Date Sampled		18/06/2008	18/06/2008	18/06/2008	18/06/2008	18/06/2008
Type of sample		Water	Water	Water	Water	Water
Sample Matrix Code		WG	WG	WG	WG	WG
Time Sampled		00:00	00:00	00:00	00:00	00:00
Date prepared	-	20/06/2008	20/06/2008	20/06/2008	20/06/2008	20/06/2008
Date analysed	-	20/06/2008	20/06/2008	20/06/2008	20/06/2008	20/06/2008
Ammonia as N in water	mg/L	<0.1	14	4.4	3.0	2.9
Total Nitrogen	mg/L	9.5	21	5.6	4.3	5.3
Phosphorus - Total	mg/L	0.060	0.19	1.0	0.18	0.63
Salinity as NACL *	mg/L	610	1,600	10,000	1,800	4,100
Total Dissolved Solids (grav)	mg/L	660	1,400	11,000	2,100	5,100
Resistivity	ohm m	10	4.0	<1.0	3.6	1.6



Method ID	Methodology Summary
GC.13	Water samples are analysed directly by purge and trap GC-MS.
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals.22 ICP-MS	Determination of various metals by ICP-MS.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
LAB.6	Alkalinity - determined titrimetrically in accordance with APHA 20th ED, 2320-B.
LAB.9	Sulphate determined turbidimetrically.
LAB.11	Chloride determined by argentometric titration.
LAB.57	Ammonia water extractable - determined colourimetrically based on EPA103A.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
LAB.2	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA2510 20th ED and Rayment & Higginson.
LAB.18	Total Dissolved Solids - determined gravimetrically by drying the sample, in accordance with APHA 20th ED, 2540-C.



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
VOCs in water						Base II Duplicate II %RPD		Recovery
Date extracted	-			22/6/08	[NT]	[NT]	LCS-W1	22/6/08%
Date analysed	-			22/6/08	[NT]	[NT]	LCS-W1	22/6/08%
Dichlorodifluoromethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	μg/L	10	GC.13	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethen e	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	88%
Cis-1,2-dichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chloroform	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	93%
2,2-dichloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	92%
1,1,1-trichloroethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	93%
1,1-dichloropropene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromomethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Trichloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	108%
Bromodichloromethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	95%
trans-1,3-dichloropropen e	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	103%
1,2-dibromoethane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	μg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	102%
1,1,1,2-tetrachloroethan e	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromoform	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
m+p-xylene	μg/L	2	GC.13	<2.0	[NT]	[NT]	[NR]	[NR]
Styrene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethan e	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water						Base II Duplicate II %RPD		
o-xylene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichloropropane*	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Bromobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropro pane	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	μg/L	1	GC.13	<1.0	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		GC.13	89	[NT]	[NT]	LCS-W1	103%
Surrogate toluene-d8	%		GC.13	73	[NT]	[NT]	LCS-W1	100%
Surrogate 4-BFB	%		GC.13	108	[NT]	[NT]	LCS-W1	97%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTPH & BTEX in Water						Base II Duplicate II %RPD		
Date extracted	-			22/6/08	[NT]	[NT]	LCS-W1	22/6/08%
Date analysed	-			22/6/08	[NT]	[NT]	LCS-W1	22/6/08%
TPH C6 - C9	μg/L	10	GC.16	<10	[NT]	[NT]	LCS-W1	77%
Benzene	μg/L	1	GC.16	<1.0	[NT]	[NT]	LCS-W1	71%
Toluene	μg/L	1	GC.16	<1.0	[NT]	[NT]	LCS-W1	82%
Ethylbenzene	μg/L	1	GC.16	<1.0	[NT]	[NT]	LCS-W1	76%
m+p-xylene	μg/L	2	GC.16	<2.0	[NT]	[NT]	LCS-W1	79%
o-xylene	μg/L	1	GC.16	<1.0	[NT]	[NT]	LCS-W1	78%
Surrogate Dibromofluoromethane	%		GC.16	108	[NT]	[NT]	LCS-W1	102%
Surrogate toluene-d8	%		GC.16	79	[NT]	[NT]	LCS-W1	100%
Surrogate 4-BFB	%		GC.16	86	[NT]	[NT]	LCS-W1	107%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTPH in Water (C10-C36)						Base II Duplicate II %RPD		
Date extracted	-			23/6/08	[NT]	[NT]	LCS-W1	23/6/08%
Date analysed	-			24/6/08	[NT]	[NT]	LCS-W1	24/6/08%
TPH C10 - C14	μg/L	50	GC.3	<50	[NT]	[NT]	LCS-W1	72%
TPH C15 - C28	μg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	89%
TPH C29 - C36	μg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	94%
<i>Surrogate</i> o-Terphenyl	%		GC.3	94	[NT]	[NT]	LCS-W1	104%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	-			23/06/2 008	[NT]	[NT]	LCS-W1	23/06/2008
Date analysed	-			23/06/2 008	[NT]	[NT]	LCS-W1	23/06/2008 %
Naphthalene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	96%
Acenaphthylene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	94%
Phenanthrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	93%
Anthracene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	89%
Pyrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	94%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
PAHs in Water					Sm#	Base II Duplicate II %RPD	-	Recovery
PARIS III Water						base ii bupiicate ii /6KFb		
Benzo(a)anthracene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	116%
Benzo(b+k)fluoranthene	μg/L	2	GC.12 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	LCS-W1	87%
Indeno(1,2,3-c,d)pyrene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	μg/L	1	GC.12 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d <sub>14</sub>	%		GC.12 subset	98	[NT]	[NT]	LCS-W1	105%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
OCP in water						Base II Duplicate II %RPD		,
Date extracted	-			23/06/2 008	[NT]	[NT]	LCS-W1	23/06/2008
Date analysed	-			23/06/2 008	[NT]	[NT]	LCS-W1	23/06/2008
НСВ	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	60%
gamma-BHC	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
beta-BHC	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	76%
Heptachlor	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	60%
delta-BHC	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Aldrin	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	68%
Heptachlor Epoxide	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	68%
gamma-Chlordane	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan I	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDE	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	87%
Dieldrin	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	76%
Endrin	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	66%
pp-DDD	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	80%
Endosulfan II	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
DDT	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	73%
Methoxychlor	μg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-5	80	[NT]	[NT]	LCS-W1	86%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
OP Pesticides in water					2	Base II Duplicate II %RPD		,
Date extracted	-			23/06/2 008	[NT]	[NT]	LCS-W1	23/6/08%
Date analysed	-			23/06/2 008	[NT]	[NT]	LCS-W1	23/6/08%
Diazinon	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Dimethoate	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ronnel	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	90%
Fenitrothion	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	69%
Bromophos ethyl	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ethion	μg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	102%
Surrogate TCLMX	%		GC.8	80	[NT]	[NT]	LCS-W1	85%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Water						Base II Duplicate II %RPD		
Date extracted	-			23/06/2 008	[NT]	[NT]	LCS-W1	23/6/08%
Date analysed	-			23/06/2 008	[NT]	[NT]	LCS-W1	23/6/08%
Arochlor 1016	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	μg/L	2	GC-6	<2	[NT]	[NT]	LCS-W1	96%
Arochlor 1260	μg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-6	80	[NT]	[NT]	LCS-W1	121%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Date prepared	-			20/6/08	[NT]	[NT]	LCS-W1	20/6/08%
Date analysed	-			20/6/08	[NT]	[NT]	LCS-W1	20/6/08%
Arsenic-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	106%
Cadmium-Dissolved	μg/L	0.1	Metals.22 ICP-MS	<0.10	[NT]	[NT]	LCS-W1	104%
Chromium-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	98%
Copper-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	98%
Lead-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]	LCS-W1	100%
Mercury-Dissolved	μg/L	0.5	Metals.21 CV-AAS	<0.50	[NT]	[NT]	LCS-W1	99%



QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	5	Spike Sm#	Spike % Recovery
HM in water - dissolved					J	Base II Duplicate II %	RPD		neceste.y
Nickel-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]		LCS-W1	94%
Zinc-Dissolved	μg/L	1	Metals.22 ICP-MS	<1.0	[NT]	[NT]		LCS-W1	104%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results		Spike Sm#	Spike % Recovery
Ion Balance						Base II Duplicate II %R	RPD		
Date prepared	-			[NT]	[NT]	[NT]		LCS-1	20/6/08%
Date analysed	-			[NT]	[NT]	[NT]		LCS-1	20/6/08%
Calcium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	[NT]	[NT]		LCS-1	102%
Potassium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	[NT]	[NT]		LCS-1	94%
Sodium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	[NT]	[NT]		LCS-1	100%
Magnesium - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	[NT]	[NT]		LCS-1	100%
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	0.1	LAB.6	<0.1	[NT]	[NT]		LCS-1	100%
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	0.1	LAB.6	<0.1	[NT]	[NT]		LCS-1	100%
Sulphate, SO4	mg/L	5	LAB.9	<5	[NT]	[NT]		LCS-1	100%
Chloride (titration) - water	mg/L	20	LAB.11	<20	[NT]	[NT]		LCS-1	109%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results		Spike Sm#	Spike % Recovery
Miscellaneous Inorganics						Base II Duplicate II %R	RPD		Recovery
Date prepared	-			20/6/08	20315-1	20/06/2008    20/06/20	800	LCS-1	20/6/08%
Date analysed	-			20/6/08	20315-1	20/06/2008    20/06/20	800	LCS-1	20/6/08%
Ammonia as N in water	mg/L	0.1	LAB.57	<0.1	20315-1	<0.1    <0.1		LCS-1	104%
Total Nitrogen	mg/L	0.05	Ext-020	<0.05	20315-1	9.5    [N/T]		[NR]	[NR]
Phosphorus - Total	mg/L	0.05	Metals.20 ICP-AES	<0.05	20315-1	0.060    [N/T]		LCS-1	95%
Salinity as NACL *	mg/L	1	LAB.2	<1.0	20315-1	610    [N/T]		LCS-1	100%
Total Dissolved Solids (grav)	mg/L	5	LAB.18	<5	20315-1	660    630    RPD: 5		LCS-1	98%
Resistivity	ohm m	1	LAB.2	<1.0	20315-1	10    [N/T]		LCS-1	100%
QUALITY CONTROL Ion Balance	UNITS	3	Dup. Sm#		Duplicate Duplicate + %RPD	Spike Sm#	Spil	ke % Recovery	
Date prepared	_		[NT]		[NT]	[NR]		[NR]	
Date analysed	_		[NT]		[NT]	[NR]		[NR]	
Calcium - Dissolved	mg/L		[NT]		[NT]	20315-1		96%	
Potassium - Dissolved	mg/L		[NT]		[NT]	20315-1		101%	



QUALITY CONTROL Ion Balance	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Sodium - Dissolved	mg/L	[NT]	[NT]	20315-1	102%
Magnesium - Dissolved	mg/L	[NT]	[NT]	20315-1	102%
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	[NT]	[NT]	[NR]	[NR]
Bicarbonate Alkalinity as CaCO <sub>3</sub>	mg/L	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4	mg/L	[NT]	[NT]	[NR]	[NR]
Chloride (titration) - water	mg/L	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL	UNITS	Dup. Sm#	Duplicate	Spike Sm#	Spike % Recovery
Miscellaneous Inorganics			Base + Duplicate + %RPD		
Date prepared	-	[NT]	[NT]	20315-1	20/6/08%
Date analysed	-	[NT]	[NT]	20315-1	20/6/08%
Ammonia as N in water	mg/L	[NT]	[NT]	[NR]	[NR]
Total Nitrogen	mg/L	[NT]	[NT]	[NR]	[NR]
Phosphorus - Total	mg/L	[NT]	[NT]	20315-1	103%
Salinity as NACL *	mg/L	[NT]	[NT]	[NR]	[NR]
Total Dissolved Solids (grav)	mg/L	[NT]	[NT]	[NR]	[NR]
Resistivity	ohm m	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	20315-1	20/6/08%
Date analysed	-	[NT]	[NT]	20315-1	20/6/08%
Arsenic-Dissolved	μg/L	[NT]	[NT]	20315-1	113%
Cadmium-Dissolved	μg/L	[NT]	[NT]	20315-1	102%
Chromium-Dissolved	μg/L	[NT]	[NT]	20315-1	100%
Copper-Dissolved	μg/L	[NT]	[NT]	20315-1	98%
Lead-Dissolved	μg/L	[NT]	[NT]	20315-1	100%
Mercury-Dissolved	μg/L	[NT]	[NT]	20315-1	92%
Nickel-Dissolved	μg/L	[NT]	[NT]	20315-1	98%
Zinc-Dissolved	μg/L	[NT]	[NT]	20315-1	102%



QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	20315-2	20/6/08%
Date analysed	-	[NT]	[NT]	20315-2	20/6/08%
Ammonia as N in water	mg/L	[NT]	[NT]	20315-2	#
Total Nitrogen	mg/L	[NT]	[NT]	[NR]	[NR]
Phosphorus - Total	mg/L	[NT]	[NT]	[NR]	[NR]
Salinity as NACL *	mg/L	[NT]	[NT]	[NR]	[NR]
Total Dissolved Solids (grav)	mg/L	[NT]	[NT]	[NR]	[NR]
Resistivity	ohm m	[NT]	[NT]	[NR]	[NR]



#### **Report Comments:**

Ammonia in water: # Spike recovery failed due to high amount of analyte in the sample.

Total Nitrogen analysed by NMI: Report Number - 20522.

Asbestos was analysed by Approved Identifier: Not applicable for this job

INS: Insufficient sample for this test NT: Not tested PQL: Practical Quantitation Limit RPD: Relative Percent Difference NA: Test not required LCS: Laboratory Control Sample

NR: Not requested <: Less than >: Greater than

#### **Quality Control Definitions**

**Blank**: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. **Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike**: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample)**: This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

#### **Laboratory Acceptance Criteria:**

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for

SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for

SVOC and speciated phenols.







email: sydney@envirolab.com.au envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS

162123

Client:

**Consulting Earth Scientists Pty Ltd** 

Suite 3, Level 1 55 Grandview Street Pymble NSW 2073

Attention: M Read T Goodbody

Sample log in details:

Your Reference: CES130608-BP

No. of samples: 11 waters

Date samples received / completed instructions received 17/02/17 / 17/02/17

This report replaces R00 due to changes to project ID. (client request)

**Analysis Details:** 

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

**Report Details:** 

Date results requested by: / Issue Date: 24/02/17 / 27/02/17

Date of Preliminary Report: Not Issued

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Accredited for compliance with ISO/IEC 17025 - Testing

Tests not covered by NATA are denoted with \*.

### **Results Approved By:**

General Manager



		Г	Γ	Г	Г	Г
VOCs in water	LINITO	4004004	400400	400400.0	4004004	400400 5
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference	_	BMW401	BMW403	BMW404	AMW205	ABH2105
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	_	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Dichlorodifluoromethane	μg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
Chloroethane	μg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane		<10	<10	<10	<10	<10
	μg/L	<1	<1	<1	<1	<1
1,1-Dichloroethene	μg/L	<1			·	
Trans-1,2-dichloroethene	μg/L	-	<1	<1	<1	<1
1,1-dichloroethane	μg/L	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	μg/L	<1	<1	<1	<1	<1
Bromochloromethane	μg/L	<1	<1	<1	<1	<1
Chloroform	μg/L	<1	<1	<1	<1	<1
2,2-dichloropropane	μg/L	<1	<1	<1	<1	<1
1,2-dichloroethane	μg/L	<1	<1	<1	<1	<1
1,1,1-trichloroethane	μg/L	<1	<1	<1	<1	<1
1,1-dichloropropene	μg/L	<1	<1	<1	<1	<1
Cyclohexane	μg/L	<1	<1	<1	<1	5
Carbon tetrachloride	μg/L	<1	<1	<1	<1	<1
Benzene	μg/L	<1	<1	<1	<1	200
Dibromomethane	μg/L	<1	<1	<1	<1	<1
1,2-dichloropropane	μg/L	<1	<1	<1	<1	<1
Trichloroethene	μg/L	<1	<1	<1	<1	<1
Bromodichloromethane	μg/L	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	μg/L	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	μg/L	<1	<1	<1	<1	<1
1,1,2-trichloroethane	μg/L	<1	<1	<1	<1	<1
Toluene	μg/L	<1	<1	<1	<1	2
1,3-dichloropropane	μg/L	<1	<1	<1	<1	<1
Dibromochloromethane	μg/L	<1	<1	<1	<1	<1
1,2-dibromoethane	μg/L	<1	<1	<1	<1	<1
Tetrachloroethene	μg/L	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	μg/L	<1	<1	<1	<1	<1
Chlorobenzene	μg/L	<1	<1	<1	<1	<1
Ethylbenzene	μg/L	<1	<1	<1	<1	<1
Bromoform	μg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
o-xylene	μg/L	<1	<1	<1	<1	<1
0-xyletie	µg/L	`1	`'	`1	`'	

VOCs in water						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference		BMW401	BMW403	BMW404	AMW205	ABH2105
Date Sampled	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
	/1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	μg/L "	·	-	·	·	·
Isopropylbenzene	μg/L	<1	<1	<1	<1	3
Bromobenzene	μg/L	<1	<1	<1	<1	<1
n-propyl benzene	μg/L	<1	<1	<1	<1	3
2-chlorotoluene	μg/L	<1	<1	<1	<1	<1
4-chlorotoluene	μg/L	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	μg/L	<1	<1	<1	<1	<1
Tert-butyl benzene	μg/L	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	μg/L	<1	<1	<1	<1	<1
1,3-dichlorobenzene	μg/L	<1	<1	<1	<1	<1
Sec-butyl benzene	μg/L	<1	<1	<1	<1	<1
1,4-dichlorobenzene	μg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	μg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	μg/L	<1	<1	<1	<1	<1
n-butyl benzene	μg/L	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	μg/L	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	μg/L	<1	<1	<1	<1	<1
Hexachlorobutadiene	μg/L	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	μg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	97	95	97	97	98
Surrogate toluene-d8	%	98	95	96	95	96
Surrogate 4-BFB	%	98	97	101	99	98

VOOs in water					
VOCs in water Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference	UNITS	ABH202	ABH2100	AMW203	QAQC1
Tour Holoronic	-	7.51.1202	7.51.2100	7 111111200	Q 1Q01
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Dichlorodifluoromethane	μg/L	<10	<10	<10	<10
Chloromethane	μg/L	<10	<10	<10	<10
Vinyl Chloride	μg/L	<10	<10	<10	<10
Bromomethane	μg/L	<10	<10	<10	<10
Chloroethane	μg/L	<10	<10	<10	<10
Trichlorofluoromethane	μg/L	<10	<10	<10	<10
1,1-Dichloroethene	μg/L	<1	<1	<1	<1
Trans-1,2-dichloroethene	μg/L	<1	<1	<1	<1
1,1-dichloroethane	μg/L	<1	<1	<1	<1
Cis-1,2-dichloroethene	μg/L	<1	<1	<1	<1
Bromochloromethane	μg/L	<1	<1	<1	<1
Chloroform	μg/L	<1	<1	<1	<1
2,2-dichloropropane	μg/L	<1	<1	<1	<1
1,2-dichloroethane	μg/L	<1	<1	<1	<1
1,1,1-trichloroethane	μg/L	<1	<1	<1	<1
1,1-dichloropropene	μg/L	<1	<1	<1	<1
Cyclohexane	μg/L	<1	<1	<1	<1
Carbon tetrachloride	μg/L	<1	<1	<1	<1
Benzene	μg/L	<1	<1	<1	<1
Dibromomethane	μg/L	<1	<1	<1	<1
1,2-dichloropropane	μg/L	<1	<1	<1	<1
Trichloroethene	μg/L	<1	<1	<1	<1
Bromodichloromethane	μg/L	<1	<1	<1	<1
trans-1,3-dichloropropene	μg/L	<1	<1	<1	<1
cis-1,3-dichloropropene	μg/L	<1	<1	<1	<1
1,1,2-trichloroethane	μg/L	<1	<1	<1	<1
Toluene	μg/L	<1	<1	<1	<1
1,3-dichloropropane	μg/L	<1	<1	<1	<1
Dibromochloromethane	μg/L	<1	<1	<1	<1
1,2-dibromoethane	μg/L	<1	<1	<1	<1
Tetrachloroethene	μg/L	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	μg/L	<1	<1	<1	<1
Chlorobenzene	μg/L	<1	<1	<1	<1
Ethylbenzene	μg/L	<1	<1	<1	<1
Bromoform	μg/L	<1	<1	<1	<1
m+p-xylene	μg/L	<2	<2	<2	<2
Styrene	μg/L	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	μg/L	<1	<1	<1	<1
o-xylene	μg/L	<1	<1	<1	<1
1,2,3-trichloropropane	μg/L	<1	<1	<1	<1

VOCs in water Our Reference: Your Reference	UNITS	162123-6 ABH202	162123-7 ABH2100	162123-8 AMW203	162123-9 QAQC1
Date Sampled Type of sample		17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water
Isopropylbenzene	μg/L	<1	<1	<1	<1
Bromobenzene	μg/L	<1	<1	<1	<1
n-propyl benzene	μg/L	<1	<1	<1	<1
2-chlorotoluene	μg/L	<1	<1	<1	<1
4-chlorotoluene	μg/L	<1	<1	<1	<1
1,3,5-trimethyl benzene	μg/L	<1	<1	<1	<1
Tert-butyl benzene	μg/L	<1	<1	<1	<1
1,2,4-trimethyl benzene	μg/L	<1	<1	<1	<1
1,3-dichlorobenzene	μg/L	<1	<1	<1	<1
Sec-butyl benzene	μg/L	<1	<1	<1	<1
1,4-dichlorobenzene	μg/L	<1	<1	<1	<1
4-isopropyl toluene	μg/L	<1	<1	<1	<1
1,2-dichlorobenzene	μg/L	<1	<1	<1	<1
n-butyl benzene	μg/L	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	μg/L	<1	<1	<1	<1
1,2,4-trichlorobenzene	μg/L	<1	<1	<1	<1
Hexachlorobutadiene	μg/L	<1	<1	<1	<1
1,2,3-trichlorobenzene	μg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	97	96	97	97
Surrogate toluene-d8	%	97	94	95	96
Surrogate 4-BFB	%	99	101	100	97

vTRH(C6-C10)/BTEXN in Water						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference		BMW401	BMW403	BMW404	AMW205	ABH2105
	-					
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
TRHC6 - C9	μg/L	<10	<10	<10	<10	260
TRHC6 - C10	μg/L	<10	<10	<10	<10	260
TRHC6 - C10 less BTEX (F1)	μg/L	<10	<10	<10	<10	54
Benzene	μg/L	<1	<1	<1	<1	200
Toluene	μg/L	<1	<1	<1	<1	2
Ethylbenzene	μg/L	<1	<1	<1	<1	<1
m+p-xylene	μg/L	<2	<2	<2	<2	<2
o-xylene	μg/L	<1	<1	<1	<1	<1
Naphthalene	μg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	97	95	97	97	98
Surrogate toluene-d8	%	98	95	96	95	96
Surrogate 4-BFB	%	98	97	101	99	98

TRUVOS CASVETENAS AVA	I					
vTRH(C6-C10)/BTEXN in Water		400400 6	400400 7	400400	400400.0	100100 15
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9	162123-10
Your Reference		ABH202	ABH2100	AMW203	QAQC1	TS
	-					
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
TRHC6 - C9	μg/L	<10	<10	<10	<10	[NA]
TRHC6 - C10	μg/L	<10	<10	<10	<10	[NA]
TRHC6 - C10 less BTEX (F1)	μg/L	<10	<10	<10	<10	[NA]
Benzene	μg/L	<1	<1	<1	<1	82%
Toluene	μg/L	<1	<1	<1	<1	92%
Ethylbenzene	μg/L	<1	<1	<1	<1	94%
m+p-xylene	μg/L	<2	<2	<2	<2	94%
o-xylene	μg/L	<1	<1	<1	<1	96%
Naphthalene	μg/L	<1	<1	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	97	96	97	97	100
Surrogate toluene-d8	%	97	94	95	96	100
Surrogate 4-BFB	%	99	101	100	97	103

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	162123-11
Your Reference		TB
	-	
Date Sampled		17/02/2017
Type of sample		Water
Date extracted	-	20/02/2017
Date analysed	-	21/02/2017
TRHC6 - C9	μg/L	<10
TRHC6 - C10	μg/L	<10
TRHC6 - C10 less BTEX (F1)	μg/L	<10
Benzene	μg/L	<1
Toluene	μg/L	<1
Ethylbenzene	μg/L	<1
m+p-xylene	μg/L	<2
o-xylene	μg/L	<1
Naphthalene	μg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate toluene-d8	%	100
Surrogate 4-BFB	%	96

	1					
svTRH (C10-C40) in Water						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference		BMW401	BMW403	BMW404	AMW205	ABH2105
	-					
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	20/02/2017	20/02/2017
TRHC 10 - C 14	μg/L	<50	<50	<50	<50	<50
TRHC 15 - C28	μg/L	<100	<100	<100	<100	<100
TRHC29 - C36	μg/L	<100	<100	<100	<100	<100
TRH>C10 - C16	μg/L	<50	<50	<50	<50	<50
TRH>C10 - C16 less Naphthalene (F2)	μg/L	<50	<50	<50	<50	<50
TRH>C16 - C34	μg/L	<100	<100	<100	<100	<100
TRH>C34 - C40	μg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	86	71	83	79	75

	1				
svTRH (C10-C40) in Water					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference		ABH202	ABH2100	AMW203	QAQC1
	-				
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	20/02/2017	20/02/2017	21/02/2017	21/02/2017
TRHC10 - C14	μg/L	<50	<50	<50	<50
TRHC 15 - C28	μg/L	<100	<100	<100	<100
TRHC29 - C36	μg/L	<100	<100	<100	<100
TRH>C10 - C16	μg/L	<50	<50	<50	<50
TRH>C10 - C16 less Naphthalene (F2)	μg/L	<50	<50	<50	<50
TRH>C16 - C34	μg/L	<100	<100	<100	<100
TRH>C34 - C40	μg/L	<100	<100	<100	<100
Surrogate o-Terphenyl	%	77	82	80	90

PAHs in Water						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference		BMW401	BMW403	BMW404	AMW205	ABH2105
Date Sampled Type of sample		17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Naphthalene	μg/L	<1	<1	<1	<1	<1
Acenaphthylene	μg/L	<1	<1	<1	<1	<1
Acenaphthene	μg/L	<1	<1	<1	<1	<1
Fluorene	μg/L	<1	<1	<1	<1	<1
Phenanthrene	μg/L	<1	<1	<1	<1	<1
Anthracene	μg/L	<1	<1	<1	<1	<1
Fluoranthene	μg/L	<1	<1	<1	<1	<1
Pyrene	μg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	μg/L	<1	<1	<1	<1	<1
Chrysene	μg/L	<1	<1	<1	<1	<1
Benzo(b,j+k)fluoranthene	μg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	μg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	μg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	μg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	μg/L	<1	<1	<1	<1	<1
Benzo(a)pyrene TEQ	μg/L	<5	<5	<5	<5	<5
Total +ve PAH's	μg/L	NIL(+)VE	NIL(+)VE	NIL(+)VE	NIL(+)VE	NIL(+)VE
Surrogate p-Terphenyl-d14	%	97	73	75	74	79

PAHs in Water					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference		ABH202	ABH2100	AMW203	QAQC1
Date Sampled Type of sample		17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Naphthalene	μg/L	<1	<1	<1	<1
Acenaphthylene	μg/L	<1	<1	<1	<1
Acenaphthene	μg/L	<1	<1	<1	<1
Fluorene	μg/L	<1	<1	<1	<1
Phenanthrene	μg/L	<1	<1	<1	<1
Anthracene	μg/L	<1	<1	<1	<1
Fluoranthene	μg/L	<1	<1	<1	<1
Pyrene	μg/L	<1	<1	<1	<1
Benzo(a)anthracene	μg/L	<1	<1	<1	<1
Chrysene	μg/L	<1	<1	<1	<1
Benzo(b,j+k)fluoranthene	μg/L	<2	<2	<2	<2
Benzo(a)pyrene	μg/L	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	μg/L	<1	<1	<1	<1
Dibenzo(a,h)anthracene	μg/L	<1	<1	<1	<1
Benzo(g,h,i)perylene	μg/L	<1	<1	<1	<1
Benzo(a)pyrene TEQ	μg/L	<5	<5	<5	<5
Total +ve PAH's	μg/L	NIL(+)VE	NIL(+)VE	NIL(+)VE	NIL(+)VE
Surrogate p-Terphenyl-d14	%	90	88	94	88

OCP in water						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference		BMW401	BMW403	BMW404	AMW205	ABH2105
	-	17/00/00 17	47/00/0047	47/00/0047	17/00/00 17	47/00/0047
Date Sampled Type of sample		17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
HCB	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
alpha-BHC	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-BHC	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
beta-BHC	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
delta-BHC	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Aldrin	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan I	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDE	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dieldrin	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDD	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan II	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDT	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	133	101	136	110	128

OOD in water			T		
OCP in water Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference		ABH202	ABH2100	AMW203	QAQC1
1 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-	7.2202	7.22.00	7	
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	- 1	21/02/2017	21/02/2017	21/02/2017	21/02/2017
HCB	μg/L	<0.2	<0.2	<0.2	<0.2
alpha-BHC	μg/L	<0.2	<0.2	<0.2	<0.2
gamma-BHC	μg/L	<0.2	<0.2	<0.2	<0.2
beta-BHC	μg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor	μg/L	<0.2	<0.2	<0.2	<0.2
delta-BHC	μg/L	<0.2	<0.2	<0.2	<0.2
Aldrin	μg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	μg/L	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	μg/L	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	μg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan l	μg/L	<0.2	<0.2	<0.2	<0.2
pp-DDE	μg/L	<0.2	<0.2	<0.2	<0.2
Dieldrin	μg/L	<0.2	<0.2	<0.2	<0.2
Endrin	μg/L	<0.2	<0.2	<0.2	<0.2
pp-DDD	μg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan II	μg/L	<0.2	<0.2	<0.2	<0.2
pp-DDT	μg/L	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	μg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	μg/L	<0.2	<0.2	<0.2	<0.2
Methoxychlor	μg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	117	126	120	129

			I			I
OP Pesticides in water						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference		BMW401	BMW403	BMW404	AMW205	ABH2105
	-					
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Azinphos-methyl (Guthion)	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Diazinon	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dichlorovos	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenitrothion	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	μg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	133	101	136	110	128

OP Pesticides in water Our Reference: Your Reference	UNITS 	162123-6 ABH202	162123-7 ABH2100	162123-8 AMW203	162123-9 QAQC1
Date Sampled Type of sample		17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water
туре от заттріе		vvatei	vvater	vvater	vvater
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Azinphos-methyl (Guthion)	μg/L	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	μg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	μg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	μg/L	<0.2	<0.2	<0.2	<0.2
Diazinon	μg/L	<0.2	<0.2	<0.2	<0.2
Dichlorovos	μg/L	<0.2	<0.2	<0.2	<0.2
Dimethoate	μg/L	<0.2	<0.2	<0.2	<0.2
Ethion	μg/L	<0.2	<0.2	<0.2	<0.2
Fenitrothion	μg/L	<0.2	<0.2	<0.2	<0.2
Malathion	μg/L	<0.2	<0.2	<0.2	<0.2
Parathion	μg/L	<0.2	<0.2	<0.2	<0.2
Ronnel	μg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	117	126	120	129

PCBs in Water						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference		BMW401	BMW403	BMW404	AMW205	ABH2105
Date Sampled Type of sample		17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	- 1	21/02/2017	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Aroclor 1016	μg/L	<2	<2	<2	<2	<2
Aroclor 1221	μg/L	<2	<2	<2	<2	<2
Aroclor 1232	μg/L	<2	<2	<2	<2	<2
Aroclor 1242	μg/L	<2	<2	<2	<2	<2
Aroclor 1248	μg/L	<2	<2	<2	<2	<2
Aroclor 1254	μg/L	<2	<2	<2	<2	<2
Aroclor 1260	μg/L	<2	<2	<2	<2	<2
Surrogate TCLMX	%	133	101	136	110	128

PCBs in Water					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference		ABH202	ABH2100	AMW203	QAQC1
Date Sampled Type of sample		17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water
Date extracted	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	21/02/2017	21/02/2017	21/02/2017	21/02/2017
Aroclor 1016	μg/L	<2	<2	<2	<2
Aroclor 1221	μg/L	<2	<2	<2	<2
Aroclor 1232	μg/L	<2	<2	<2	<2
Aroclor 1242	μg/L	<2	<2	<2	<2
Aroclor 1248	μg/L	<2	<2	<2	<2
Aroclor 1254	μg/L	<2	<2	<2	<2
Aroclor 1260	μg/L	<2	<2	<2	<2
Surrogate TCLMX	%	117	126	120	129

HM in water - dissolved						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference		BMW401	BMW403	BMW404	AMW205	ABH2105
Date Sampled Type of sample		17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water
Date prepared	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Arsenic-Dissolved	μg/L	14	3	8	4	4
Cadmium-Dissolved	μg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	μg/L	<1	<1	3	1	<1
Copper-Dissolved	μg/L	3	1	<1	<1	<1
Lead-Dissolved	μg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	μg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	μg/L	<1	1	1	2	<1
Zinc-Dissolved	μg/L	4	1	1	<1	5

HM in water - dissolved					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference		ABH202	ABH2100	AMW203	QAQC1
Deta Commission	-	47/00/0047	47/00/0047	47/00/0047	47/00/0047
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date prepared	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Arsenic-Dissolved	μg/L	9	14	32	32
Cadmium-Dissolved	μg/L	<0.1	0.4	<0.1	<0.1
Chromium-Dissolved	μg/L	6	4	<1	<1
Copper-Dissolved	μg/L	1	3	<1	<1
Lead-Dissolved	μg/L	<1	7	<1	<1
Mercury-Dissolved	μg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	μg/L	83	17	<1	<1
Zinc-Dissolved	μg/L	14	8	<1	<1

	T	I				
Ion Balance						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference		BMW401	BMW403	BMW404	AMW205	ABH2105
	-					
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Date analysed	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Calcium - Dissolved	mg/L	110	82	230	230	97
Potassium - Dissolved	mg/L	12	23	120	36	8.8
Sodium - Dissolved	mg/L	36	250	3,500	630	84
Magnesium - Dissolved	mg/L	14	24	300	66	16
Hydroxide Alkalinity (OH <sup>-</sup> ) as CaCO <sub>3</sub>	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as CaCO3	mg/L	460	450	320	530	270
Carbonate Alkalinity as CaCO3	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as CaCO3	mg/L	460	450	320	530	270
Sulphate, SO4	mg/L	3	17	650	410	54
Chloride, Cl	mg/L	30	320	5,300	880	140
Ionic Balance	%	-8.1	-3.2	5.8	1.8	-0.86

Ion Balance Our Reference: Your Reference	UNITS 	162123-6 ABH202	162123-7 ABH2100	162123-8 AMW203	162123-9 QAQC1
Date Sampled Type of sample		17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water
Date prepared	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Date analysed	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Calcium - Dissolved	mg/L	150	97	300	310
Potassium - Dissolved	mg/L	10	33	230	240
Sodium - Dissolved	mg/L	140	960	7,200	7,300
Magnesium - Dissolved	mg/L	24	42	660	670
Hydroxide Alkalinity (OH <sup>-</sup> ) as CaCO3	mg/L	<5	<5	<5	<5
Bicarbonate Alkalinity as CaCO3	mg/L	270	360	370	370
Carbonate Alkalinity as CaCO3	mg/L	<5	<5	<5	<5
Total Alkalinity as CaCO <sub>3</sub>	mg/L	270	360	370	370
Sulphate, SO4	mg/L	110	340	1,500	1,400
Chloride, Cl	mg/L	320	1,400	10,000	9,700
Ionic Balance	%	-2.2	-2.2	9.1	12

Metals in Waters - Acid extractable						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference		BMW401	BMW403	BMW404	AMW205	ABH2105
Date Sampled Type of sample		17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water	17/02/2017 Water
Date prepared	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Phosphorus - Total	mg/L	0.8	0.2	1.3	0.2	1.4
						_
Metals in Waters - Acid extractable						

Metals in Waters - Acid extractable					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference		ABH202	ABH2100	AMW203	QAQC1
	-				
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date prepared	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Date analysed	-	20/02/2017	20/02/2017	20/02/2017	20/02/2017
Phosphorus - Total	mg/L	1	<0.05	0.7	0.7

Envirolab Reference: 162123 Page 17 of 32 Revision No: R 01

Miscellaneous Inorganics						
Our Reference:	UNITS	162123-1	162123-2	162123-3	162123-4	162123-5
Your Reference		BMW401	BMW403	BMW404	AMW205	ABH2105
Data Camania d	-	47/00/0047	47/00/0047	47/00/0047	47/00/0047	47/00/0047
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Date analysed	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Ammonia as N in water	mg/L	0.92	8.0	1.7	1.0	3.0
Total Nitrogen in water	mg/L	1.2	9.2	2.8	2.2	4.1
рН	pH Units	[NA]	7.1	[NA]	7.0	[NA]
Electrical Conductivity	μS/cm	[NA]	1,700	[NA]	3,900	[NA]
Salinity as NaCl*	mg/L	[NA]	1,100	[NA]	2,500	[NA]
Resistivity	ohmm	[NA]	6.0	[NA]	2.6	[NA]
Total Dissolved Solids (grav)	mg/L	[NA]	920	[NA]	2,500	[NA]

Miscellaneous Inorganics					
Our Reference:	UNITS	162123-6	162123-7	162123-8	162123-9
Your Reference		ABH202	ABH2100	AMW203	QAQC1
	-				
Date Sampled		17/02/2017	17/02/2017	17/02/2017	17/02/2017
Type of sample		Water	Water	Water	Water
Date prepared	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Date analysed	-	17/02/2017	17/02/2017	17/02/2017	17/02/2017
Ammonia as N in water	mg/L	0.73	0.29	1.1	1.1
Total Nitrogen in water	mg/L	1.8	1.2	1.4	1.3

Method ID	Methodology Summary
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-022	Determination of various metals by ICP-MS.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-020	Determination of various metals by ICP-AES.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 10% ie total anions = total cations +/-10%.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Soils are analysed following a KCI extraction.
Inorg-055/062	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons. Resistivity is calculated from Conductivity.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-5°C.

CES130608-BP **Client Reference:** QUALITYCONTROL UNITS PQL METHOD Blank Duplicate Duplicate results Spike Sm# Spike %

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
VOCs in water					SIT#	Base II Duplicate II %RPD		Recovery
Date extracted	-			20/02/2 017	162123-1	20/02/2017    21/02/2017	LCS-W1	20/02/2017
Date analysed	-			21/02/2 017	162123-1	21/02/2017    22/02/2017	LCS-W1	21/02/2017
Dichlorodifluoromethane	μg/L	10	Org-013	<10	162123-1	<10  <10	[NR]	[NR]
Chloromethane	μg/L	10	Org-013	<10	162123-1	<10  <10	[NR]	[NR]
Vinyl Chloride	µg/L	10	Org-013	<10	162123-1	<10  <10	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	162123-1	<10  <10	[NR]	[NR]
Chloroethane	μg/L	10	Org-013	<10	162123-1	<10  <10	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	162123-1	<10  <10	[NR]	[NR]
1,1-Dichloroethene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
Trans-1,2- dichloroethene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
1,1-dichloroethane	μg/L	1	Org-013	<1	162123-1	<1  <1	LCS-W1	86%
Cis-1,2-dichloroethene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
Bromochloromethane	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
Chloroform	μg/L	1	Org-013	<1	162123-1	<1  <1	LCS-W1	93%
2,2-dichloropropane	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
1,2-dichloroethane	μg/L	1	Org-013	<1	162123-1	<1  <1	LCS-W1	97%
1,1,1-trichloroethane	μg/L	1	Org-013	<1	162123-1	<1  <1	LCS-W1	102%
1,1-dichloropropene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
Cyclohexane	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
Carbon tetrachloride	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
Benzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
Dibromomethane	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
1,2-dichloropropane	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
Trichloroethene	μg/L	1	Org-013	<1	162123-1	<1  <1	LCS-W1	92%
Bromodichloromethane	μg/L	1	Org-013	<1	162123-1	<1  <1	LCS-W1	98%
trans-1,3- dichloropropene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
cis-1,3-dichloropropene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
1,1,2-trichloroethane	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
Toluene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
1,3-dichloropropane	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
Dibromochloromethane	μg/L	1	Org-013	<1	162123-1	<1  <1	LCS-W1	103%
1,2-dibromoethane	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
Tetrachloroethene	μg/L	1	Org-013	<1	162123-1	<1    <1	LCS-W1	95%
1,1,1,2- tetrachloroethane	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
Chlorobenzene	μg/L	1	Org-013	<1	162123-1	<1    <1	[NR]	[NR]
Ethylbenzene	μg/L	1	Org-013	<1	162123-1	<1    <1	[NR]	[NR]
Bromoform	μg/L	1	Org-013	<1	162123-1	<1    <1	[NR]	[NR]
m+p-xylene	μg/L	2	Org-013	<2	162123-1	<2  <2	[NR]	[NR]
Styrene	μg/L	1	Org-013	<1	162123-1	<1    <1	[NR]	[NR]
1,1,2,2- tetrachloroethane	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]
o-xylene	μg/L	1	Org-013	<1	162123-1	<1    <1	[NR]	[NR]

Client Reference: CES130608-BP												
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery				
VOCs in water						Base II Duplicate II %RPD						
1,2,3-trichloropropane	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
Isopropylbenzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
Bromobenzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
n-propyl benzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
2-chlorotoluene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
4-chlorotoluene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
1,3,5-trimethyl benzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
Tert-butyl benzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
1,2,4-trimethyl benzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
1,3-dichlorobenzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
Sec-butyl benzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
1,4-dichlorobenzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
4-isopropyl toluene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
1,2-dichlorobenzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
n-butyl benzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
1,2-dibromo-3- chloropropane	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
1,2,4-trichlorobenzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
Hexachlorobutadiene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
1,2,3-trichlorobenzene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]				
Surrogate Dibromofluoromethane	%		Org-013	98	162123-1	97  101  RPD:4	LCS-W1	109%				
Surrogate toluene-d8	%		Org-013	98	162123-1	98    101    RPD: 3	LCS-W1	111%				
Surrogate 4-BFB	%		Org-013	102	162123-1	98    101    RPD: 3	LCS-W1	102%				

QUALITYCONTROL   UNTS   PCL   METHOD   Blank   Duplicate results   Spike Symf   Recovery	Client Reference: CES130608-BP											
Date extracted	QUALITY CONTROL	UNITS	PQL	METHOD	Blank		Duplicate results	Spike Sm#	1 '			
Daite analysed	· '						Base II Duplicate II %RPD		,			
TRHCs - Co	Date extracted	-			l .	162123-1	20/02/2017    21/02/2017	LCS-W1	20/02/2017			
TRHC6 - Cro	Date analysed	-			I	162123-1	21/02/2017    22/02/2017	LCS-W1	21/02/2017			
Benzene	TRHC6 - C9	μg/L	10	Org-016	<10	162123-1	<10  <10	LCS-W1	87%			
Toluene	TRHC6 - C10	μg/L	10	Org-016	<10	162123-1	<10  <10	LCS-W1	87%			
Ethylbenzene	Benzene	µg/L	1	Org-016	<1	162123-1	<1  <1	LCS-W1	87%			
m+p-xylene         μg/L         2         Org-016         <2         162123-1         <2    <2         LCS-W1         86%           o-xylene         μg/L         1         Org-016         <1         162123-1         <1    <1         LCS-W1         84%           Surrogate Dibromofluoromethane         %         Org-016         98         162123-1         97    101    RPD-3         LCS-W1         110%           Surrogate bilduene-d8 Surrogate tolluene-d8 Surrogate tolluene-d8 Surrogate tolluene-d8 Surrogate tolluene-d8 %         Org-016         102         162123-1         98    101    RPD-3         LCS-W1         111%           QUALITY CONTROL WITS         POL         METHOD         Blank Surrogate tolluene-d8 Surrogate	Toluene	μg/L	1	Org-016	<1	162123-1	<1  <1	LCS-W1	91%			
o-xylene         μg/L         1         Org-016         <1         162123-1         <1    <1             LCS-W1         84%           Naphthelene         μg/L         1         Org-016         -98         162123-1         <1    <1	Ethylbenzene	μg/L	1	Org-016	<1	162123-1	<1  <1	LCS-W1	84%			
Naphthalene	m+p-xylene	μg/L	2	Org-016	<2	162123-1	<2  <2	LCS-W1	86%			
Surrogate   %   Org-016   98   162123-1   97    101    RPD:4   LCS-W1   109%	o-xylene	μg/L	1	Org-016	<1	162123-1	<1  <1	LCS-W1	84%			
Dibromofluoromethane   Surrogate foluene-48   %	Naphthalene	μg/L	1	Org-013	<1	162123-1	<1  <1	[NR]	[NR]			
Surrogate 4-BFB   %   Org-016   102   162123-1   98    101    RPD:3   LCS-W1   102%	_ ~	%		Org-016	98	162123-1	97  101  RPD:4	LCS-W1	109%			
Description	Surrogate toluene-d8	%		Org-016	98	162123-1	98    101    RPD: 3	LCS-W1	111%			
STRH (C10-C40) in   Water	Surrogate 4-BFB	%		Org-016	102	162123-1	98    101    RPD: 3	LCS-W1	102%			
Date extracted   Company   Date extracted   Da	QUALITYCONTROL	UNITS	PQL	METHOD	Blank		Duplicate results	Spike Sm#	l '			
Date extracted   -	svTRH(C10-C40)in					Sm#	Base II Duplicate II %RPD		Recovery			
Date analysed   -	, ,						·					
TRHC   10 - C   14	Date extracted	-			1	162123-1	20/02/2017    20/02/2017	LCS-W3	20/02/2017			
TRHC15 - C28	Date analysed	-				162123-1	21/02/2017    21/02/2017	LCS-W3	20/02/2017			
TRHC29 - C36         μg/L         100         Org-003         <100         162123-1         <100    <100         LCS-W3         84%           TRH>C10 - C16         μg/L         50         Org-003         <50	TRHC10 - C14	μg/L	50	Org-003	<50	162123-1	<50  <50	LCS-W3	98%			
TRH>C 10 - C 16         μg/L         50         Org-003         <50         162123-1         <50   < 50         LCS-W3         98%           TRH>C 16 - C 34         μg/L         100         Org-003         <100	TRHC 15 - C28	μg/L	100	Org-003	<100	162123-1	<100  <100	LCS-W3	86%			
TRH>C % - C 34         μg/L         100         Org-003         <100         162123-1         <100    <100         LCS-W3         86%           TRH>C 34 - C 40         μg/L         100         Org-003         <100	TRHC29 - C36	μg/L	100	Org-003	<100	162123-1	<100  <100	LCS-W3	84%			
TRH>C34 - C40         μg/L         100         Org-003         <100         162123-1         <100    <100         LCS-W3         84%           Surrogate o-Terphenyl         %         Org-003         85         162123-1         86    90    RPD: 5         LCS-W3         102%           QUALITY CONTROL         UNITS         PQL         METHOD         Blank         Duplicate Sm#         Duplicate results         Spike Sm#         Spike Sm# Recovery           PAHs in Water         -         20/02/2 017         162123-1         20/02/2017    20/02/2017    20/02/2017         LCS-W4         20/02/2017           Date extracted         -         21/02/2 017         162123-1         21/02/2017    21/02/2017    21/02/2017         LCS-W4         21/02/2017           Naphthalene         μg/L         1         Org-012         <1	TRH>C10 - C16	µg/L	50	Org-003	<50	162123-1	<50    <50	LCS-W3	98%			
Surrogate o-Terphenyl   %	TRH>C16 - C34	μg/L	100	Org-003	<100	162123-1	<100  <100	LCS-W3	86%			
QUALITY CONTROL         UNITS         PQL         METHOD         Blank         Duplicate Sm#         Duplicate results         Spike Sm#         Spike % Recovery           PAHs in Water         -         20/02/2 017         162123-1 017         20/02/2017    20/02	TRH>C34 - C40	μg/L	100	Org-003	<100	162123-1	<100  <100	LCS-W3	84%			
PAHs in Water         Sm#         Base II Duplicate II %RPD         Recovery           Date extracted         -         20/02/2 017         162123-1 20/02/2017    20/02/2017    20/02/2017    20/02/2017         LCS-W4 20/02/2017           Date analysed         -         21/02/2 017         162123-1 21/02/2017    21/02/2017    21/02/2017    21/02/2017    21/02/2017         LCS-W4 21/02/2017           Naphthalene         μg/L         1         Org-012 <1 162123-1 <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1    <1	Surrogate o-Terphenyl	%		Org-003	85	162123-1	86  90  RPD:5	LCS-W3	102%			
Date extracted         -         20/02/2 017         162123-1 017         20/02/2017    20/02/2017         LCS-W4 20/02/2017           Date analysed         -         21/02/2 017         162123-1 21/02/2017    21/02/2017         LCS-W4 21/02/2017           Naphthalene         μg/L         1         Org-012 <1 162123-1 <1    <1    <1 LCS-W4 113%	QUALITY CONTROL	UNITS	PQL	METHOD	Blank		Duplicate results	Spike Sm#	l '			
Date analysed         -         017 21/02/2 017         162123-1 162123-1         21/02/2017    21/02/2017         LCS-W4         21/02/2017           Naphthalene         μg/L         1         Org-012         <1	PAHs in Water						Base II Duplicate II %RPD					
Naphthalene         μg/L         1         Org-012         <1         162123-1         <1    <1         LCS-W4         113%           Acenaphthylene         μg/L         1         Org-012         <1	Date extracted	-			l .	162123-1	20/02/2017    20/02/2017	LCS-W4	20/02/2017			
Acenaphthylene         μg/L         1         Org-012         <1         162123-1         <1    <1         [NR]         [NR]           Acenaphthene         μg/L         1         Org-012         <1	Date analysed	-			I	162123-1	21/02/2017    21/02/2017	LCS-W4	21/02/2017			
Acenaphthene         μg/L         1         Org-012         <1         162123-1         <1    <1         [NR]         [NR]           Fluorene         μg/L         1         Org-012         <1	Naphthalene	μg/L	1	Org-012	<1	162123-1	<1    <1	LCS-W4	113%			
Fluorene         μg/L         1         Org-012         <1         162123-1         <1    <1         LCS-W4         122%           Phenanthrene         μg/L         1         Org-012         <1	Acenaphthylene	μg/L	1	Org-012	<1	162123-1	<1  <1	[NR]	[NR]			
Phenanthrene         μg/L         1         Org-012         <1         162123-1         <1    <1         LCS-W4         115%           Anthracene         μg/L         1         Org-012         <1	Acenaphthene	μg/L	1	Org-012	<1	162123-1	<1  <1	[NR]	[NR]			
Anthracene μg/L 1 Org-012 <1 162123-1 <1    <1    ×1    ×1    [NR]    [NR]   Fluoranthene μg/L 1 Org-012 <1 162123-1 <1    <1    ×    ×1	Fluorene	μg/L	1	Org-012	<1	162123-1	<1  <1	LCS-W4	122%			
Fluoranthene         μg/L         1         Org-012         <1         162123-1         <1    <1         LCS-W4         129%           Pyrene         μg/L         1         Org-012         <1	Phenanthrene	μg/L	1	Org-012	<1	162123-1	<1  <1	LCS-W4	115%			
Pyrene μg/L 1 Org-012 <1 162123-1 <1   <1 LCS-W4 126%	Anthracene	μg/L	1	Org-012	<1	162123-1	<1  <1	[NR]	[NR]			
	Fluoranthene	μg/L	1	Org-012	<1	162123-1	<1  <1	LCS-W4	129%			
Benzo(a)anthracene μg/L 1 Org-012 <1 162123-1 <1   <1 [NR]	Pyrene	μg/L	1	Org-012	<1	162123-1	<1  <1	LCS-W4	126%			
	Benzo(a)anthracene	μg/L	11	Org-012	<1	162123-1	<1  <1	[NR]	[NR]			

		Clie	nt Referenc	e: C	ES130608-B	P		
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike %
PAHs in Water					Sit#	Base II Duplicate II %RPD		Recovery
Chrysene	μg/L	1	Org-012	<1	162123-1	<1  <1	LCS-W4	124%
Benzo(b,j+k) fluoranthene	μg/L	2	Org-012	<2	162123-1	<2  <2	[NR]	[NR]
Benzo(a)pyrene	μg/L	1	Org-012	<1	162123-1	<1  <1	LCS-W4	125%
Indeno(1,2,3-c,d)pyrene	μg/L	1	Org-012	<1	162123-1	<1  <1	[NR]	[NR]
Dibenzo(a,h)anthracene	μg/L	1	Org-012	<1	162123-1	<1  <1	[NR]	[NR]
Benzo(g,h,i)perylene	μg/L	1	Org-012	<1	162123-1	<1  <1	[NR]	[NR]
Surrogate p-Terphenyl- d14	%		Org-012	87	162123-1	97    101    RPD: 4	LCS-W4	96%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate	Duplicate results	Spike Sm#	Spike %
000:					Sm#	D		Recovery
OCP in water						Base II Duplicate II %RPD		
Date extracted	-			20/02/2 017	162123-1	20/02/2017    20/02/2017	LCS-W2	20/02/2017
Date analysed	-			21/02/2 017	162123-1	21/02/2017    21/02/2017	LCS-W2	21/02/2017
HCB	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]
alpha-BHC	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	LCS-W2	99%
gamma-BHC	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]
beta-BHC	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	LCS-W2	108%
Heptachlor	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	LCS-W2	102%
delta-BHC	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]
Aldrin	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	LCS-W2	101%
Heptachlor Epoxide	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	LCS-W2	105%
gamma-Chlordane	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]
alpha-Chlordane	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]
Endosulfan I	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]
pp-DDE	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	LCS-W2	111%
Dieldrin	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	LCS-W2	115%
Endrin	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	LCS-W2	106%
pp-DDD	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	LCS-W2	119%
Endosulfan II	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]
pp-DDT	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]
Endrin Aldehyde	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]
Endosulfan Sulphate	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	LCS-W2	101%
Methoxychlor	μg/L	0.2	Org-005	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]
Surrogate TCMX	%		Org-005	124	162123-1	133    124    RPD: 7	LCS-W2	128%

		Clie	nt Referenc	e: Cl	ES130608-BI	Client Reference: CES130608-BP												
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery										
OP Pesticides in water						Base II Duplicate II %RPD												
Date extracted	-			20/02/2 017	162123-1	20/02/2017    20/02/2017	LCS-W2	20/02/2017										
Date analysed	-			21/02/2 017	162123-1	21/02/2017    21/02/2017	LCS-W2	21/02/2017										
Azinphos-methyl (Guthion)	μg/L	0.2	Org-008	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]										
Bromophos ethyl	μg/L	0.2	Org-008	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]										
Chlorpyriphos	μg/L	0.2	Org-008	<0.2	162123-1	<0.2  <0.2	LCS-W2	78%										
Chlorpyriphos-methyl	μg/L	0.2	Org-008	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]										
Diazinon	μg/L	0.2	Org-008	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]										
Dichlorovos	μg/L	0.2	Org-008	<0.2	162123-1	<0.2  <0.2	LCS-W2	83%										
Dimethoate	μg/L	0.2	Org-008	<0.2	162123-1	<0.2  <0.2	[NR]	[NR]										
Ethion	μg/L	0.2	Org-008	<0.2	162123-1	<0.2  <0.2	LCS-W2	89%										
Fenitrothion	μg/L	0.2	Org-008	<0.2	162123-1	<0.2  <0.2	LCS-W2	98%										
Malathion	μg/L	0.2	Org-008	<0.2	162123-1	<0.2  <0.2	LCS-W2	105%										
Parathion	μg/L	0.2	Org-008	<0.2	162123-1	<0.2  <0.2	LCS-W2	90%										
Ronnel	μg/L	0.2	Org-008	<0.2	162123-1	<0.2  <0.2	LCS-W2	81%										
Surrogate TCMX	%		Org-008	124	162123-1	133    124    RPD: 7	LCS-W2	110%										
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery										
PCBs in Water						Base II Duplicate II %RPD												
Date extracted	-			20/02/2 017	162123-1	20/02/2017    20/02/2017	LCS-W2	20/02/2017										
Date analysed	-			21/02/2 017	162123-1	21/02/2017    21/02/2017	LCS-W2	21/02/2017										
Aroclor 1016	μg/L	2	Org-006	[NT]	162123-1	<2  <2	[NR]	[NR]										
Aroclor 1221	μg/L	2	Org-006	[NT]	162123-1	<2  <2	[NR]	[NR]										
Aroclor 1232	μg/L	2	Org-006	[NT]	162123-1	<2  <2	[NR]	[NR]										
Aroclor 1242	μg/L	2	Org-006	[NT]	162123-1	<2  <2	[NR]	[NR]										
Aroclor 1248	μg/L	2	Org-006	[NT]	162123-1	<2  <2	[NR]	[NR]										
Aroclor 1254	μg/L	2	Org-006	[NT]	162123-1	<2  <2	LCS-W2	83%										
Aroclor 1260	μg/L	2	Org-006	[NT]	162123-1	<2  <2	[NR]	[NR]										
Surrogate TCLMX	%		Org-006	124	162123-1	133    124    RPD: 7	LCS-W2	110%										

		Clie	nt Referenc	e: Cl	ES130608-BF	•		
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		-
Date prepared	-			20/02/2 017	162123-1	20/02/2017    20/02/2017	LCS-W1	20/02/2017
Date analysed	-			20/02/2 017	162123-1	20/02/2017    20/02/2017	LCS-W1	20/02/2017
Arsenic-Dissolved	μg/L	1	Metals-022	<1	162123-1	14  14  RPD:0	LCS-W1	99%
Cadmium-Dissolved	μg/L	0.1	Metals-022	<0.1	162123-1	<0.1  <0.1	LCS-W1	101%
Chromium-Dissolved	μg/L	1	Metals-022	<1	162123-1	<1  <1	LCS-W1	99%
Copper-Dissolved	μg/L	1	Metals-022	<1	162123-1	3  3  RPD:0	LCS-W1	99%
Lead-Dissolved	μg/L	1	Metals-022	<1	162123-1	<1  <1	LCS-W1	100%
Mercury-Dissolved	μg/L	0.05	Metals-021	<0.05	162123-1	<0.05   [N/T]	LCS-W1	96%
Nickel-Dissolved	μg/L	1	Metals-022	<1	162123-1	<1  <1	LCS-W1	99%
Zinc-Dissolved	μg/L	1	Metals-022	<1	162123-1	4  4  RPD:0	LCS-W1	97%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Ion Balance						Base II Duplicate II %RPD		
Date prepared	-			17/02/2 017	162123-1	17/02/2017    17/02/2017	LCS-W1	17/02/2017
Date analysed	-			17/02/2 017	162123-1	17/02/2017    17/02/2017	LCS-W1	17/02/2017
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	162123-1	110  110  RPD:0	LCS-W1	99%
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	162123-1	12  13  RPD:8	LCS-W1	96%
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	162123-1	36  38  RPD:5	LCS-W1	101%
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	162123-1	14  14  RPD:0	LCS-W1	98%
Hydroxide Alkalinity (OH <sup>-</sup> ) as CaCO <sub>3</sub>	mg/L	5	Inorg-006	<5	162123-1	<5  <5	[NR]	[NR]
Bicarbonate Alkalinity as CaCO3	mg/L	5	Inorg-006	<5	162123-1	460    460    RPD: 0	[NR]	[NR]
Carbonate Alkalinity as CaCO3	mg/L	5	Inorg-006	<5	162123-1	<5  <5	[NR]	[NR]
Total Alkalinity as CaCO3	mg/L	5	Inorg-006	<5	162123-1	460    460    RPD: 0	LCS-W1	105%
Sulphate, SO4	mg/L	1	Inorg-081	<1	162123-1	3  2  RPD:40	LCS-W1	94%
Chloride, Cl	mg/L	1	Inorg-081	<1	162123-1	30  28  RPD:7	LCS-W1	102%
Ionic Balance	%		Inorg-040	[NT]	162123-1	-8.1  -7.5  RPD:-8	[NR]	[NR]

**Client Reference:** CES130608-BP Spike % QUALITY CONTROL UNITS PQL METHOD Blank Duplicate **Duplicate results** Spike Sm# Sm# Recovery Metals in Waters - Acid Base II Duplicate II %RPD extractable Date prepared 20/02/2 162123-1 20/02/2017 | 20/02/2017 LCS-W1 20/02/2017 017 20/02/2017 || 20/02/2017 Date analysed 20/02/2 162123-1 LCS-W1 20/02/2017 017 Metals-020 <0.05 LCS-W1 97% Phosphorus - Total mg/L 0.05 162123-1 0.8 | 0.8 | RPD: 0 QUALITY CONTROL **UNITS** PQL METHOD Blank Spike Sm# Spike % **Duplicate Duplicate results** Sm# Recovery Miscellaneous Inorganics Base II Duplicate II %RPD 17/02/2 162123-1 17/02/2017 || 17/02/2017 LCS-W1 17/02/2017 Date prepared 017 17/02/2 17/02/2017 || 17/02/2017 LCS-W1 Date analysed 162123-1 17/02/2017 017 Ammonia as N in water 0.005 Inorg-057 <0.005 162123-1 0.92 | 0.93 | RPD: 1 LCS-W1 93% mq/L 0.1 98% Total Nitrogen in water mg/L Inorg-< 0.1 162123-1 1.2||1.2||RPD:0 LCS-W1 055/062 Inorg-001 102% рН pH Units [NT] [NT] [NT] LCS-W1 **Electrical Conductivity** LCS-W1 102% µS/cm 1 Inorg-002 <1 [NT] [NT] Salinity as NaCl\* Inorg-002 <1.0 [NR] [NR] mg/L 1 [NT] [NT] Resistivity ohm m 1 Inorg-002 <1.0 [NT] [NT] [NR] [NR] Total Dissolved Solids mg/L 5 Inorg-018 <5 [NT] [NT] LCS-W1 85% (grav) **QUALITY CONTROL** UNITS Dup. Sm# Duplicate Spike Sm# Spike % Recovery svTRH (C10-C40) in Water Base + Duplicate + %RPD Date extracted [NT] [NT] 162123-2 20/02/2017 21/02/2017 [NT] 162123-2 Date analysed [NT] 162123-2 110% TRHC<sub>10</sub> - C<sub>14</sub> [NT] µg/L [NT] µg/L [NT] [NT] 162123-2 105% TRHC<sub>15</sub> - C<sub>28</sub> μg/L 162123-2 90% TRHC29 - C36 INTI [NT] TRH>C10 - C16 µg/L [NT] [NT] 162123-2 110% TRH>C16 - C34 [NT] [NT] 162123-2 105% µg/L TRH>C34 - C40 µg/L [NT] [NT] 162123-2 90% % [NT] [NT] 162123-2 71% Surrogate o-Terphenyl QUALITY CONTROL UNITS Dup. Sm# Duplicate Spike Sm# Spike % Recovery PAHs in Water Base + Duplicate + %RPD Date extracted 20/02/2017 [NT] [NT] 162123-2 21/02/2017 Date analysed [NT] [NT] 162123-2 Naphthalene 162123-2 95% µg/L [NT] [NT] Acenaphthylene [NT] [NT] [NR] [NR] µg/L

[NT]

[NT]

[NT]

[NT]

[NT]

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162123-2

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Envirolab Reference: 162123 Revision No: R 01

μg/L

µg/L

μg/L

µg/L

μg/L

µg/L

[NT]

[NT]

[NT]

[NT]

[NT]

[NT]

Acenaphthene

Fluorene

Phenanthrene

Anthracene

Fluoranthene

Pyrene

[NR]

97%

97%

[NR]

93%

95%

		Client Referenc	e: CES130608-BP		
QUALITY CONTROL PAHs in Water	UNITS	Dup.Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
FAI IS III Water			Dase + Duplicate + 7011FD		
Benzo(a)anthracene	μg/L	[NT]	[NT]	[NR]	[NR]
Chrysene	μg/L	[NT]	[NT]	162123-2	93%
Benzo(b,j+k)fluoranthene	μg/L	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	μg/L	[NT]	[NT]	162123-2	110%
Indeno(1,2,3-c,d)pyrene	μg/L	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	μg/L	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	μg/L	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	162123-2	73%
QUALITY CONTROL	UNITS	Dup.Sm#	Duplicate	Spike Sm#	Spike % Recovery
OCP in water			Base + Duplicate + %RPD		
Date extracted	-	[NT]	[NT]	162123-2	20/02/2017
Date analysed	-	[NT]	[NT]	162123-2	21/02/2017
HCB	μg/L	[NT]	[NT]	[NR]	[NR]
alpha-BHC	μg/L	[NT]	[NT]	162123-2	69%
gamma-BHC	μg/L	[NT]	[NT]	[NR]	[NR]
beta-BHC	μg/L	[NT]	[NT]	162123-2	74%
Heptachlor	μg/L	[NT]	[NT]	162123-2	70%
delta-BHC	μg/L	[NT]	[NT]	[NR]	[NR]
Aldrin	μg/L	[NT]	[NT]	162123-2	69%
Heptachlor Epoxide	μg/L	[NT]	[NT]	162123-2	70%
gamma-Chlordane	μg/L	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	μg/L	[NT]	[NT]	[NR]	[NR]
Endosulfan I	μg/L	[NT]	[NT]	[NR]	[NR]
pp-DDE	μg/L	[NT]	[NT]	162123-2	78%
Dieldrin	μg/L	[NT]	[NT]	162123-2	78%
Endrin	μg/L	[NT]	[NT]	162123-2	118%
pp-DDD	μg/L	[NT]	[NT]	162123-2	91%
Endosulfan II	μg/L	[NT]	[NT]	[NR]	[NR]
pp-DDT	μg/L	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	μg/L	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	μg/L	[NT]	[NT]	162123-2	81%
Methoxychlor	μg/L	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	162123-2	113%

		Client Referenc	e: CES130608-BP		
QUALITY CONTROL	UNITS	Dup.Sm#	Duplicate	SpikeSm#	Spike % Recovery
HM in water - dissolved			Base + Duplicate + %RPD		
Date prepared	-	162123-3	20/02/2017  20/02/2017	162123-2	20/02/2017
Date analysed	-	162123-3	20/02/2017  20/02/2017	162123-2	20/02/2017
Arsenic-Dissolved	μg/L	162123-3	8    [N/T]	162123-2	104%
Cadmium-Dissolved	μg/L	162123-3	<0.1   [N/T]	162123-2	107%
Chromium-Dissolved	μg/L	162123-3	3    [N/T]	162123-2	101%
Copper-Dissolved	μg/L	162123-3	<1    [N/T]	162123-2	95%
Lead-Dissolved	μg/L	162123-3	<1    [N/T]	162123-2	95%
Mercury-Dissolved	μg/L	162123-3	<0.05  <0.05	[NR]	[NR]
Nickel-Dissolved	μg/L	162123-3	1    [N/T]	162123-2	97%
Zinc-Dissolved	μg/L	162123-3	1    [N/T]	162123-2	98%
QUALITY CONTROL	UNITS	Dup.Sm#	Duplicate	SpikeSm#	Spike % Recovery
Ion Balance			Base + Duplicate + %RPD		
Date prepared	-	[NT]	[NT]	162123-2	17/02/2017
Date analysed	-	[NT]	[NT]	162123-2	17/02/2017
Calcium - Dissolved	mg/L	[NT]	[NT]	162123-2	#
Potassium - Dissolved	mg/L	[NT]	[NT]	162123-2	#
Sodium - Dissolved	mg/L	[NT]	[NT]	162123-2	#
Magnesium - Dissolved	mg/L	[NT]	[NT]	162123-2	70%
Hydroxide Alkalinity (OH <sup>-</sup> ) as CaCO3	mg/L	[NT]	[NT]	[NR]	[NR]
Bicarbonate Alkalinity as CaCO3	mg/L	[NT]	[NT]	[NR]	[NR]
Carbonate Alkalinity as CaCO <sub>3</sub>	mg/L	[NT]	[NT]	[NR]	[NR]
Total Alkalinity as CaCO <sub>3</sub>	mg/L	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4	mg/L	[NT]	[NT]	162123-2	121%
Chloride, CI	mg/L	[NT]	[NT]	162123-2	85%
Ionic Balance	%	[NT]	[NT]	[NR]	[NR]

		Client Referenc	e: CES130608-BP		
QUALITY CONTROL  Metals in Waters - Acid  extractable	UNITS	Dup.Sm#	Duplicate  Base + Duplicate + %RPD	SpikeSm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	162123-2	20/02/2017
Date analysed	_	[NT]	[NT]	162123-2	20/02/2017
Phosphorus - Total	mg/L	[NT]	[NT]	162123-2	102%
QUALITY CONTROL	UNITS	Dup.Sm#	Duplicate	SpikeSm#	Spike % Recovery
Miscellaneous Inorganics			Base + Duplicate + %RPD		
Date prepared	-	[NT]	[NT]	162123-2	17/02/2017
Date analysed	-	[NT]	[NT]	162123-2	17/02/2017
Ammonia as N in water	mg/L	[NT]	[NT]	162123-2	#
Total Nitrogen in water	mg/L	[NT]	[NT]	162123-2	86%
рН	pH Units	[NT]	[NT]	[NR]	[NR]
Electrical Conductivity	μS/cm	[NT]	[NT]	[NR]	[NR]
Salinity as NaCI*	mg/L	[NT]	[NT]	[NR]	[NR]
Resistivity	ohmm	[NT]	[NT]	[NR]	[NR]
Total Dissolved Solids (grav)	mg/L	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL OP Pesticides in water	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	162123-3	20/02/2017
Date analysed	-	[NT]	[NT]	162123-3	21/02/2017
Azinphos-methyl (Guthion)	μg/L	[NT]	[NT]	[NR]	[NR]
Bromophos ethyl	μg/L	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	μg/L	[NT]	[NT]	162123-3	86%
Chlorpyriphos-methyl	μg/L	[NT]	[NT]	[NR]	[NR]
Diazinon	μg/L	[NT]	[NT]	[NR]	[NR]
Dichlorovos	μg/L	[NT]	[NT]	162123-3	89%
Dimethoate	μg/L	[NT]	[NT]	[NR]	[NR]
Ethion	μg/L	[NT]	[NT]	162123-3	87%
Fenitrothion	μg/L	[NT]	[NT]	162123-3	82%
Malathion	μg/L	[NT]	[NT]	162123-3	78%
Parathion	μg/L	[NT]	[NT]	162123-3	75%
Ronnel	μg/L	[NT]	[NT]	162123-3	83%
Surrogate TCMX	%	[NT]	[NT]	162123-3	106%

		Client Referenc	e: CES130608-BP		
QUALITY CONTROL PCBs in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	162123-3	20/02/2017
Date analysed	-	[NT]	[NT]	162123-3	21/02/2017
Aroclor 1016	μg/L	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	μg/L	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	μg/L	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	μg/L	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	μg/L	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	μg/L	[NT]	[NT]	162123-3	88%
Aroclor 1260	μg/L	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	162123-3	106%
QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate  Base + Duplicate + %RPD	SpikeSm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	162123-4	20/02/2017
Date analysed	-	[NT]	[NT]	162123-4	20/02/2017
Arsenic-Dissolved	μg/L	[NT]	[NT]	[NR]	[NR]
Cadmium-Dissolved	μg/L	[NT]	[NT]	[NR]	[NR]
Chromium-Dissolved	μg/L	[NT]	[NT]	[NR]	[NR]
Copper-Dissolved	μg/L	[NT]	[NT]	[NR]	[NR]
Lead-Dissolved	μg/L	[NT]	[NT]	[NR]	[NR]
Mercury-Dissolved	μg/L	[NT]	[NT]	162123-4	88%
Nickel-Dissolved	μg/L	[NT]	[NT]	[NR]	[NR]
Zinc-Dissolved	μg/L	[NT]	[NT]	[NR]	[NR]

### **Report Comments:**

Ion Balance:

# Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

### MISC\_INORG:

Ammonia as N # Percent recovery is not possible to report due to the high concentration of the compound/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Asbestos ID was analysed by Approved Identifier:

Asbestos ID was authorised by Approved Signatory:

Not applicable for this job

Not applicable for this job

INS: Insufficient sample for this test PQL: Practical Quantitation Limit NT: Not tested

NR: Test not required RPD: Relative Percent Difference NA: Test not required

Envirolab Reference: 162123 Page 31 of 32

Revision No: R 01

Client Reference: CES130608-BP

#### **Quality Control Definitions**

**Blank**: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike**: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample)**: This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

#### **Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Envirolab Reference: 162123 Page 32 of 32 Revision No: R 01





## **Environmental Division**

## **CERTIFICATE OF ANALYSIS**

	Environmental Division Sydney Ashwini Sharma 277-289 Woodpark Road Smithfield NSW Australia 2164	: Ashwini.Sharma@alsenviro.com : +61-2-8784 8555 : +61-2-8784 8500 : NFPM 1999 Schedule R(3) and ALS OCS3 requirement	-2008 -2008	
: 1 of 7	: Environi : Ashwini : 277-289	: Ashwini : +61-2-8 : +61-2-8	: 30-APR-2008 : 08-MAY-2008	
Page	Laboratory Contact Address	E-mail Telephone Facsimile OC Level	Date Samples Received Issue Date	No. of samples received
: ES0805939	: CONSULTING EARTH SCIENTISTS : MS KELLY WEIR : JONES BAY WHARF 19-21, LOWER DECK, SUITE 121, 26-32 PIRRAMA ROAD PYRMONT NSW, AUSTRALIA 2040	: kweir@consultingearth.com.au : +61 85692200 : +61 02 95524399	: : 128651 : K.WEIR/ LJ	: SY/096/08
Work Order	Cilent Contact Address	E-mail Telephone Facsimile Project	Order number C-O-C number Sampler Site	Quote number

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

### scredited Laboratory 825

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Accredited for compliance with ISO/IEC 17025.

Signatories
This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been Accreditation Category carried out in compliance with procedures specified in 21 CFR Part 11. Position Signatories

NATA AG	This	acco	accre	Accredit
				WORLD RECOGNISED ACCREDITATION

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Pabi Subba	Senior Organic Chemist (Volatile)	Inorganics
Pabi Subba	Senior Organic Chemist (Volatile)	Organics
PHALAK INTHAKESONE	Organics Co-ordinator	Inorganics
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CONSULTING EARTH SCIENTISTS CES050706-BCC : 3 of 7 : ES0805939 Work Order Client

Project

### General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been preformed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insuffient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

CAS Number = Chemistry Abstract Services number Key:

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting



Page Work Order Client Project

: 4 of 7 : ES0805939 : CONSULTING EARTH SCIENTISTS : CES050706-BCC

Sub-Matrix: SOIL		Clie	Client sample ID	280408-14-KW	290408-41-KW		1	
	Cli	ent samplir	Client sampling date / time	28-APR-2008 15:00	29-APR-2008 15:00	-	-	1
Compound	CAS Number	LOR	Unit	ES0805939-001	ES0805939-002	1	1	1
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	1	1.0	%	19.0	23.5			
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	2	mg/kg	11	99	1	-	1
Cadmium	7440-43-9	-	mg/kg	7	₹	1	-	1
Chromium	7440-47-3	2	mg/kg	4	72	1	-	1
Copper	7440-50-8	2	mg/kg	<5	133	•		1
Lead	7439-92-1	2	mg/kg	<5	268	1	-	1
Nickel	7440-02-0	2	mg/kg	<2	3	-	-	
Zinc	7440-66-6	2	mg/kg	<5	111	1	1	1
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.3		-	-
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls		0.10	mg/kg	-	<0.10	1		1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	-	-	-
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	1		-
beta-BHC	319-85-7	0.05	mg/kg	-	<0.05	1	-	-
gamma-BHC	58-89-9	0.05	mg/kg	-	<0.05	•		1
delta-BHC	319-86-8	0.05	mg/kg		<0.05			
Heptachlor	76-44-8	0.05	mg/kg		<0.05			
Aldrin	309-00-2	0.05	mg/kg		<0.05	-	-	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	-	<0.05	1	-	-
trans-Chlordane	5103-74-2	0.05	mg/kg	-	<0.05	1	-	1
alpha-Endosulfan	8-86-656	0.05	mg/kg		<0.05	-	-	
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05			
Dieldrin	60-57-1	0.05	mg/kg		<0.05			
4.4`-DDE	72-55-9	0.05	mg/kg		0.10			
Endrin	72-20-8	0.05	mg/kg		<0.05			
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05			
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05			
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05			
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05			
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	-		
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05			
Methoxychlor	72-43-5	0.2	mg/kg		<0.2		-	-
EP068B: Organophosphorus Pesticides (OP)	OP)							
Dichlorvos	62-73-7	0.05	mg/kg		<0.05			



: 5 of 7 : ES0805939 : CONSULTING EARTH SCIENTISTS : CES050706-BCC Page Work Order Project Client

Analytical Results

		oil C	_ Ol olamos taoil	700700	1877 17 007 000			
Sub-imatrix: <b>Sol</b>		פֿפֿ	all sample in	Z80408-14-NW	290408-41-KW		-	
	Clie	int samplin	Client sampling date / time	28-APR-2008 15:00	29-APR-2008 15:00	-	•	•
Compound	CAS Number	LOR	Unit	ES0805939-001	ES0805939-002	1	1	;
EP068B: Organophosphorus Pesticides (OP) - Continued	- Continued							
Demeton-S-methyl	919-86-8	0.05	mg/kg	-	<0.05		-	
Monocrotophos	6923-22-4	0.2	mg/kg	-	<0.2	-	-	
Dimethoate	60-51-5	0.05	mg/kg	-	<0.05	-	-	
Diazinon	333-41-5	0.05	mg/kg	1	<0.05	-	-	-
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	1	<0.05	-	-	-
Parathion-methyl	298-00-0	0.2	mg/kg	-	<0.2			-
Malathion	121-75-5	0.05	mg/kg	1	<0.05	-	-	-
Fenthion	55-38-9	0.05	mg/kg	1	<0.05	-	1	-
Chlorpyrifos	2921-88-2	0.05	mg/kg	1	<0.05	-	-	
Parathion	56-38-2	0.2	mg/kg	1	<0.2	-	-	-
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	1	<0.05	-	-	-
Chlorfenvinphos	470-90-6	0.05	mg/kg	-	<0.05	-	-	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	1	<0.05	-	-	
Fenamiphos	22224-92-6	0.05	mg/kg	1	<0.05	-	-	-
Prothiofos	34643-46-4	0.05	mg/kg	1	<0.05	-	-	
Ethion	563-12-2	0.05	mg/kg	1	<0.05	-	-	
Carbophenothion	786-19-6	0.05	mg/kg	1	<0.05	-	-	-
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05			
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	rbons							
Naphthalene	91-20-3	0.5	mg/kg	1	<0.5		-	-
Acenaphthylene	208-96-8	0.5	mg/kg	1	<0.5	1	1	1
Acenaphthene	83-32-9	0.5	mg/kg	1	<0.5	-	-	-
Fluorene	86-73-7	0.5	mg/kg		<0.5			
Phenanthrene	85-01-8	0.5	mg/kg	1	<0.5	1	1	1
Anthracene	120-12-7	0.5	mg/kg	-	<0.5			
Fluoranthene	206-44-0	0.5	mg/kg		9.0			
Pyrene	129-00-0	0.5	mg/kg	1	9.0		-	-
Benz(a)anthracene	56-55-3	0.5	mg/kg	-	<0.5			
Chrysene	218-01-9	0.5	mg/kg	-	<0.5			
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg		<0.5			
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5			
Benzo(a)pyrene	50-32-8	0.5	mg/kg	1	<0.5	-	-	-
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	1	<0.5	-	-	-
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	-	<0.5	-	1	-
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5		-	
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	-	10	mg/kg	<10	<10	-	1	-
C10 - C14 Fraction	1	20	mg/kg	<50	<50			

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: 6 of 7 : ES0805939 : CONSULTING EARTH SCIENTISTS : CES050706-BCC Page Work Order Project Client

Sub-Matrix: SOIL	J	Client sample ID	280408-14-KW	290408-41-KW	1	1	1
	Client sam	Client sampling date / time	28-APR-2008 15:00	29-APR-2008 15:00			-
Compound CAS Number	er LOR	Unit	ES0805939-001	ES0805939-002	1	1	1
EP080/071: Total Petroleum Hydrocarbons - Continued							
C15 - C28 Fraction	100	mg/kg	<100	<100	-		
C29 - C36 Fraction	100	mg/kg	<100	<100	-	-	-
EP080: BTEX							
Benzene 71-43-2	-2 0.2	mg/kg	<0.2	<0.2	-		
<b>Toluene</b> 108-88-3	-3 0.5	mg/kg	<0.5	<0.5			
Ethylbenzene 100-41-4	4 0.5	mg/kg	<0.5	<0.5	-		
meta- & para-Xylene 108-38-3 106-42-3	-3 0.5	mg/kg	<0.5	<0.5	-	-	-
ortho-Xylene 95-47-6	-6 0.5	mg/kg	<0.5	<0.5	-	-	-
EP066S: PCB Surrogate							
Decachlorobiphenyl 2051-24-3	-3 0.1	%	-	94.0	-	1	
EP068S: Organochlorine Pesticide Surrogate							
<b>Dibromo-DDE</b> 21655-73-2	-2 0.1	%	-	129	-		-
EP068T: Organophosphorus Pesticide Surrogate							
<b>DEF</b> 78-48-8	-8 0.1	%		103	-		
EP075(SIM)S: Phenolic Compound Surrogates							
Phenol-d6 13127-88-3	-3 0.1	%		106			
2-Chlorophenol-D4 93951-73-6	1.0	%	-	94.3	-	-	
<b>2.4.6-Tribromophenol</b> 118-79-6	-6 0.1	%	-	89.0		-	-
EP075(SIM)T: PAH Surrogates							
2-Fluorobiphenyl 321-60-8	-8 0.1	%	1	7.76	1	1	1
Anthracene-d10 1719-06-8	0.1	%	1	104	1	1	1
4-Terphenyl-d14 1718-51-0	-0 0.1	%		93.8			
EP080S: TPH(V)/BTEX Surrogates							
1.2-Dichloroethane-D4 17060-07-0	-0 0.1	%	93.2	97.1	1	1	1
<b>Toluene-D8</b> 2037-26-5	-5 0.1	%	94.0	95.5	1	1	-
4-Bromofluorobenzene 460-00-4	0.1	%	97.6	100	-	-	-





: 7 of 7 : ES0805939 : CONSULTING EARTH SCIENTISTS : CES050706-BCC Page Work Order

Client

Project

### Surrogate Control Limits

Sub-Matrix: <b>SOIL</b>		Recovery Limits (%)	imits (%)
Compound	CAS Number	Том	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	164
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	136
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	10	136
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	24	113
2-Chlorophenol-D4	93951-73-6	23	134
2.4.6-Tribromophenol	118-79-6	19	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	30	115
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	18	137
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121





## **Environmental Division**

## **CERTIFICATE OF ANALYSIS**

	Environmental Division Sydney Ashwini Sharma 277-289 Woodpark Road Smithfield NSW Australia 2164	Ashwini.Sharma@alsenviro.com +61-2-8784 8555 +61-2-8784 8500	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement : 05-MAY-2008 : 2
: 1 of 11	: Environmental D : Ashwini Sharma : 277-289 Woodpe	: Ashwini.Sharma@ : +61-2-8784 8555 : +61-2-8784 8500	: NEPM 1999 S : 05-MAY-2008 : 15-MAY-2008 : 2
Page	Laboratory Contact Address	E-mail Telephone Facsimile	Date Samples Received Issue Date  No. of samples received No. of samples analysed
: ES0806132	: CONSULTING EARTH SCIENTISTS : MS ANGELA MAROYA : JONES BAY WHARF 19-21, LOWER DECK, SUITE 121, 26-32 PIRRAMA ROAD PYRMONT NSW, AUSTRALIA 2040	: amaroya@consultingearth.com.au : +61 85692200 : +61 02 95524399	: CES050706-BCC : : 128653 : LJ, KW : AREA B
Work Order	Cirent Contact Address	E-mail Telephone Facsimile	Project Order number C-O-C number Sampler Site

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

#### NATA Accredited Laboratory 825 This document is issued in



accordance with NATA

Accredited for compliance with accreditation requirements.

ISO/IEC 17025.

WORLD RECOGNISED
ACCREDITATION

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11. Signatories

Signatories	Position	Accreditation Category
Celine Conceicao	Spectroscopist	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Organics
Hoa Nguyen		Inorganics
Marc Centner	Technical Manager	Organics
Pabi Subba	Senior Organic Chemist (Volatile)	Inorganics
Pabi Subba	Senior Organic Chemist (Volatile)	Organics

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CONSULTING EARTH SCIENTISTS CES050706-BCC ES0806132 Work Order Project Client

3 of 11

General Comments

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Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

CAS Number = Chemistry Abstract Services number Key:

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

EG005T: LCS recovery for Cd, Zn and Ni falls outside ALS Dynamic Control Limit. However, it is within the acceptance criteria based on ALS DQO. No further action is required. EP202: Sample required dilution due to matrix interferences. LOR values have been adjusted accordingly.



: 4 of 11 : ES0806132 : CONSULTING EARTH SCIENTISTS : CES050706-BCC Page Work Order Client Project

Analytical Results

Sub-Matrix: SOIL		Clie	Client sample ID	010508-124-KW	010508-138-KW	1	1	1
	Cli	ent samplii	Client sampling date / time	01-MAY-2008 15:00	01-MAY-2008 15:00			
Compound	CAS Number	LOR	Unit	ES0806132-001	ES0806132-002	1	!	!
EA002 : pH (Soils)								
pH Value		0.1	pH Unit		6.1		-	1
EA010: Conductivity								
Electrical Conductivity @ 25°C		1	mS/cm		53			
EA014 Total Soluble Salts								
^ Total Soluble Salts		5	mg/kg		171			
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	-	1.0	%	7.0	22.4		-	-
ED040S: Soluble Major Anions								
Sulphate as SO4 2-	14808-79-8	10	mg/kg		10			
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	10	mg/kg	-	<10	1	1	1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	2	mg/kg	<5	<5		-	
Cadmium	7440-43-9	1	mg/kg	۲>	<1	-	-	-
Chromium	7440-47-3	2	mg/kg	2	3			
Copper	7440-50-8	2	mg/kg	9	9	-		-
Lead	7439-92-1	22	mg/kg	12	18			
Nickel	7440-02-0	7	mg/kg	\$	<2			-
Zinc	7440-66-6	2	mg/kg	7	18		1	
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1		I	1
EK055: Ammonia as N								
Ammonia as N	7664-41-7	20	mg/kg	<20				-
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N (Sol.)		0.100	mg/kg	<0.100			-	-
EK058G: Nitrate as N by Discrete Analyser								
^ Nitrate as N (Sol.)		0.100	mg/kg	<0.100	-	-	1	1
EK059G: NOX as N by Discrete Analyser								
Nitrite + Nitrate as N (Sol.)		0.100	mg/kg	<0.100	-		1	
EK061G: Total Kjeldahl Nitrogen as N								
Total Kjeldahl Nitrogen as N	-	20	mg/kg	720	-		1	
EK062: Total Nitrogen as N								
^ Total Nitrogen as N		20	mg/kg	720	-		1	
EK067G: Total Phosphorus as P by Discrete Analyser	e Analyser							
Total Phosphorus as P	-	2	mg/kg	268	-		1	
EP066: Polychlorinated Biphenyls (PCB)								

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Page Work Order Client Project

: 5 of 11 : ES0806132 : CONSULTING EARTH SCIENTISTS : CES050706-BCC

Sub-Matrix: SOII		Š	Client sample ID	040508-424-KW	040508-138-KW			
Cab-Mail X: CCF	Ĉ			04 MAX 2008 45:00	0000 - 10			
	5	ent samplii	Chem sampling date / time	U1-IMAY-2008 15:00	01-IMAY-2008 15:00	•		
Compound	CAS Number	LOR	Unit	ES0806132-001	ES0806132-002		1	:
EP066: Polychlorinated Biphenyls (PCB) - Continued	- Continued							
Total Polychlorinated biphenyls	-	0.10	mg/kg	<0.10	<0.10	-	1	
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	-	-	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05		-	
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	1	-	
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05			
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	1		
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	-	-	
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05			
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05		-	
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05		-	
alpha-Endosulfan	929-98-8	0.05	mg/kg	<0.05	<0.05		•	-
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05		-	
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	1	-	
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05			
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	1		
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05		-	
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	I	•	1
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	1	•	1
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05			
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	1	1	1
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05			
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	-	-	-
EP068B: Organophosphorus Pesticides (OP)	(OP)							
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	1	1	-
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05			
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	-		
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	-		
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05			
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05			
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	1	-	-
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05			
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05			
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05			
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2			
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	1	1	1
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	1	1	1
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05			



Page : 6 of 11

Work Order : ES0806132

Client : CONSULTING EARTH SCIENTISTS

CES050706-BCC

Client Project

#### Analytical Results

1 1 1 l l | | | | | | | | | | | | 01-MAY-2008 15:00 010508-138-KW ES0806132-002 <0.05 <0.05 <0.05 | | ---01-MAY-2008 15:00 010508-124-KW ES0806132-001 <0.05 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 γ γ γ γ γ γ γ γ က် ကို ကိ Client sample ID Client sampling date / time mg/kg Unit LOR 0.05 0.05 0.05 0.05 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 2 2 വവ 2 75-15-0 75-71-8 74-87-3 71-43-2 95-47-6 98-82-8 9-88-66 78-93-3 75-01-4 22224-92-6 563-12-2 86-50-0 10061-01-5 CAS Number EP068B: Organophosphorus Pesticides (OP) - Continued 34643-46-4 786-19-6 108-88-3 100-41-4 108-38-3 106-42-3 100-42-5 103-65-1 108-67-8 135-98-8 9-90-86 104-51-8 108-05-4 108-10-1 591-78-6 594-20-7 78-87-5 10061-02-6 106-93-4 EP074A: Monocyclic Aromatic Hydrocarbons EP074E: Halogenated Aliphatic Compounds EP074B: Oxygenated Compounds **EP074C: Sulfonated Compounds** 4-Methyl-2-pentanone (MIBK) trans-1.3-Dichloropropylene cis-1.3-Dichloropropylene 1.2-Dibromoethane (EDB) Dichlorodifluoromethane 1.2.4-Trimethylbenzene 1.3.5-Trimethylbenzene EP074D: Fumigants 2.2-Dichloropropane 1.2-Dichloropropane meta- & para-Xylene p-IsopropyItoluene 2-Hexanone (MBK) sec-Butylbenzene tert-Butylbenzene 2-Butanone (MEK) Isopropylbenzene Carbophenothion n-Propylbenzene Carbon disulfide Azinphos Methyl Sub-Matrix: SOIL n-Butylbenzene Chloromethane Vinyl chloride Ethylbenzene Vinyl Acetate ortho-Xylene Fenamiphos Compound Prothiofos Benzene Toluene Styrene Ethion



Page Work Order Client Project

: 7 of 11 : ES0806132 : CONSULTING EARTH SCIENTISTS : CES050706-BCC

### Analytical Results

SOIL	
Matrix:	
-Ma	
Sub-√	

		i	!					
Sub-Matrix: <b>SOIL</b>		Š	Client sample ID	010508-124-KW	010508-138-KW			
	Clie	nt samplii	Client sampling date / time	01-MAY-2008 15:00	01-MAY-2008 15:00			
Compound	CAS Number	LOR	Unit	ES0806132-001	ES0806132-002	!	1	1
EP074E: Halogenated Aliphatic Compounds - Continued	ds - Continued							
Bromomethane	74-83-9	2	mg/kg	<5		-		
Chloroethane	75-00-3	2	mg/kg	<5	1	1		-
Trichlorofluoromethane	75-69-4	2	mg/kg	<5	-	1		
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	-	1		
lodomethane	74-88-4	0.5	mg/kg	<0.5	1	1		-
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	-	-		
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5		-		
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5		-		
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	-	-		
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	-	-		
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5		-		
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5		-		
Trichloroethene	79-01-6	0.5	mg/kg	<0.5		-		
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	-	-		
1.1.2-Trichloroethane	2-00-62	0.5	mg/kg	<0.5		-		
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	-	-		
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	-	-		
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	-	1	-	1
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	-	1		
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	-	1		
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	-	-		
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	-	1		
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	-	1		
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	-	-		
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	-	1		
EP074F: Halogenated Aromatic Compounds	JS.							
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5		1		
Bromobenzene	108-86-1	0.5	mg/kg	<0.5	-	1	-	
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5			1	-
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1	1	1	1
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	-	1	-	-
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1	1	-	1
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1	1	1	1
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1	1	1	+
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5		-	-	-
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	-	1		
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	-	-		

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CONSULTING EARTH SCIENTISTS CES050706-BCC ES0806132 8 of 11 Work Order Client

Analytical Results

Project

 1 | | | | l -| | 01-MAY-2008 15:00 010508-138-KW ES0806132-002 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <1.0 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 ×100 <0.5 <2.0 <10 <50 01-MAY-2008 15:00 010508-124-KW ES0806132-001 <10 <50 <100 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 ŝ Client sample ID Client sampling date / time mg/kg Unit LOR 0.5 0.5 0. 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 50 20 2 75-25-2 91-20-3 95-48-7 87-65-0 88-06-2 95-95-4 86-73-7 85-01-8 50-32-8 CAS Number 105-67-9 87-86-5 124-48-1 108-95-2 95-57-8 319-77-3 88-75-5 120-83-2 59-50-7 91-20-3 120-12-7 206-44-0 129-00-0 56-55-3 218-01-9 205-99-2 207-08-9 193-39-5 53-70-3 191-24-2 EP075(SIM)B: Polynuclear Aromatic Hydrocarbons EP080/071: Total Petroleum Hydrocarbons EP074G: Trihalomethanes - Continued EP075(SIM)A: Phenolic Compounds 4-Chloro-3-Methylphenol EP074H: Naphthalene Dibromochloromethane Indeno(1.2.3.cd)pyrene Dibenz(a.h)anthracene Benzo(k)fluoranthene Benzo(b)fluoranthene 2.4.6-Trichlorophenol 2.4.5-Trichlorophenol Benzo(g.h.i)perylene 3- & 4-Methylphenol 2.4-Dimethylphenol 2.4-Dichlorophenol 2.6-Dichlorophenol Pentachlorophenol Benz(a)anthracene C10 - C14 Fraction C6 - C9 Fraction Sub-Matrix: SOIL Acenaphthylene Benzo(a)pyrene 2-Chlorophenol 2-Methylphenol Acenaphthene 2-Nitrophenol Phenanthrene Naphthalene Fluoranthene Naphthalene Bromoform Anthracene Compound Chrysene Fluorene Phenol

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mg/kg

C15 - C28 Fraction



: 9 of 11 : ES0806132 : CONSULTING EARTH SCIENTISTS : CES050706-BCC

Page Work Order Client Project

		Č						
Sub-Matrix: SOIL		Cle	Client sample ID	010508-124-KW	010508-138-KW			
	Clie	nt samplin	Client sampling date / time	01-MAY-2008 15:00	01-MAY-2008 15:00	-	-	
Compound	CAS Number	LOR	Unit	ES0806132-001	ES0806132-002			
EP080/071: Total Petroleum Hydrocarbons - Continued	ıtinued							
C29 - C36 Fraction	1	100	mg/kg	<100	<100	-	-	
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	-		
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	-		-
meta- & para-Xylene 108-38-3 106-42-3	106-42-3	0.5	mg/kg	<0.5	<0.5		-	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5			
EP202A: Phenoxyacetic Acid Herbicides by LCMS	NS NS							
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.04	-	-	-
2.4-DB	94-82-6	0.02	mg/kg	-	<0.04	-	-	
Dicamba	1918-00-9	0.02	mg/kg		<0.04	-		
Mecoprop	93-65-2	0.02	mg/kg		<0.04	-	-	-
MCPA	94-74-6	0.02	mg/kg	-	<0.04	1	-	-
2.4-DP	120-36-5	0.02	mg/kg		<0.04	1	-	
2.4-D	94-75-7	0.02	mg/kg	-	<0.04	1	-	1
Triclopyr	55335-06-3	0.02	mg/kg	-	<0.04	-		
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	-	<0.04	1	-	1
2.4.5-T	93-76-5	0.02	mg/kg	1	<0.04	1	1	1
MCPB	94-81-5	0.02	mg/kg		<0.04			
	1918-02-1	0.02	mg/kg		<0.04			
Clopyralid 17	1702-17-6	0.02	mg/kg		<0.04			
Fluroxypyr 693	69377-81-7	0.02	mg/kg		<0.04	-		
EP066S: PCB Surrogate								
	2051-24-3	0.1	%	82.0	102	-	-	-
EP068S: Organochlorine Pesticide Surrogate								
	21655-73-2	0.1	%	101	121	-	-	1
EP068T: Organophosphorus Pesticide Surrogate	e.							
DEF	78-48-8	0.1	%	68.7	84.1			
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	103	-	1	-	1
Toluene-D8	2037-26-5	0.1	%	103				
4-Bromofluorobenzene	460-00-4	0.1	%	110			-	
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6 13	13127-88-3	0.1	%	69.5	65.8	1	1	1
	93951-73-6	0.1	%	2.99	0.99			
2.4.6-Tribromophenol	118-79-6	0.1	%	52.3	53.2			
EP075(SIM)T: PAH Surrogates								





: 10 of 11 : ES0806132 : CONSULTING EARTH SCIENTISTS : CES050706-BCC Page Work Order Project Client

Sub-Matrix: SOIL		Clie	Client sample ID	010508-124-KW	010508-138-KW	1		1
	Cli	ent samplin	Client sampling date / time	01-MAY-2008 15:00	01-MAY-2008 15:00		-	1
Compound	CAS Number LOR	LOR	Unit	ES0806132-001	ES0806132-002	1	1	1
EP075(SIM)T: PAH Surrogates - Continued								
2-Fluorobiphenyl	321-60-8	0.1	%	77.4	79.7	-	1	1
Anthracene-d10	1719-06-8	0.1	%	100	100		-	1
4-Terphenyl-d14	1718-51-0	0.1	%	82.6	85.6	-	-	1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	105	107	1	1	1
Toluene-D8	2037-26-5	0.1	%	94.9	95.4	-	1	1
4-Bromofluorobenzene	460-00-4	0.1	%	94.7	102	-	1	1
EP202S: Phenoxyacetic Acid Herbicide Surrogate	urrogate							
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	1	124	1	1	I





: 11 of 11 : ES0806132 : CONSULTING EARTH SCIENTISTS : CES050706-BCC Page Work Order

Client Project

### Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	Limits (%)
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	164
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	136
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	10	136
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	24	113
2-Chlorophenol-D4	93951-73-6	23	134
2.4.6-Tribromophenol	118-79-6	19	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	30	115
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	18	137
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	70	130





## **Environmental Division**

## **CERTIFICATE OF ANALYSIS**

:1 of 11	Environmental Division Sydney Ashwini Sharma 277-289 Woodpark Road Smithfield NSW Australia 2164	. Ashwini.Sharma@alsenviro.com : +61-2-8784 8555 : +61-2-8784 8500 : NEPM 1999 Schedule B(3) and ALS QCS3 requirement	: 07-MAY-2008 : 16-MAY-2008	
	 	₹ ¥ ₹ ₹		ived : 2 //sed : 2
Page	Laboratory Contact Address	E-mail Telephone Facsimile QC Level	Date Samples Received Issue Date	No. of samples received No. of samples analysed
: ES0806313	: CONSULTING EARTH SCIENTISTS : MS ANGELA MAROYA : JONES BAY WHARF 19-21, LOWER DECK, SUITE 121, 26-32 PIRRAMA ROAD PYRMONT NSW, AUSTRALIA 2040	: amaroya@consultingearth.com.au : +61 85692200 : +61 02 95524399 : CES050706-BCC	: : 128656 : LJ, KW : AREA A	: SY/096/08
Work Order	Client Contact Address	E-mail Telephone Facsimile Project	Order number C-O-C number Sampler Site	Quote number

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

ż		
<	<b>NATA</b>	>

### NATA Accredited Laboratory 825

Signatories

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

WORLD RECOGNISED ACCREDITATION

# This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Accreditation Category Inorganics Inorganics Inorganics Inorganics Organics Organics Senior Organic Chemist Senior Organic Chemist Laboratory Manager Technical Manager Spectroscopist Position Celine Conceicao Ashwini Sharma Edwandy Fadjar Edwandy Fadjar Marc Centner Hoa Nguyen Signatories

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Part of the ALS Laboratory Group
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61-2-8784 8555 Fax. +61-2-8784 8500 www.alsglobal.con A Campbell Brothers Limited Company



 Page
 : 3 of 11

 Work Order
 : ES0806313

 Client
 : CONSULTING EARTH SCIENTISTS

 Project
 : CES050706-BCC

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been preformed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insuffient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Key: CAS Number = Chemistry Abstract Services number

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

- ED040S: Poor precision was obtained on batch ES0806170#21 due to sample heterogeneity. Results have been confirmed by reanalysis.
- EP202: Sample required dilution due to matrix interferences. LOR values have been adjusted accordingly.



Page Work Order Client Project

: 4 of 11 : ES0806313 : CONSULTING EARTH SCIENTISTS : CES050706-BCC

Analytical Results

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Sub-Matrix: SOIL		Ö	Client sample ID	060508-16-KW	060508-38-KW	1		1	
	Clie	ent sampli	Client sampling date / time	06-MAY-2008 15:00	06-MAY-2008 15:00		-		_
Compound	CAS Number	LOR	Unit	ES0806313-001	ES0806313-002	1	1	1	
EA002 : pH (Soils)									_
pH Value	1	0.1	pH Unit	6.7		-	!		_
EA010: Conductivity									_
Electrical Conductivity @ 25°C		-	mS/cm	105		-	1	-	_
EA014 Total Soluble Salts									
^ Total Soluble Salts		2	mg/kg	340	-	-	-	-	
EA055: Moisture Content									_
^ Moisture Content (dried @ 103°C)	-	1.0	%	17.1	20.2	-		-	
ED040S: Soluble Major Anions									
Sulphate as SO4 2-	14808-79-8	10	mg/kg	20		-	1	-	_
ED045G: Chloride Discrete analyser									_
Chloride	16887-00-6	10	mg/kg	100	1	1	1	1	_
EG005T: Total Metals by ICP-AES									_
Arsenic	7440-38-2	2	mg/kg	<5	<5	-	İ	1	_
Cadmium	7440-43-9	-	mg/kg	₹		1	1	1	_
Chromium	7440-47-3	7	mg/kg	<2	က	1	1	1	_
Copper	7440-50-8	2	mg/kg	<5	<5	-	1	-	_
Lead	7439-92-1	2	mg/kg	<5	<5				_
Nickel	7440-02-0	2	mg/kg	<2	<2				_
Zinc	7440-66-6	2	mg/kg	28	<5		:		
EG035T: Total Recoverable Mercury by FIMS	NS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1				
EK055: Ammonia as N									
Ammonia as N	7664-41-7	20	mg/kg	<20		-		-	_
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	-	0.100	mg/kg	0.199			:	-	
EK058G: Nitrate as N by Discrete Analyser									
^ Nitrate as N (Sol.)	-	0.100	mg/kg	<0.100					_
EK059G: NOX as N by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)		0.100	mg/kg	0.271			:		
EK061G: Total Kjeldahl Nitrogen as N									
Total Kjeldahl Nitrogen as N		20	mg/kg	140		-		-	_
EK062: Total Nitrogen as N									_
^ Total Nitrogen as N		20	mg/kg	140			:	-	
EK067G: Total Phosphorus as P by Discrete Analyser	e Analyser								
Total Phosphorus as P	1	2	mg/kg	24			!		_
EP066: Polychlorinated Biphenyls (PCB)									_

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CONSULTING EARTH SCIENTISTS CES050706-BCC ES0806313 5 of 11 Work Order Client

Analytical Results

Project

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Page Work Order Client Project

: 6 of 11 : ES0806313 : CONSULTING EARTH SCIENTISTS : CES050706-BCC

Sub-Matrix: SOIL		Clie	Client sample ID	060508-16-KW	060508-38-KW	-	1	
	Clie	ent samplin	Client sampling date / time	06-MAY-2008 15:00	06-MAY-2008 15:00	1	-	1
Compound	CAS Number	LOR	Unit	ES0806313-001	ES0806313-002	1	1	1
EP068B: Organophosphorus Pesticides (OP) - Continued	(OP) - Continued							
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05			-	
Prothiofos	34643-46-4	0.05	mg/kg	<0.05		-	ı	1
Ethion	563-12-2	0.05	mg/kg	<0.05			1	1
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	-	1	1	1
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05		-	-	-
EP074A: Monocyclic Aromatic Hydrocarbons	suoq.							
Benzene	71-43-2	0.2	mg/kg	<0.2				
Toluene	108-88-3	0.5	mg/kg	<0.5			-	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5			-	-
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5		-	-	
Styrene	100-42-5	0.5	mg/kg	<0.5		-	-	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5		-	-	-
Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5			1	1
n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5		-	I	1
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	-	1	1	1
sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	-	-		
1.2.4-Trimethylbenzene	92-63-6	0.5	mg/kg	<0.5	-	-	1	
tert-Butylbenzene	9-90-86	0.5	mg/kg	<0.5	1	-	1	1
p-IsopropyItoluene	9-84-66	0.5	mg/kg	<0.5			-	
n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5		-	-	-
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	2	mg/kg	<5	-	1	1	1
2-Butanone (MEK)	78-93-3	2	mg/kg	<5	-	1	-	-
4-Methyl-2-pentanone (MIBK)	108-10-1	2	mg/kg	<5	1	1	1	1
2-Hexanone (MBK)	591-78-6	2	mg/kg	<5		-	-	-
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	0.5	mg/kg	<0.5			-	-
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5		-	-	-
1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5				
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	-	-	-	
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1	1	1	1
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5		-	-	-
EP074E: Halogenated Aliphatic Compounds	spui							
Dichlorodifluoromethane	75-71-8	2	mg/kg	<5		-	1	1
Chloromethane	74-87-3	2	mg/kg	<5	1	-	1	1
Vinyl chloride	75-01-4	2	mg/kg	<5				



Page Work Order Client Project

: 7 of 11 : ES0806313 : CONSULTING EARTH SCIENTISTS : CES050706-BCC

### Analytical Results

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Sub-Matrix: Soil		5	Ciletti sample 10	V6U5U8-16-KW	U6U5U8-38-KW	-	-	
	Clie	nt samplin	Client sampling date / time	06-MAY-2008 15:00	06-MAY-2008 15:00		-	-
Compound	CAS Number	LOR	Unit	ES0806313-001	ES0806313-002	!	l	1
EP074E: Halogenated Aliphatic Compounds - Continued	ds - Continued							
Bromomethane	74-83-9	2	mg/kg	<5		-		-
Chloroethane	75-00-3	2	mg/kg	<5	-		-	
Trichlorofluoromethane	75-69-4	2	mg/kg	<5	-	-		-
1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	-	-	-	1
lodomethane	74-88-4	0.5	mg/kg	<0.5	1	1	-	•
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5				-
1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	-	-		
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	-	-	-	-
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	-	-	-	1
1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1	-	-	1
Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	-		-	-
1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	-	-	-	1
Trichloroethene	79-01-6	0.5	mg/kg	<0.5	-	-	-	1
Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1	1	-	•
1.1.2-Trichloroethane	2-00-62	0.5	mg/kg	<0.5	-	-	-	1
1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	-	-		
Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	-	-	-	-
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1	-	-	-
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5		-	-	-
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	-	-	-	1
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1	1		•
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1	1	-	-
Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	-	-	-	1
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	-		-	-
Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5			-	-
EP074F: Halogenated Aromatic Compounds	sp							
Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1	1	1	1
Bromobenzene	108-86-1	0.5	mg/kg	<0.5				
2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5			-	-
4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5				-
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5				
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1	1	-	-
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	-	-	-	1
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	-	-	1	-
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5				1
EP074G: Trihalomethanes								
Chloroform	67-66-3	0.5	mg/kg	<0.5	-	1	-	1
Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	-	-	1	-

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CONSULTING EARTH SCIENTISTS CES050706-BCC ES0806313 8 of 11 Work Order Project Client

Analytical Results

 1 | l | | | | 06-MAY-2008 15:00 060508-38-KW ES0806313-002 -| -06-MAY-2008 15:00 060508-16-KW ES0806313-001 <0.5 <0.5 <10 <50 <100 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 <0.5 ŝ Client sample ID Client sampling date / time mg/kg Unit LOR 0.5 0.5 0. 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 50 20 2 91-20-3 95-48-7 87-65-0 88-06-2 95-95-4 86-73-7 85-01-8 50-32-8 CAS Number 105-67-9 87-86-5 124-48-1 75-25-2 108-95-2 95-57-8 319-77-3 88-75-5 120-83-2 59-50-7 91-20-3 120-12-7 206-44-0 129-00-0 56-55-3 218-01-9 205-99-2 207-08-9 193-39-5 53-70-3 191-24-2 EP075(SIM)B: Polynuclear Aromatic Hydrocarbons EP080/071: Total Petroleum Hydrocarbons EP074G: Trihalomethanes - Continued EP075(SIM)A: Phenolic Compounds 4-Chloro-3-Methylphenol EP074H: Naphthalene Dibromochloromethane Indeno(1.2.3.cd)pyrene Dibenz(a.h)anthracene Benzo(k)fluoranthene Benzo(b)fluoranthene 2.4.6-Trichlorophenol 2.4.5-Trichlorophenol Benzo(g.h.i)perylene 3- & 4-Methylphenol 2.4-Dimethylphenol 2.4-Dichlorophenol 2.6-Dichlorophenol Pentachlorophenol Benz(a)anthracene C10 - C14 Fraction C15 - C28 Fraction C6 - C9 Fraction Sub-Matrix: SOIL 2-Chlorophenol Acenaphthylene Benzo(a)pyrene 2-Methylphenol Acenaphthene 2-Nitrophenol Phenanthrene Naphthalene Fluoranthene Naphthalene Bromoform Anthracene Compound Chrysene Fluorene Phenol

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: 9 of 11 : ES0806313 : CONSULTING EARTH SCIENTISTS : CES050706-BCC Page Work Order Client

Analytical Results

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Allaly ucal Nesults								
Sub-Matrix: SOIL		Client	Client sample ID	060508-16-KW	060508-38-KW	-	-	
	Client	sampling	Client sampling date / time	06-MAY-2008 15:00	06-MAY-2008 15:00		-	1
Compound	CAS Number	LOR	Unit	ES0806313-001	ES0806313-002	1	ŀ	1
EP080/071: Total Petroleum Hydrocarbons - Continued	penu							
C29 - C36 Fraction	-	100	mg/kg	<100			-	1
EP080: BTEX								
Benzene 7	71-43-2	0.2	mg/kg	<0.2	-	-	1	1
Toluene 10	108-88-3	0.5	mg/kg	<0.5	-	-	-	1
Ethylbenzene 10	100-41-4	0.5	mg/kg	<0.5	-		-	1
meta- & para-Xylene 108-38-3 106-42-3		0.5	mg/kg	<0.5	-		1	-
ortho-Xylene 9	95-47-6	0.5	mg/kg	<0.5	-		1	
EP202A: Phenoxyacetic Acid Herbicides by LCMS	10							
4-Chlorophenoxy acetic acid	122-88-3 (	0.02	mg/kg	<0.04	1	-	1	1
<b>2.4-DB</b>	94-82-6	0.02	mg/kg	<0.04	-		1	-
Dicamba 191	1918-00-9	0.02	mg/kg	<0.04	1	1	1	1
Mecoprop 9	93-65-2 (	0.02	mg/kg	<0.04				
MCPA 9	94-74-6	0.02	mg/kg	<0.04				
<b>2.4-DP</b> 12	120-36-5 (	0.02	mg/kg	<0.04	-			
	94-75-7 (	0.02	mg/kg	<0.04			-	
Triclopyr 5533	55335-06-3	0.02	mg/kg	<0.04	-		-	-
2.4.5-TP (Silvex)	93-72-1 (	0.02	mg/kg	<0.04				
	93-76-5	0.02	mg/kg	<0.04				
		0.02	mg/kg	<0.04			-	
	1918-02-1	0.02	mg/kg	<0.04				
	1702-17-6	0.02	mg/kg	<0.04				
Fluroxypyr 6937	69377-81-7	0.02	mg/kg	<0.04			-	
EP066S: PCB Surrogate								
Decachlorobiphenyl 205	2051-24-3	0.1	%	87.0			1	-
EP068S: Organochlorine Pesticide Surrogate		ш						
Dibromo-DDE 2165	21655-73-2	0.1	%	133				
EP068T: Organophosphorus Pesticide Surrogate								
DEF 7	78-48-8	0.1	%	92.2				
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	112				
	2037-26-5	0.1	%	111				
4-Bromofluorobenzene 46	460-00-4	0.1	%	111				
EP075(SIM)S: Phenolic Compound Surrogates								
	13127-88-3	0.1	%	79.7			-	-
	93951-73-6	0.1	%	69.5				
2.4.6-Tribromophenol	118-79-6	0.1	%	74.6				
EP075(SIM)T: PAH Surrogates								





: 10 of 11 : ES0806313 : CONSULTING EARTH SCIENTISTS : CES050706-BCC Page Work Order

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Sub-Matrix: SOIL		Clie	Client sample ID	060508-16-KW	060508-38-KW	-	1	
	Cli	ent samplir	Client sampling date / time	06-MAY-2008 15:00	06-MAY-2008 15:00		-	
Compound	CAS Number	LOR	Unit	ES0806313-001	ES0806313-002			
EP075(SIM)T: PAH Surrogates - Continued								
2-Fluorobiphenyl	321-60-8	0.1	%	93.6	-	1	-	1
Anthracene-d10	1719-06-8	0.1	%	107	-	1	1	-
4-Terphenyl-d14	1718-51-0	0.1	%	108	1	1	-	1
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	118	1	1	1	1
Toluene-D8	2037-26-5	0.1	%	9.66	-	-	-	-
4-Bromofluorobenzene	460-00-4	0.1	%	104			-	
EP202S: Phenoxyacetic Acid Herbicide Surrogate	urrogate							
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.1	%	74.8	-			





: 11 of 11 : ES0806313 : CONSULTING EARTH SCIENTISTS : CES050706-BCC Page Work Order

### Surrogate Control Limits

Project Client

		C	1/0/ - 57 2
oud-Iviality; <b>301</b>		Recovery Limits (%)	imits (%)
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	10	164
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	136
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	10	136
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	24	113
2-Chlorophenol-D4	93951-73-6	23	134
2.4.6-Tribromophenol	118-79-6	19	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	30	115
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	18	137
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	70	130





## **Environmental Division**

## **CERTIFICATE OF ANALYSIS**

: 1 of 6	: Environmental Division Sydney : Ashwini Sharma : 277-289 Woodpark Road Smithfield NSW Australia 2164	: Ashwini.Sharma@alsenviro.com : +61-2-8784 8555 : +61-2-8784 8500	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement : 08-MAY-2008 : 1 : 1
Page	Laboratory Contact Address	E-mail Telephone Facsimile	Date Samples Received Issue Date  No. of samples received  No. of samples analysed
: ES0806463	: CONSULTING EARTH SCIENTISTS : MS KELLY WEIR : JONES BAY WHARF 19-21, LOWER DECK, SUITE 121, 26-32 PIRRAMA ROAD PYRMONT NSW, AUSTRALIA 2040	: kweir@consultingearth.com.au : +61 85692200 : +61 02 95524399	: CESU50706-BCC : 128602 : LJ, KW : AREA A
Work Order	Client Contact Address	E-mail Telephone Facsimile	Project Order number C-O-C number Sampler Site Quote number

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

#### NATA Accredited Laboratory 825 accreditation requirements.

#### This document is issued in accordance with NATA

Accredited for compliance with ISO/IEC 17025.

WORLD RECOGNISED
ACCREDITATION

# This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been Signatories

Accreditation Category Inorganics Inorganics Inorganics Organics Senior Organic Chemist Senior Organic Chemist carried out in compliance with procedures specified in 21 CFR Part 11. Laboratory Manager Position Ashwini Sharma Edwandy Fadjar Edwandy Fadjar Hoa Nguyen Signatories

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 Work Order
 : ES0806463

 Client
 : CONSULTING EARTH SCIENTISTS

 Project
 : CES050706-BCC

: 3 of 6

### General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been preformed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insuffient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Key: CAS Number = Chemistry Abstract Services number

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting



: 4 of 6 : ES0806463 : CONSULTING EARTH SCIENTISTS : CES050706-BCC Page Work Order Project Client

		1						
Sub-Matrix: SOIL		Clie	Client sample ID	070508-57-KW	1	1	1	1
	Clie	nt samplir	Client sampling date / time	07-MAY-2008 15:00	-	-	-	1
Compound	CAS Number	LOR	Unit	ES0806463-001	1	1	1	1
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	1	1.0	%	21.9			-	-
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	2	mg/kg	<5		-	-	1
Cadmium	7440-43-9	_	mg/kg	<1				
Chromium	7440-47-3	2	mg/kg	2	1	1	1	1
Copper	7440-50-8	2	mg/kg	9			-	-
Lead	7439-92-1	2	mg/kg	6				
Nickel	7440-02-0	2	mg/kg	<2				
Zinc	7440-66-6	2	mg/kg	8			-	-
EG035T: Total Recoverable Mercury by FIMS	IMS							
Mercury	7439-97-6	0.1	mg/kg	<0.1			-	-
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	ocarbons							
Naphthalene	91-20-3	0.5	mg/kg	<0.5		-	1	-
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5		-	1	1
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	-	1	-	-
Fluorene	86-73-7	0.5	mg/kg	<0.5				
Phenanthrene	85-01-8	0.5	mg/kg	<0.5				-
Anthracene	120-12-7	0.5	mg/kg	<0.5				
Fluoranthene	206-44-0	0.5	mg/kg	<0.5				
Pyrene	129-00-0	0.5	mg/kg	<0.5				
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1	1	1	1
Chrysene	218-01-9	0.5	mg/kg	<0.5	1	1	1	1
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	-	-	1	-
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	-	1	1	-
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5				
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5				
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5				
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5		-	-	
EP080/071: Total Petroleum Hydrocarbons	s							
C6 - C9 Fraction	-	10	mg/kg	<10	1		1	-
C10 - C14 Fraction	-	20	mg/kg	<50			-	-
C15 - C28 Fraction		100	mg/kg	<100				
C29 - C36 Fraction	-	100	mg/kg	<100				-
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2			-	-
Toluene	108-88-3	0.5	mg/kg	<0.5				
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1	1	1	1





 Page
 : 5 of 6

 Work Order
 : ES0806463

 Client
 : CONSULTING EARTH SCIENTISTS

 Project
 : CES050706-BCC

		Cler	Client sample ID	070508-57-KW		-	-	-
	Clie	nt sampling	Client sampling date / time	07-MAY-2008 15:00	-			
Compound	CAS Number	LOR	Unit	ES0806463-001				
EP080: BTEX - Continued								
meta- & para-Xylene 108-38	108-38-3 106-42-3	0.5	mg/kg	<0.5	-		-	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	•		į	
EP075(SIM)S: Phenolic Compound Surrogates	S							
Phenol-d6	13127-88-3	0.1	%	91.4	-	-	1	1
2-Chlorophenol-D4	93951-73-6	0.1	%	85.4	1	1	1	1
2.4.6-Tribromophenol	118-79-6	0.1	%	111	-		-	-
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	88.5	-	1	1	1
Anthracene-d10	1719-06-8	0.1	%	87.5	1	1	1	1
4-Terphenyl-d14	1718-51-0	0.1	%	87.3	-			
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	88.6	-	-	-	
Toluene-D8	2037-26-5	0.1	%	91.8	1	1	1	1
4-Bromofluorobenzene	460-00-4	0.1	%	83.7				





: 6 of 6 : ES0806463 : CONSULTING EARTH SCIENTISTS : CES050706-BCC Page Work Order

Project Client

### Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	Limits (%)
Compound	CAS Number	Том	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	24	113
2-Chlorophenol-D4	93951-73-6	23	134
2.4.6-Tribromophenol	118-79-6	19	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	30	115
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	18	137
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121





### **Environmental Division**

## **CERTIFICATE OF ANALYSIS**

13 of L	1 Evmitov DPvjusd mmenov SCcvPC 1 hewJnynSwitDl 12LL-28FI oockltu Aolc SDnywinPsc BSI h@ytlsni 236p	1 hewJ rvrfSwl tDI . I sePvrmto+NoD 1563-2-8L8p 8444 1563-2-8L8p 8400	1BEgK 3FFF SMAPC@PH(7) I vc hbS Qi S7 tPq@PDPvy 10F-K hW2008 126-K hW2008	13 13
g: 1g	bl rotl yotC i ovyl M hcctPee	E-DIrs TP\$PkwovP all MenDraP	Qib PirPs diyP SiD K4Pe A PIMPirPc Re@ diyP	Bo+of el DksPe tPMPmPc Bo+of el DksPe I vI sæPc
: ES080593C : 3	11 OGSARHIG. EN+H6 SI IEGHISHS 1KS YEbbWI ERA 1CNBES HhWI 9hAa 3F-23, bNI EA dEi Y, SURE 323, 26-72 GRAHKH ANHd gWAKNBT BSI , hUSTAHbRR 20p0	1uJPN. Nove@nv: PltywAndD+@ 1563 846F2200 1563 02 F442p7FF	1i ESO40L06-Hi i 1 132860p 1b-ŒBYRBS, Y-# ERA 1h AFh h	1SW0F6/08
Work Order NU eLdU eLT	isnPvy iovyNW hcctPee	E-DIRS TRSPKwovP al MendrsP	gtojPW/ NtcR v@rR i -N-i v@rPt SIDKsPt SMP	Q@yPv@rR

Twine tPkoty e@sPtePcPe IvC ktPmmor@s tPkoty(e) Jinyw ywne tPfPPPvMP+ APe@se IkksC yo ywnP elDksP(e) Ie e@sDnyyPc+ hos kl:Pe of ywne tPkoty wlmP rPPv MAPMuPc Ivc IkktomPc fot

Twoe i PtynfmMlyPofhvlsCene Nobvylnve ywPfosooJnv: nvfotDlynov1

- GPvPtl si oDDPvye
- hvl sOyM sAPe@e
- S@to: I yP i ovytosbriD rye

NATA	>	WORLD RECOGNISED ACCREDITATION
Z		WORL!

Bhth hMMPcnPc birotiyt C824

Twe coMOD Pvyne nee@cnviMotcivm Jnw8hth
IMMPcnjynov tPq@pdpPvye+

h MMPcnPc fot MoDKsh vMPJ nyv RSN/REi 3L024+

Twine coM@ Pvy wie rPPv PsPM;tovnMissC envPc rC yw.P I@wotrzPc envI)otnPe nvcnMiyPc rPsoJ+ EsPM;tovnMienvnv: wie rPPv MittiPco@rv NoDkshvNPJryvktoMPc@PeekPMfinPcrv 23 i aAglty33+ Signatories

Signatories	Position	Accreditation Category
h ewJ rvnSwl tDI	bl r otl yotCK I vI : Pt	Rot: I vrille
9 ol B: @Pv		Rot: I vrile
g9hbhYRBT9hYESNBE	Nt:IvmiAeio-otcnvIyot	R∕ot: I vrlA€
g9hbhYRBT9hYESNBE	Nt:IvmAeio-otcnviyot	Nt: I < rt/le

**Environmental Division Sydney** 

Part of the ALS Laboratory Group 2LL-28F1 cocki tu Aci c SD wiff& BSI h@yli si 236p Hef 2537#70/6a 8999 al x+563-2-8L8p 6400 sss -gfctoryt\*ou

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#### General Comments

TWP IVISOUNDEQIPE @ PC IC WIP EVINITION DEVIATION OF A DIMENSION WITH PIPO CHIPSORPE (TOD PRIFER OF 1974) YOUND STANDS VIZED KHONNECONDE EQUIN IS WOODE A WOODE COMPANDED TO SEED TO WIDE TO WIP THE WOODE OF THE WOOD OF THE WOODE OF THE WOODE OF THE WOODE OF THE WOODE OF THE WOOD OF THE WOODE OF THE WOODE OF THE WOODE OF THE WOODE OF THE WOOD CPMPSIKPC KtoMPc@Pe I tP PDKss@CPc in ywP I rePVMP of coMc PvyPc eyl volitoe of r CN&PvytPq@ey+

I wPtP Domey@PcPyPtDnvIynov wierPPvktPfotDPc, tPe@seltPtPkotyPcovictCJPnwyrlene+

I WPPI TPOOLYC 5'96 yw v (<) TPOGW IN WINN WINN WINN WINN WINN WINN DIC POC YOU KIND I COIDK SPYKIN WOOD PBY YOUGH IN COOK IN COOK IN COOK IN COOK WOOD DIKS FOIL IVISORE

| WP clyP(e) | vc/clyDP(e) | tPewoJvrt1 MAPPc, wPP WinPrPV | ee@ PcrCyMPsrcjytcottycottycPhenz; k@koePe+RyPelDksr; yDPerchenx CD wprofotD1 yav J | e voyktomePcrCh&Pvyr

YPC1 in SB@nrReiwPDneytChreytl MySPtmMAPev@nrRe

bNA = bnD ry of tPkotyw:

K = Tweet Peogree Modik @ PettoDinvormacosivisus Pophynove iyotiron Pyn Pem Protynvormacosivi



Analytical Results isnPvy gtojPMy

1 p of L 1 ES080643F hDPvcDPvy3 1 i NBSUbTRG EhAT9 Si REBTRSTS 1 i ES040L06-Hi i

gl:P I otu NtcPt

		Ç	_ (/ c/amoc +a					
S(Q-K) YIX: SOIR		5	Ciletti sample ID	U809087349 AMW	1	•	!	1
	Ö	ent samplir	Client sampling date / time	08-K hW2008 34100		-	-	-
Compound	CAS Number	LOR	Unit	ES080593C7003	Ш.	<i>IIII</i>	##	Ш.
EN099: i otbTure I oLTeLT								
Kiotb Ture Io Lhe L Trointed (30 @01)	-	3 <del>+</del> 0	%	404		-		
E. 009H: HoTg1i eTg1b my II PTNES								
NrbeLt^	Lpp0-78-2	4	D: /n:	4>	-	-	-	-
I gdUtuU	Lpp0-p7-F	က	D: /n:	\$	-	-	-	-
I hroUtaU	Lpp0-pL-7	2	D: /u:	4	-			-
I opper	Lpp0-40-8	4	D: /u:	4>	-		-	
Regd	Lp7F-F2-3	4	D: /n:	4>	1	1	1	1
Gt^ke1	Lpp0-02-0	2	D: /n:	<2	1	1	-	1
ZtL^	P-99-0dd7	4	D: /n:	44	-	-	-	1
E. 0@H: HoTg1+e^oFergmte i er^ury my Bli	တ							
i er^ury	Lp7F-FL-6	<del>2</del> 0	D: /n:	90>	-		-	-
EP055: Poty^hfortLgTed x tpheLy1b rPI x)								
Horg1Po1y^h tortLgTed mtpheLy1b		080	D: /n:	08-0>	-	-		-
EP058N: OrcgLo^h1ortLe PebT^tdeb nOI)								
gʻphg'z 61	73F-8p-6	0+04	D: /n:	<0.04	-	-	-	-
6ezg^hforomeLfeLe n61 x)	338-Lp-3	0+04	D: /n:	<0.64	-			
meīgīx 6 l	73F-84-L	0+04	D: /n:	<0.404				
cgU Ug7k61	48-8F-F	0+04	D: /n:	<0.404				
deлgж 6 I	73F-86-8	0+04	D: /n:	<0.404	-			
6 epTg^h for	R-pp-8	0+04	D: /n:	<0.404				
NtdrtL	70F-00-2	0+04	D: /n:	<0.404				
6 epTg^h for epoztde	302p-4L-7	0+04	D: /n:	<0.404	-			
FigLb7 h1brdgLe	4307-Lp-2	0-04	D: /n:	<0.04	1	1	1	1
gtphg/ÆLdobu/tg/L	F4F-F8-8	0+04	D: /n:	<0.404	-		-	
△tb개 hrbrdgLe	4307-L3-F	0+04	D: /n:	<0.404	-			
` tertdritL	60-4L-3	0+04	D: /n:	<0.60				
a-a√7 `E	L2-44-F	0+04	D: /n:	<0.404				
ELdriL	L2-20-8	0+04	D: /n:	<0.404				
meng/ÆLdobu/tg/L	77237-64-F	0+04	D: /n:	<0.404				
a-av7 ``	L2-4p-8	0+04	D: /n:	<0.404	-			
ELdrtL graehyde	Lp23-F7-p	0+04	D: /n:	<0.404	-			
ELdobu Tall bu Tajie	3073-0L-8	0-04	D: /n:	<0.04	1	1	1	1
a-av7 ` H	40-2F-7	0+5	D: /n:	~0~	-	-	-	-
ELdrtL kelbLe	47pFp-L0-4	0+04	D: /n:	<0.404				
i eThozy^h1or	L2-p7-4	0+5	D: /n:	~0-5	-		-	1
EP058x: OrcgLophobphorub PebTAtdeb nOP)	OP)							
` t^h torFob	62-L7-L	0+04	D: /n:	<0.64	-	-	-	1

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14 of L 1 ES080643F hDPvcDPvy3 1 i NBSUbTRG EhAT9 Si ÆBTRSTS 1 i ES040L06-Hi i gl:P I otu NtcPt isaPvy gtojPMy

Analytical Results

•								
S@-KI ytix: SOIR		ĊĮį.	Client sample ID	08090873497MW	1	-		1
	Clie	ent samplii	Client sampling date / time	08-K hW2008 34100	-			
Compound	CAS Number	LOR	Unit	ES080593C7003	<i>IIII</i>	<i>IIII</i>	##	<i>IIII</i>
EP058x: OrcgLophobphorub PebT^tdeb rOP) 71 oLTLued	DP) 71 oLTLued							
`eUerbLrS7JeThy1	F3F-86-8	0+04	D: /n:	<0.04	-		-	-
i oLo^roTophob	6F27-22-p	042	D: /u:	<b>₹</b> 0>	1	-	-	
· tU eThogTe	60-43-4	0+04	D: /u:	<0.04	1	-	-	
, tgf tLoL	777-p3-4	0+04	D: /u:	<0.04	1	-	-	
I htbrpyrtDbb7UeThy1	44F8-37-0	0+04	D: /u:	<0.04	-			
PgrgThtoL건 eThy1	2F8-00-0	045	D: /u:	<b>₹</b> 0>	1	-	-	
i gfgThtoL	323-L4-4	0+04	D: /u:	<0.04	1	-	-	
BeLThtoL	44-78-F	0-04	D: /u:	<0.04	1	-	-	-
I htorpyrt@b	2F23-88-2	0-04	D: /n:	<0.04	1	-	1	-
PgrgThtoL	46-78-2	045	D: /u:	<b>₹</b> 0>	1	-	-	
PtrtU phob@Thy1	27404-p3-3	0-04	D: /u:	<0.04	1	-	-	-
I htbrie Fttphob	pL0-F0-6	0+04	D: /u:	<0.04	1	-	-	
x roU ophobæThy1	p82p-L8-6	0-04	D: /n:	<0.04	1	-	1	-
BeLgU tphob	2222p-F2-6	0-04	D: /u:	<0.04	1	-	-	-
ProThtoDb	d-9d-2d9d2	0-04	D: /n:	<0.04	1	-	1	
EThtoL	467-32-2	0+04	D: /u:	<0.04	1	-	-	
I grmppheLoThtoL	L86-3F-6	0-04	D: /u:	<0.04	1	-	-	-
NftLphobieThy1	86-40-0	0-04	D: /n:	<0.64	-	-	-	
EP0wBrSli )x: PofyLu^tegr NroU gff^ 6 ydro^grmbLb	o^grmoLb							
Ggph¶g′eLe	F3-20-7	0 4	D: /n:	<b>4</b> 0>	1	-	-	-
N^eLgphThy1eLe	208-F6-8	0 4	D: /u:	<b>4</b> 0×	1	-	-	-
N^eLgphTheLe	87-72-F	0 4	D: /n:	<b>≱</b> 0>			-	
BuoreLe	7-Z-98	0 4	D: /n:	<b>4</b> 0^	1	1	1	1
PheLgL ThreLe	84-03-8	0 4	D: /n:	<b>4</b> 0∧				
NLThrg^eLe	320-32-L	0 4	D: /n:	<b>≱</b> 0>			-	
BuorgLTheLe	206-pp-0	0 4	D: /n:	<b>4</b> 0>				
PyreLe	32F-00-0	0 4	D: /n:	<b>4</b> 0∨				
x eLfrg)gLThrg^eLe	46-44-7	0 4	D: /n:	<b>4</b> 0∧				
I hrybeLe	238-03-F	0 4	D: /n:	<b>4</b> 0>		-	-	
xeLfom)DuorgLTheLe	204-FF-2	0 4	D: /n:	<b>4</b> 0×		-	-	
xeLfork)DuorgLTheLe	20L-08-F	0 4	D: /n:	<b>4</b> 0∨				
x eLf org)pyreLe	40-72-8	0 4	D: /n:	<b>4</b> 0>		-	-	
ILdeLor8-4-@^d)pyreLe	3F7-7F-4	0 4	D: /n:	<b>4</b> 0>	1	-	-	-
`tmeLfrg-h)gLThrg^eLe	47-L0-7	0 4	D: /n:	<b>4</b> 0∧	-	-	1	-
x eLf orc +h-t) peryteLe	3F3-2p-2	0 4	D: /n:	<b>4</b> 0>			-	
EP080/0w3: HoTg1PeTro1euU 6ydro^grmbLb	q							
I 5 7 I C Brg^1toL	-	30	D: /n:	<30	1	-	1	-
I 30 7I 3a Brg^TtoL	-	40	D: /n:	<40	1		-	-

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gl:P I otu NtcPt

16 of L 1 ES080643F hDPvcDPvy3 1 i NBSUbTRG EhAT9 Si ÆBTRSTS 1 i ES040L06-Hi i

isaPvy gtojPMy

#### Analytical Results

S@-KI KI SOIR		Clier	Client sample ID	08090873497MW	1	-		
	Clie	nt sampling	Client sampling date / time	08-K hW2008 34100				
Compound CAS	CAS Number	LOR	Unit	ES080593C7003	Ш.	Ш.	Ш.	Ш.
EP080/0w8: Hotg1PetroteuU 6ydro^grmoLb71 oLftLued	TiLued							
1 39 71 48 Brg^TtoL		300	D: /u:	<300	-		1	1
I 4C7I @ Brg^™oL		300	D: /u:	<300			-	1
EP080: x HEX								
xeLfeLe	L3-p7-2	0+5	D: /n:	₽0>	-		-	1
HotueLe	308-88-7	Q <b>4</b>	D: /u:	<b>★</b> 0>	-	-	1	1
EThytheLfeLe	300-p3-p	4 4	D: /n:	<04	-		-	1
UeTg7& pgrg7Xy/aLe 308-78-7 306-p2-7	306-p2-7	Q 4	D: /u:	<04			-	-
orTho7Xy1eLe	F4-pL-6	4	D: /u:	<04			-	1
EP055S: PI x SurrocgTe								
	2043-2p-7	9 <del>+</del> 0	%	Ca-G				-
EP058S: OrcgLo^h1ortLe Peb1t^tde SurrocgTe								
	23644-L7-2	0+B	%	3@			-	1
EP058H: OrcgLophobphorub Peb II^tde Surrocg ie	ø							
· EB	L8-p8-8	0+B	%	8@w			-	1
EP0w9rSli )S: PheLot* I oU pouLd SurrocgTeb								
PheLof/d5 37	3732L-88-7	940	%	wC5	1	-	1	1
47 hrbropheLoff a	F7F43-L7-6	<del>Ф</del> 0	%	wCa	1	-	1	1
4-a-57-trmoUopheLo1	338-LF-6	9 <del>4</del> 0	%	80-8	-		-	1
EP0w9rSli )H: PN6 SurrocgTeb								
47B1uoromtpheLy1	723-60-8	9 <del>4</del> 9	%	wC-8				
NLThrg^eLe7d30	3L3F-06-8	<del>Ф</del> 0	%	84	1	-	1	1
a7HerpheLy17d3a	3L38-43-0	9+0	%	304				-
EP080S: HP6 nV)/x HEX SurrocgTeb								
3-47 thtoroeThgLe7 a	3L060-0L-0	9 <del>4</del> 0	%	33w	1	-	1	1
HotueLe7 8	207L-26-4	<del>Ф</del>	%	8Ca	-		-	1
aй roU oDuoromeLfeLe	d-00-09d	<del>8</del> 0	%	පු				





Surrogate Control Limits

S@-K  ytrx: SOIR		Recovery Limits (%)	imits (%)
Compound	CAS Number	Tow	High
EP055S: PI x SurrocgTe			
`e^g^h1brompheLy1	2043-2p-7	30	36p
EP058S: OrcgLo^h1ortLe Peb¶^tde SurrocgTe			
`tmro∪o7`E	23644-L7-2	30	376
EP058H: OrcgLophobphorub PebIt^tde SurrocgTe	٩		
· EB	L8-p8-8	30	376
EP0v8rSli )S: PheLot^I oU pouLd SurrocgTeb			
PheLo17d5	3732L-88-7	2p	337
47 h1bropheLo17 a	F7F43-L7-6	27	37p
4-a-5개tmroU opheLo1	338-LF-6	3F	322
EP0w9rSli )H: PN6 SurrocgTeb			
478tuoromtpheLy1	723-60-8	20	334
NLThrg^eLe7d30	3L3F-06-8	2L	377
a7HerpheLy17d3a	3L38-43-0	38	37L
EP080S: HP6 nV)/x HEX SurrocgTeb			
347 thtoroeThgLe7 a	31060-01-0	80	320
HotueLe7 8	207L-26-4	83	33L
aঈ roU oDuoromeLf eLe	d-00-09d	Lp	323





### **Environmental Division**

## **CERTIFICATE OF ANALYSIS**

13 of L	1 Evrintov D Pvylsd minentov SCC v PC 1 weJ Onen SJI tD I 1, LL2 8F 9 oock I tu Yol c SD nylfn Psc AS9 w@nytlsni, 36p	1 weJOivr&JI tDI + I sePvmito3AbD 1j 632 28L8p 8444 1j 632 28L8p 8400	1AEgK 3FFF SMIPC@PB(7) I v.c. wbS Qi S7 tPq@IPDPvy 10F2K.wH2 008 1, L2K.wH2 008	13
g: 1g	bl rotl yotC i ovyl M wcctPee	EZDIRS TPSPKJOVP al NeriDraP	Qib mmbs diyosiD kspe y PMPmmPc ree@Pdiyo	Aosof el DK&Pe tPNPmPC Aosof el DK&Pe I vI sCAPC
: ES080593C : I	1GOASRHI.A+ ENGI1 SG.EAI.SIS 1KY bW E REAI PAS 1RNAES BWH 9 - WYA 3F2 3UbN 9 EY dEI I USWITE 3, 3U 6Z, gPYYWKW YNWd gHYKNAT AS9 UWWSTYWbW, 0p0	1sPvurve+ Move@nv: Pl tyJ3MbD5 @ 1j 63 846F,, 00 1j 63 0, F44, p7FF	1 i ES040L062Bi i 1222 13, 860p 15FEAI IASU 39 EIM	1wYEww 1SH/0F6/08
Work Order NU eLdUeLT	i sirvy i ovy My wcctPee	E2DIR TRSKJOVP alMenors	gto.PM NtcR v@r R i A2 v@r Pt SI Dk&t	Sign Q@yPv@rR

Time tPkoty e@CPTePcPe IvC ktPmmo@o tPkoty(e) Only yime tPFPPNNP5 YPe@ce IkksC yo yiP el DksP(e) Ie e@DnyPc5 wss kl:Pe of yime tPkoty JimP rPPv NJPNNuPc Ivc IkktomPc fot

TJne i PtynfnMiyP of wwl scene Novylinve yJP fosoo Onv: infotDIyov 1

- GPvPtl si oDDPvye
- wvl sOyM sY Pe@e
- S@to: I yP i ovytosbriD rye

∢		
<	NATA	

AwTwwMMPcryPcblrotlyotCB, 4
TJrecoN@DPvynenne@Pcnv
IMAbtclvMPCnylAwTw
IMAPcnylynovtPq@IPDPvye5

wMMAPcryPc fot MoDksh vMP Oryu rSN/NEi 3L0, 45

WORLD RECOGNISED ACCREDITATION

The coM® Pvy Je rPPv PsPMytovnMissC envPc rCyJP I@JotraPc envIpotmPe nvcnMinPc rPsoO5 EsPMytovnMienvnv: Jie rPPv MittiPco@irv No DkshvNP Onylkto MPc@Peek PMfinPcirv, 3 i a Yglty335 Signatories

Signatories	Position	Accreditation Category
weJOrvnSJI tDI	bl rotl yotCKI vl : Pt	hvot: I vrille
- ol A: @Pv		hvot: I vnNe
g - wbwl hAT - wl ESNAE	Nt:IvmMeio2otcrvIyot	hvot: I vnMe
g - wbwl hAT - wl ESNAE	Nt:IvmMeio2otcrvIyot	Nt:IvmAe

**Environmental Division Sydney** 

Part of the ALS Laboratory Group . LL2 8F9 cock tu Yol c SDyfiffs: AS9 w@yl at . 36p . e27534 @wa 8999 at x5j 632 28L8p 8400 sss 3g-bc-omg-2voU A Campbell Brothers Limited Company



9 otu NtcPi 1 ES080643F wDPvcDPvy,
1 sPvy 1 i NASWbTrAG EwYT- Si IEATh&TS
gto:Plly 1 i ES040L062Bi i

#### General Comments

TJP IVISONIA KHONPOORDE @ PC IC JUP EVINNOVD PLY'S OF MIND THOW STOWN ST CPMPSKPc ktoMPc@Pe I tP PD kso CPc IV JUP I rePVMP of coM PVPc ey vol toe ot r CNMP ytPq@ey5

9 JRIP Domey@PcPyRDwIynov JIerPPvktMotDPcUtPe@eItPtPkotyPcovIctCOPnJyrIeme5

9 JRP MP BNY OF I FROM THE GROUND FOR TO BE AND THE STATE OF THE BOARD OF STATE OF THE STATE OF

9 JPv cl yPe) voclotydd Peulov rti Mara-Cularen i mar Prv i ee@ Pc r Cyd s roti yat Cfot kto Meenr. K@koePestiyel Dksny: ynd Pre cneks Or i e o o y yn protoi yn vool e voy ktonne Pc r Chafrys

IPC1 iwSA@orPt=iJPDneytCwreytlNySPtmnMPev@orPt

bNY = bnDnyof tPkotynv:

K = TJR tRe@yne MoDk @ Pc fto D nv cmmo @ slvls APCRAMnove ly ot I rom PyJP samPs of tPkotynv:



<	-	ALS

1 p of L 1 ES080643F wD PvcD Pvy, 1 i NASWbTPAG EWYT- Si FEATHSTS 1 i ES040L062Bi i

gl:P 9 otu NtcPt

isaPvy gto.PMy

#### Analytical Results

S@XI ytix: SO.H		Ö	Client sample ID	080908431 94MW			<b>Z</b>	222
	Clie	ent sampli	Client sampling date / time	082K wH2 008 34100	222	222	222	233
Compound	CAS Number	LOR	Unit	ES080593C4003	444	444	444	4444
EN099: i otblure Gollelt								
Ki otb Ture GoL TeL Tridrted (30@G)	222	330	%	102	222	222	2002	2002
E+009l:loTg-ieTg-bmy.GP4NES								
NrbeLt^	Lpp02782	4	D: /n:	4>	200	222	2002	2002
GgdUtuU	Lpp02p7Æ	က	D: /u:	\$	222	222	2000	2002
GhroUtuU	Lpp02pLZ		D: /n:	_	222	222	200	2002
Gopper	Lpp024028	4	D: /u:	4>	222	222	2002	2002
Hegd	Lp7FÆ, 23	4	D: /n:	4>	222	222	2222	2222
At^ke-	Lpp020, 20		D: /n:	v	222	222	2002	2222
ZtL^^	Lpp02626	4	D: /u:	4>	222	222	2002	2222
E+0@9I: loTg-6e^oFergme i er^ury my B.i	တ							
i er^ury	Lp7FÆL36	033	D: /n:	<033	202	222	2222	2222
EP055: Po-y^h-ortLgTed x tpheLy-b rPGx)								
l org- Po-y^h-ortt.gred mtpheLy-b	222	0230	D: /n:	<0330	222	222	2222	2222
EP058N: OrcgLo^h-ortLe PebT^tdeb rDG)								
g-phg-k 1 G	73F28p26	0504	D: /n:	<0504	200	222	2002	2002
1 ezg^h-oromeLfeLe nf Gx)	3382_p2	0504	D: /n:	<0504	222	222	2222	2222
meTg4k1G	73F2842L	0504	D: /n:	<0504	222	222	222	2002
cgU Ug∕kr1G	4828FZF	0304	D: /n:	<0504	222	222	222	2002
de-Tg4k 1 G	73F28628	0304	D: /n:	<0504	222	222	222	2002
1 ep tg^h-or	L62p28	0504	:n/ :O	<0504	222	222	222	2222
N-drfL	70F2002	0504	:n/ :Q	<0504	222	222	222	2002
1 epTg^h-or epoztde	30, p24LZ/	0504	:n/ :Q	<0504	222	222	2222	2002
FgLb4Gh-ordgLe	43072Lp2	0504	D: /n:	<0504	222	222	2222	2222
g-phg4ELdobu-tg/L	F4FÆ828	0504	:n/ :Q	<0504	222	222	222	2002
^tb4Gh-ordgLe	43072.3F	0504	:n/ :O	<0504	222	222	222	2002
` te-drtL	6024L23	0504	:n/ :O	<0504	222	222	222	2222
a2av4 `E	L, 2443F	0504	:n/ :Q	<0504	222	222	222	2002
ELdrift	L, 2 028	0504	D: /n:	<0504	222	222	2222	2222
meTg4ELdobu-tglL	77, 37264F	0504	D: /u:	<0504	222	222	2002	2222
a2n4 · ·	L, 24p28	0504	D: /n:	<0504	222	222	2222	2222
ELdrift g-dehyde	Lp, 32F72p	0504	D: /n:	<0504	222	222	2222	2222
ELdobu-tgl bu-tgre	307320L2B	0504	D: /u:	<0504	222	222	2222	2222
a2av4 ` I	402 FZI	05	D: /n:	<05	222	222	222	2002
ELdrit keToLe	47pFp2L024	0504	:n/ :Q	<0504	222	222	222	2002
i eThozy^h-or	L, 20724	05	D: /n:	<05	222	222	2222	2002
EP058x: OrcgLophobphorub PebThtdebnOP)	OP)							
` t^h-orFob	6, 272	0504	D: /n:	<0504	222	777	2222	7777



14 of L 1 ES080643F wDPvcDPvy, 1 i NASWbTrAG EwYT- Si rEATrSTS 1 i ES040L062Bi i gl : P 9 otu NtcPt

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S@XI yth: SO.H		Clie	Client sample ID	080908431 94MV			222	222
	Clie	nt samplir	Client sampling date / time	082K wH2 008 34100	222	2222	222	222
Compound	CAS Number	LOR	Unit	ES080593C4003	4444	444	4444	444
EP058x: OrcgLophobphorub PebT^tdeb rOP) 4GoLTLued	P) 4GoLTLued							
`eUeToL4S4UeThy-	F3F28628	0504	D: /n:	<0504	222	222	2002	2002
i oLo^roTophob	6F, 72, 3	05	D: /u:	<05	222	222	2002	2002
· tu e Thogre	6024324	0504	D: /u:	<0504	222	222	2002	2002
` tgf tLoL	777720324	0504	D: /u:	<0504	222	222	2002	2002
Gh-orpyrtDbb4UeThy-	44F823720	0504	D: /u:	<0504	222	222	2002	2002
Pgrg hto L4J e hy-	, F820020	05	D: /u:	<05	222	222	2222	2322
i g-gThtoL	3, 32.424	0504	D: /u:	<0504	222	222	2002	2002
BelThtol	44刀8万	0504	D: /u:	<0504	222	222	2002	2002
Gh-orpyrtlab	, F, 32882	0304	D: /n:	<0504	222	222	2222	2002
PgrgThtoL	462/82	05	D: /u:	<05	222	2222	2002	2002
PtrtU phob/e Thy-	, 740420323	0504	D: /u:	<0504	222	222	2002	2002
Gh-orte LFtLphob	pL03F036	0504	D: /u:	<0504	222	222	2002	2002
x roU ophob@Thy-	p8, p2L826	0504	D: /u:	<0504	222	2222	2002	2002
BeLgU tphob	, , , , pÆ, æ	0504	D: /n:	<0504	222	222	2222	2002
ProThtoDb	7p6p72p62p	0304	D: /n:	<0504	222	222	2222	2002
EThtoL	46723, 2	0304	D: /u:	<0504	222	222	2002	2002
GgrnpheLo Thto L	L8623F26	0304	D: /n:	<0504	222	222	2222	2002
NftLphobieThy-	8624020	0504	D: /u:	<0504	222	222	222	222
EP0w8rS.i )x: Po-yLu^egr NroU gTr^1 ydro^grmoLb	^grmoLb							
AgphThg-eLe	F32 027	054	D: /n:	<054	222	222	222	222
N^eLgphThy-eLe	, 08 <b>7</b> 6 <b>2</b> 8	054	D: /n:	¥0>	222	222	2222	2222
N^eLgphTheLe	87Z, Æ	054	D: /n:	<054	222	222	222	222
BuoreLe	862.72	054	D: /n:	<054	222	222	222	2222
PheLgLThreLe	8420328	054	D: /n:	×054	222	222	222	2222
NLThrg^eLe	3, 023, 2	054	D: /n:	×054	222	222	222	2222
BuorgLTheLe	, 062pp20	054	D: /n:	×054	222	222	222	2222
PyreLe	3, F20020	054	D: /n:	×054	222	222	222	2222
x eLfrg)gLThrg^eLe	4624427	054	D: /n:	<054	222	222	222	2222
GhrybeLe	, 38203Æ	054	D: /n:	×054	222	222	222	2222
x eLf om) DuorgLThe Le	, 042FF2	054	D: /u:	×0.54	222	222	2002	2002
x eLfork)DuorgLTheLe	, 0L208Æ	054	D: /n:	<054	222	222	222	2222
x eLf org)pyreLe	402, 38	054	D: /n:	<054	222	222	222	222
.LdeLor <b>32</b> 2027d)pyreLe	3F7Z7F24	054	D: /n:	<054	222	222	222	222
` tneLfrg2h)gLThrg^eLe	472.02	054	D: /n:	<054	222	222	222	2222
x eLf orc A2) pery eLe	3F32 p2	054	D: /n:	<054	222	222	222	222
EP080/0w3:1 oTg- PeTro-euU 1ydro^grmoLb								
G5 4 GC Brg^ ToL	2222	30	D: /n:	<30	222	222	222	2222
G30 4G3a Brg^1toL	2222	40	D: /u:	<40	222	222	222	2222



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16 of L 1 ES080643F wDPvcDPvy, 1 i NASwbTrkG EwYT- Si IEATIGTS 1 i ES040L062Bi i

Analytical Results

S@AI yin: SO.H		Clie	Client sample ID	08090843I 94MW	222	2222	777	2222
	Clie	nt samplir	Client sampling date / time	082K wH2 008 34100	222	222	222	222
Compound	CAS Number	LOR	Unit	ES080593C4003	4444	4444	444	444
EP080/0w8:1 oTg-PeTro-euU 1ydro^grmoLb4GoLTLued	DLb 4GoLTLued							
G39 4Gl 8 Brg^TtoL	2222	300	D: /n:	<300	222	222	222	222
GI C 4 G@ Brg^1toL	2222	300	D: /n:	<300	222	222	2222	2002
EP080: x1 EX								
xeLfeLe	L32672	05	D: /u:	<b>\$0&gt;</b>	222	222	2222	2002
l o-ueLe	30828827	054	D: /u:	<b>4</b> 50>	222	222	200	2002
EThymeLfeLe	30020320	054	D: /u:	<b>15</b> 0>	222	222	222	2002
U eTg4& pgrg4ky-eLe	308Z/8Z/ 3062p, Z/	054	D: /n:	40 <del>5</del> 4	222	222	222	2002
orTho4Ky-eLe	F42pL26	054	D: /n:	×054	222	222	2222	2002
EP055S: PGx SurrocgTe								
`e^g^h-orompheLy-	, 0432 pZ	023	%	CaZD	222	222	2222	2002
EP058S: OrcgLo^h-ortLe PebT∿tde SurrocgTe	rocgTe							
` tmroU o4 ` E	, 36442.72	033	%	3@	222	2222	2222	2002
EP0581 : OrcgLophobphorub PebT^tde SurrocgTe	SurrocgTe							
, EB	L82628	033	%	8 <b>@</b> w	222	222	2222	2002
EP0w9rS.i )S: PheLo-t^ GoU pouLd SurrocgTeb	rocgTeb							
PheLo-4d5	373, L288ZI	023	%	WCZ5	222	222	2222	2002
I 45h-oropheLo-4 a	F7F432.73	023	%	WC2A	222	222	2322	2002
I 2624 rtmroU opheLo-	3382 F26	033	%	8038	222	222	2002	2002
EP0w9rS.i )I : PN1 SurrocgTeb								
I 48-uorontpheLy-	7, 326028	023	%	WC38	222	222	2222	2002
NLThrg^eLe4d30	3L3F20628	023	%	002	222	222	2322	2002
a4 erpheLy-4d3a	3L3824320	023	%	301	222	222	222	222
EP080S: I P1 nV)/x1 EX SurrocgTeb								
32 4 t^h-oroeThgLe4 a	3106020120	023	%	33W	222	222	2222	2002
I o-ueLe4 8	, 07L2 624	033	%	8CB	222	222	2002	222
a4k roU oBuoromeLf eLe	p602004p	033	%	88	222	222	222	222



1 L of L 1 ES080643F wDPvcDPvy, 1 i NASwbTrkG EwYT- Si IEATIGTS 1 i ES040L062Bi i Surrogate Control Limits isnPvy gto.PMy

gl:P 9 otu NtcPt

S@XI ynx: SO.H		Recovery Limits (%)	Limits (%)	
Compound	CAS Number	Том	High	
EP055S: PGx SurrocgTe				
`e^g^h-oromtpheLy-	, 0432 pZ	30	36p	
EP058S: OrcgLo^h-ortLe PebT∿tde SurrocgTe				
`tnroUo4`E	, 36442.72	30	376	
EP0581 : OrcgLophobphorub PebTt^tde SurrocgTe				
, EB	L8\$8	30	376	
EP0w8rS.i )S: PheLo-t^ GoU pouLd SurrocgTeb				
PheLo-4d5	373, L28827	ď,	337	
I4Gh-oropheLo-4 a	F7F432.726	, 7	37p	
I 25조4 rtmoU opheLo-	3382.F2	3F	3,,	
EP0w9rS.i )I: PN1 SurrocgTeb				
I 48-uoromtpheLy-	7, 326028	70	334	
NLThrg^eLe4d30	3L3F2062B	٦,	377	
a4 erpheLy-d3a	3L3824320	38	37L	
EP080S: I P1 nV)/x1 EX SurrocgTeb				
32 4 t^h-oroeThgLe4 a	3L06020L20	80	3,0	
lo-ueLe4 8	, 07L2 624	83	33L	
a&roUoDuoromeLfeLe	p602002p	Lp	3,3	
				l

S@Ж  ytn: <b>SO.H</b>		Recovery Limits (%)	imits (%)	
Compound	CAS Number	Гом	High	
EP055S: PGx SurrocgTe				
`e^g^h-orontpheLy-	, 0432 pZ	30	36p	
EP058S: OrcgLo^h-ortLe PebTl^tde SurrocgTe				
`tmroUo4`E	, 36442.72	30	376	
EP058I: OrcgLophobphorub Peb¶^tde Surrocgle				
`EB	L8268	30	376	
EP0w9rS.i )S: PheLo-t^ GoU pouLd SurrocgTeb				
PheLo-4d5	373, L288ZI	ď,	337	
I 4Gh-oropheLo-4 a	F7F432L726	, 7	37p	
I 全五4 rtmroU opheLo-	3382LF26	3F	3,,	
EP0w9rS.i )I : PN1 SurrocgTeb				
I 48-uoromtpheLy-	7, 326028	70	334	
NLThrg^eLe4d30	3L3F20628	, L	377	
a4 erpheLy-4d3a	3L3824320	38	37L	
EP080S: I P1 n/)/x I EX SurrocgTeb				
324 t^h-oroeThgLe4 a	3L06020L20	80	3,0	
lo-ueLe48	, 07L2 624	83	33L	
a4k roU oBuoromeLf eLe	p602002p	Гр	3,3	

# ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



### **Environmental Division**

# **CERTIFICATE OF ANALYSIS**

	ECI )L On eChalfvij jsy C'SrmCer I sPA jOj/SPaln a	:-66H8BK m#alp1WamnSnyAgelmUSK 1 ksblalya1-359	: I sRA <b>Ø. @</b> Ralın au alse <b>Ci y. @</b> n :. 53H H868918+++ :. 53H H868918+00	:JEPd 13BBB11SDRemkle1O(T)1aOml fS1Ot ST1LeqkyLen eOb		m	
: 31 05	ECILY On eChalty	- 66H8B <b>K</b>	: IsRA)O@RaIn au ::53H H868918+++ ::53H H868918+00	: JEPd 13BBB1	3TH4   MH 008	: - 3Hd   MH 008	<b>⊢ ⊢</b>
Page	fa7 Lab Lr t Coa Do	l miless	Eth ay Uele4R Ce FaDsyn ye	Qt feiel	v abe 1San 4 les 1Me Dey em	\sske1vabe	J @oksan 4les 1eDey em J @oksan 4les 1eCalr sem
: ES0806641	: CONSULTING EARTH SCIENTISTS : d S to Eff MK E W	: hwJES7OIMK NIWF13BH32fwKEWNEtc28, YJE13-32 -5HT-PYWMdIMWIV PMM&wJUJSK2f, SUMfY1090	: pAeylu D CsklbyGgealby@n @k :. 5318+5B00 :. 5310-18++-9TBB	: t ES0+0605HOX t	: 370-93	: cK :: I WEI 1	: SMOB5/08
Work Order	t lyeCo t Challo	l miless	EHI ay Uele4R Ce FaDsyn ye	PL jeĽb wlmeĽťČkn 7eĽ	t HwH 10kn 7eL	San 4leL Sybe	Qk berOkn 7eL

URISTIE4 LIDISK 4 ELSEMESTA OCT 14 LEIV KSTE4 LIDIS 1 AVERTIBAST LEOGLE OCDE OCM WESKINS 1 a44 Ir 1 b 1 LBE 1 san 4 le(s) 1 as 1 sk7n yoom Oct 11 4 ages 1 of 18 js 1 Le4 Lid Rai e 1 7 ee C1 DRE Doem 1 ad 44 Liem o L Lelease@

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- GeCelal1 n n eCts
- I Calr bDal1Mesklbs
- Skll gabet Ob If yn ys

JIUI1 DOLEmbermfa7 Lab Lr18-+

WORLD RECOGNISED ACCREDITATION

I Demyemfo L'D n 41 ya CDe 14 yrR1 aDDenytaby Cleqkyten eCts@ URs 1m Dkn eCdys 1yskem/C1 aDD Ima@e1AyR11 UI 1 15w/1Et 1360-+@

Signatories URs1 m Dkn eCal Ras1 7eeC1 eleDbL Opballr1 sygCem1 7r1 Bre1 aktR lyzem1 sygCab lyes1 yCmDatem1 7el A@ EleDbL OpD1 sygCyCg1 Ras1 7eeC Dallyerni kbijCD n 41yaCDe 14 yR14L Denkles 154eDgemijC+31 FWPalb33@

	)	
Signatories	Position	Accreditation Category
I sPA JOJS Patn a	fa7 Lab Lrtd a CageL	YC LgaO/Ds
N atlgkreC		YC IgaOjDs
Pa7ySk77a	SeOy L1w1gaO,D1 Ren ysb(V labyle)	YC IgaOjDs
Pa7ySk77a	SeCy LtwtgaOpt Ren ysb(V lable)	wlgaOyDs

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#### General Comments

URE 1 a Calingball 14. Denk Lest Keem 7.1 1961 E G 12. Ch. e Caal 1 v y sy C1 Rai e 1 7 e e C1 mei el 4 em 1 d. n 1 esta 7 lys Remi yober Load oal n'i 1 Le D g Opzemi 4. Denk Lest 1 sK as 1 1 R se 1 4 k 7 lys Remi 7.1 1961 i SEP 1 2/1 1 PN 1 2/1 1 S1 a Omi J EP d @ XC1 R kse 1 mei el 4em/4L DenkLes/alle/en 4l rem/CMPe ta7seCDe1 ofm Dkn eCoem/sbacmalns/1 LT/r 1DyeColLegkest@

K ReLeth york Letherbelln yolday C'Ras Tee C'44 Leo Lin em 21 eskilos falle 1 Lether Coath 1.4 ey gRomasys@

K ReLetate4 Libermless 19aC(<) Lesk logs FlogReL118aC19e1 w/213s, har 17e thke to 4 yn alr tan 41e textadbingestabe trykty CBOM LijOskogeObsan 41erb LaCalisse@

K ReLether flww 1 of 164 Liberilleskildmoods to be transcript in standarm www. 248 sh ar 176 the bing Right is the Data Cook and 164 (Lenk Dem Asyl Bender 14 ren) 1 Lh alby 1 Che Los (Lenk Dem Asy

K Pechale(s) acm Ltyn e(s) tale talk ACT/alpetem 2007es (Pai e Tee Classkn em Tr 10e 1a7 1ab ir to L14L Dessyg 4kkla ses@00be tan 4lyg tyn eig typstalaremtas 0:00 10e 1yo in aly Chas C b4L i ynem Tr Dje O@

t IS11 kn 7eL1=11 Ren ystbr11 7stbaDb/SeliyDes1Ckn 7eL cer1

f wWFf yn yd oled LbCg

^ + URIS Leskiblis D n 4 kbemid n 1/0mj ymkal ta Calribe thebeDby Cs'abi Lta7 i e the 1 ei 1 olle4 Lb/0g

LCS recovery for Cadmium falls outside ALS Dynamic Control Limit. However, it is within the acceptance criteria based on ALS DQO. No further action is required.



: 91 of5 : ES0805593 : t wJS, f UY G/EI WAN'St YEJ U/SUS : t ES0+0605HOt t Page Klp1wlmeL t lyeCo PLjeCb

Analytical Results

•									
Sk7Hd albyx: SOIL		Ö	Client sample ID	120508-216-KW	120508-230-KW	120508-260-KW	ቜ	<b>≣</b>	
	Ö	ient sampl	Client sampling date / time	3-HIIMH00813+:00	3-HI MH 00813+:00	3- HI MH 00813+:00	<b>=</b>	<b></b>	
Compound	CAS Number	LOR	Unit	ES0806641-001	ES0806641-002	ES0806641-003			
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	#	3@	%	16.4	22.1	15.2	<b>=</b>	<b></b>	
EG005T: Total Metals by ICP-AES									
Arsenic	<b>Н8Н</b> 0669	+	6d/6 u	<b>†</b>	<b>*</b>	22	<b>=</b>	<b></b>	
Cadmium	#HL₩0669	က	6d/6 u	\$3	\$	٧3	<b>=</b>	<b>I</b>	
Chromium	H96H0669		6d/6 u	2	Ÿ	2	₹	≣	
Copper	<b>₩10+10669</b>	+	6d/6 u	<b>†</b>	<b>†</b>	ţ	<b></b>	<b>I</b>	
Lead	69TBHB-H3	+	6d/6 u	<b>†</b>	<b>*</b>	ţ	<b></b>	<b>I</b>	
Nickel	ФН-ФН0669	1	6d/6 u	v	Ÿ	v	<b>=</b>	<b></b>	
Zinc	6990H25H2	+	6d/6 u	<b>†</b>	+>	ţ	<b>=</b>	<b>=</b>	
EG035T: Total Recoverable Mercury by FIMS	-IMS								
Mercury	69TB <del>IB</del> 6H <del>5</del>	<b>®</b>	6d/6 u	<b>®</b> 0>	<b>®</b> 0>	<b>©</b> 0>	<b>=</b>	<b>I</b>	
EP075(SIM)A: Phenolic Compounds									
Phenol	308Æ+H	<b>®</b>	6d/6 u	<b>=</b>	<b></b>	₩0>	<b>=</b>	<b>I</b>	
2-Chlorophenol	B+H618	<b>®</b>	6d/6 u	<b>=</b>	<b>=</b>	<b>@</b> 0>	#	<b>=</b>	
2-Methylphenol	B+H98H€	<b>®</b>	6d/6 u	<b>=</b>	<b>=</b>	<b>@</b> 0>	<b>=</b>	<b></b>	
3- & 4-Methylphenol	3T3B <del>I6</del> 6H	<b>@</b> 8	6d/6 u	<b>=</b>	<b>=</b>	<3@	<b>=</b>	<b></b>	
2-Nitrophenol	88 <del>I&amp;</del> +H	<b>®</b>	n g/pg	≣	≣	<b>®</b> 0>	₹	<b></b>	
2.4-Dimethylphenol	30+H <del>2</del> 6HB	<b>®</b>	6d/6 u	₹	<b>#</b>	₩0>	<b>=</b>	<b>I</b>	
2.4-Dichlorophenol	3- 0H8TH	<b>®</b> 0	bd/b u	<b>=</b>	<b>=</b>	<b>@</b> 0>	<b>=</b>	<b></b>	
2.6-Dichlorophenol	861€+H0	<b>®</b> 0	n g/pg	≣	≣	<b>®</b> 0>	₹	<b></b>	
4-Chloro-3-Methylphenol	+BH0H@	<b>®</b> 0	bd/b u	<b>=</b>	≣	₩0>	<b></b>	<b></b>	
2.4.6-Trichlorophenol	88H05H	<b>®</b>	6d/6 u	<b></b>	<b></b>	₩0>	<b>I</b>	<b>I</b>	
2.4.5-Trichlorophenol	B+IB+I9	<b>®</b>	bd/b u	<b>1</b>	<b></b>	❸0>	<b>I</b>	<b>I</b>	
Pentachlorophenol	86185H	<b>(3)</b>	n g/pg	≣	≣	<b>@</b> ->	<b>I</b>	≣	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	rocarbons								
Naphthalene	B3H0H	<b>®</b>	bd/b u	<b>=</b>	≣	₩0>	<b>=</b>	ቜ	
Acenaphthylene	- 08HB5H8	<b>®</b>	bd/b u	<b>=</b>	<b></b>	₩0>	<b>=</b>	≣	
Acenaphthene	8TH- IB	<b>®</b>	n g/pg	≣	≣	₩0>	≣	≣	
Fluorene	8516TH6	<b>®</b>	bd/b u	<b>=</b>	≣	₩0>	<b>=</b>	ቜ	
Phenanthrene	8+H03H8	<b>®</b> 0	n g/pg	≣	≣	<b>®</b> 0>	₹	<b></b>	
Anthracene	3-0H3-H6	<b>®</b>	bd/b u	<b>=</b>	<b>#</b>	<b>®</b> 0>	₹	≣	
Fluoranthene	- 05H99H0	<b>®</b> 0	bd/b u	₹	<b>=</b>	<b>@</b> 0>	<b>=</b>	<b>I</b>	
Pyrene	3- ВНООНО	<b>®</b> 0	bd/b u	<b>=</b>	<b>=</b>	<b>®</b> 0>	<b>=</b>	<b></b>	
Benz(a)anthracene	+9H+H	<b>®</b> 0	bd/b u	₹	<b>=</b>	<b>@</b> 0>	<b>=</b>	<b>≣</b>	
Chrysene	- 38H03HB	<b>®</b> 0	bd/b u	<b>=</b>	<b>=</b>	<b>@</b> 0>	#	<b>=</b>	
Benzo(b)fluoranthene	+HBBH+0-	<b>®</b>	6d/6 u	<b>=</b>	<b>=</b>	<b>®</b> 0>	<b>=</b>	<b>I</b>	
Benzo(k)fluoranthene	- 06H08HB	<b>®</b>	n g/pg	≣	≣	<b>®</b> 0>	≣	≣	
Benzo(a)pyrene	+0H-H8	<b>@</b>	n g/pg	<b>=</b>	≣	~0 <b>@</b>	<b>=</b>	≣	

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t wJS, fUNGEI WUNSTEJUSUS t ES0+0605HOt t ES0805593 K lp1wlmel PL jeDo

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Analytical Results

**≣ ≣ ≣**|**≣**|**≣** 1 **■ | ■** ≣|≣|≣|≣ ■ ■ **≣**|**≣**|**≣** ı 3- HI MH 00813+:00 120508-260-KW ES0806641-003 **⊕** ⊖ ∨ **⊕**0∨ <300 **® ®**0> **⊕** 0∨ <300 **®**0× 83.4 9.89 88.0 80.9 101 99.6 Q+ V <30 3-14 I MH 00813+:00 120508-230-KW ES0806641-002 **∄ ∄ ∄ ■■ ≣ |≣** |**≡** 3-Hd I MH 00813+:00 120508-216-KW ES0806641-001 **■■ ∄ ∄ ∄ ■**■ **≣**|**≣**|**≣** Client sample ID Client sampling date / time n g/pg Unit % % % % % % % % % LOR **8 8 8 8 8 8** 300 0 0 0 30 우 EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued ≣≣≣≣ +TI®0HT CAS Number 3BTHTBH 3B3H9H 63H9TH 308H88H 300H93H9 308H8H130519-H B+19615 3T3-6H88H BTB+3H6TH5 338H6BH5 T-3H20H8 3638**1**+31€ 36050H06H0 - 0T6H5H 950H00H9 363BH05H8 EP075(SIM)S: Phenolic Compound Surrogates EP080/071: Total Petroleum Hydrocarbons EP080S: TPH(V)/BTEX Surrogates EP075(SIM)T: PAH Surrogates Indeno(1.2.3.cd)pyrene 4-Bromofluorobenzene Dibenz(a.h)anthracene 1.2-Dichloroethane-D4 2.4.6-Tribromophenol Benzo(g.h.i)perylene meta- & para-Xylene 2-Chlorophenol-D4 C10 - C14 Fraction C15 - C28 Fraction C29 - C36 Fraction 2-Fluorobiphenyl 4-Terphenyl-d14 C6 - C9 Fraction Sk7Hd abyx: SOIL Anthracene-d10 **EP080: BTEX** Ethylbenzene ortho-Xylene Toluene-D8 Compound Phenol-d6 Benzene Toluene





: 51 of5 : ES0805593 : t wJS, f UY G/EI WUN'St YEJ U/SUS : t ES0+0605HOt t t lyeCo PL jeCb

Page K tp1wtmeL

### Surrogate Control Limits

Sk7Hd albyx: SOIL		Recovery Limits (%)	Limits (%)
Compound	CAS Number	Том	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	3T3-6H88H	6-	33T
2-Chlorophenol-D4	BTB+3H6TH5	Ļ-	3T9
2.4.6-Tribromophenol	338H6BH5	3B	3
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	T- 3H20H8	T0	33+
Anthracene-d10	363BH05H8	9-	ЗТТ
4-Terphenyl-d14	36381+31€	38	3T6
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	36050Н06НФ	80	3-0
Toluene-D8	- 0T6H5H	83	336
4-Bromofluorobenzene	€100+056	69	3-3





### **Environmental Division**

# CERTIFICATE OF ANALYSIS

184	1 Evnnif v D Pvy sal mmenfiv & Ccv PC 1 hew InvnoSwitDI 1344238- of ffcpltk Aflc & Dnywin Psc & Sioneytlsh & 67	1 hewJ IvnSW tDI @I sePvrmf .M D 1+6 23:2487:6555 1+6 23:2487:6500 1BEgKo cs/MrPcusPH(F)d vcchbSQ2i SFdPqunPDPvy	1 72K hV23008 13F2K hV23008 13
1 of Lo4	1Evr 1hev 1344	1 hev 1 +6 1 +6 1 BEç	1 72 1 3 F 2 1 3
gl:P	blrftlyfC i fvyl My hcctRee	E2D Ins TP9pwf v P al Mendins Qi dophres	d I yPGI D psPeck PNAPmPC ReulPal yP Bf of Lat D psPead PNAPmPC Bf of Lat D psPead v I scPPC
: ES0806723	1CONSULTING EARTH SCIENTISTS 1KSOYEDDWG ERA 1CNBESCHIWG 9hAao-23, don! EAGIE! Y, & URTEO 3, 36273g Rahkhoanhd gwak NBT & SI, do USTAhbra & 8070	1kJ Ph@M veusyv: Pl tywM D.I u 1+6	12222 1 F0373 1b.ŒBYRBS/Y.I ERA 1hAEhdn 1SW0-6/08
Work Order	i s₽vy i f vy My hcctPee	E2D Ins TP95pwivP al MenDna? gtfjPwy	NtcRouldr R i 2N2 ouldr Pt SI Dp&t SiyP Quf yPouldr R

Twee tPpf to eup ReParen I voor pt Pmiling uee tPpf ty(e) o Jinywo ywee of PPRPVMP o A Peuseo I ppstory of an Dipstory of eo eur DinyPac o haso pliced to wineo tPpf to will mee 
Twineoi Ptyndun JyPof Loh v I scenerol M vy in egwydd se'd in y con ll tD I yri v 1

- GPvPtl si f DDPvye
- hvl sQrM sA Peuse
- Suttf: I yPo f vytf storiD rye



Bh Th oh MMPcn/Pcobl rftl yft C0835 o Twreccf MiD Pvyoreoneu Pcowo I MM tcl vMPolnywoBh Tho

h MMPcryPcdftdvfl Dpsh v MPol rywo RSN/REi o 4035.

WORLD RECOGNISED
ACCREDITATION

I MMPcny yn va PqunPD Pvye.

Twee of MLD Payo wile or PPay Panylit or the action of the proof of the pay o Signatories

MittiPcd uyavdvi Dpsh vMPol nywqptf MPcutPecepPMLirPcava3 oʻaAqgltyo.

Signatories

Signatories

HewLinds it Dlingt it yitakli vinita wPoney

Borif toNt: Link wPoney

Reft: Linke

Ecul vocael cjilt SPvrif toNt: Linko wPoney

Nt: Linke

SPvrif toNt: Linko wPoney

Nt: Linke

9f1 d8: uCPv

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1 i NBSUbTRBGEhAT9 SSI REBTRSTS 1 i ES0504062Hi i 1 ES080643F I ftkoNtcPt gtf jP₩ i siPvy

#### General Comments

TWPOINISOM SOFT MOUNTED UNDESTROUT BOUND WIND THOSE THOSE OF TO WIND THOSE OF THOSE cPnPs pPcapt MPcut Ped tPdD ps GPconyomPd rePVMPd Lact NuD PvyPcasy volitoed to COMsPvyd PquPey

- I wARPOD fregut Por BARD INIty from lear PPV at PLf tDPc, d Peused tPdPpf tyPc of volational Physial ere.
- I WPPd dPpf tyPcaPeegw, v(<)dPeugamoun wPtgwl vgwPdnA,gwmed) (or PocuPaj optid) tom I psPdxyl M/cn Pey yocnsuni vd vc/f taveullinPvymel DpsPdf td vI scher.
- I WPROWADNAGID OFFTYPCA BEUSCHIRECHT DOED VOLICONA, GWOOD OF DOUDGEON WOOF REUTROM VYD YOW BUILD NOW DOED (FOUNDED IN WADDES OF TO) IT WAS INVESTIBLED BY THE PRINT.
- | WPvalyPelovoftgnDP(e) of tPawijvat | MRPPc,gwPePoulnPaPPvo eauDPcaCywPeirm | titytCditqntf MPeer; autpfePe. AlgowPealDpav: gnDPaeaneps Chock ear DogwPavItDIyfvalleorfyant nnePoarCodokPry
- ih SoBu Dr Ptoroj wPDneyt Cohreyt I MycSPtmMPeovu Dr Pt YPO

**bNAGebriD** ryd LdPpf tyw:

^e-JwedPeusgeold DpuyPcdtf Davcmmeul so vl sQPacPyPlyfived of to rf mPowPaPnPsd LdPpf tyw:



gl:P IftkoNtcPt isaPvy gtfjPMy

Analytical Results

•								
Sur 2KI ytik: SOIL		Clie	Client sample ID	130508-288-KW	222	222	222	2222
	Clie	nt sampli	Client sampling date / time	F2K hW23008o 5100	222	2222	222	ZZZ
Compound	CAS Number	LOR	Unit	ES0806723-001	!	1	1	ļ
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	222	o.	%	12.3	222	222	2222	2002
EG005T: Total Metals by ICP-AES								
Arsenic	4770 <del>Z</del> 823	2	D: /k:	<5	222	222	2222	2222
Cadmium	47702/F2		D: /k:	v	222	222	2222	2002
Chromium	4770四4	က	D: /k:	8	222	222	2002	2002
Copper	477025028	2	D: /k:	<5	222	222	2222	2002
Lead	47F-2-32	2	D: /k:	<5	222	222	2002	2002
Nickel	477020320	က	D: /k:	8	222	222	2002	2002
Zinc	47702626	വ	D: /k:	<5	222	222	2222	2222
EG035T: Total Recoverable Mercury by FIMS	IMS							
Mercury	47F-2-426	o	D: /k:	-0>	222	222	2222	2002
EP074A: Monocyclic Aromatic Hydrocarbons	ons							
Benzene	4 Z/F23	0.3	D: /k:	<0.3	2222	2002	<b>ZEZ</b>	255
Toluene	08288年	0.5	D: /k:	<0.5	222	222	2222	2002
Ethylbenzene	Z Z00	0.5	D: /k:	<0.5	222	222	2222	200
meta- & para-Xylene	08无8无0 0623无	0.5	D: /k:	<0.5	222	222	2222	2002
Styrene	0027325	0.5	D: /k:	<0.5	222	222	2222	2222
ortho-Xylene	- 57/426	0.5	D: /k:	<0.5	222	222	2222	2002
Isopropylbenzene	- 828328	0.5	D: /k:	<0.5	222	222	2222	222
n-Propylbenzene	0F2652	0.5	D: /k:	<0.5	222	222	2222	222
1.3.5-Trimethylbenzene	0828428	0.5	D: /k:	<0.5	222	222	777	2002
sec-Butylbenzene	F52-828	0.5	D: /k:	<0.5	222	222	2002	2222
1.2.4-Trimethylbenzene	- 526F26	0.5	D: /k:	<0.5	222	222	2222	2002
tert-Butylbenzene	- 82062B	0.5	D: /k:	<0.5	222	222	2222	2002
p-IsopropyItoluene	28426	0.5	D: /k:	<0.5	222	222	2222	2222
n-Butylbenzene	0725 28	0.5	D: /k:	<0.5	222	222	777	<b>2</b>
EP074B: Oxygenated Compounds								
Vinyl Acetate	0820527	2	D: /k:	<5	222	222	2222	2002
2-Butanone (MEK)	482 FÆ	2	D: /k:	<5	222	222	2002	2222
4-Methyl-2-pentanone (MIBK)	082 02	2	D: /k:	<5	222	222	2222	2002
2-Hexanone (MBK)	5- 24826	2	D: /k:	<5	222	222	7777	222
EP074C: Sulfonated Compounds								
Carbon disulfide	452 52D	0.5	D: /k:	<0.5	222	222	2222	2222
EP074D: Fumigants								
2.2-Dichloropropane	5- 723024	0.5	D: /k:	<0.5	222	222	2222	2222
1.2-Dichloropropane	4828422	0.5	D: /k:	<0.5	222	222	2222	2222
cis-1.3-Dichloropropylene	006 XD ZE	0.5	D: /k:	<0.5	222	222	2002	222



gl:P IftkoNtcPt isnPvy gtfjPMy

156 Lot 1 ES080643F 1 i NBSUDTREGÆNAT9 GSI ÆBTRSTS 1 i ES0504062Hi i

#### Analytical Results

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SULANIYIK: SOIL	į	5	Ciletti sample 10	130508-Z88-KW	7/1	777	7777.	7777
	Clie	nt samplir	Client sampling date / time	F2K hW23008o 5100	7777	7777.	7777	
Compound	CAS Number	LOR	Unit	ES0806723-001	1	I		:
EP074D: Fumigants - Continued								
trans-1.3-Dichloropropylene	006 20328	0.5	D: /k:	<0.5	222	2222	2002	2002
1.2-Dibromoethane (EDB)	062-FZ	0.5	D: /k:	<0.5	222	222	2002	2002
EP074E: Halogenated Aliphatic Compounds	spur							
Dichlorodifluoromethane	4524 28	2	D: /k:	<5	222	200	2222	2002
Chloromethane	47284F	2	D: /k:	<b>\</b> 2	222	2002	2222	2002
Vinyl chloride	45Z) Z	2	D: /k:	<b>~</b> 2	222	2002	2222	2002
Bromomethane	4728F2	2	D: /k:	<b>^</b> 2	222	200	2222	2222
Chloroethane	45200Æ	2	D: /k:	<5	222	2002	2002	2002
Trichlorofluoromethane	45æ- Z	2	D: /k:	<5	222	200	2222	2002
1.1-Dichloroethene	45Æ5Z	0.5	D: /k:	<0.5	222	222	2222	2222
Iodomethane	4728827	0.5	D: /k:	<0.5	222	2002	2002	2002
trans-1.2-Dichloroethene	5628025	0.5	D: /k:	<0.5	2222	2002	2002	2002
1.1-Dichloroethane	45Æ7Æ	0.5	D: /k:	<0.5	222	222	2222	2002
cis-1.2-Dichloroethene	5625-23	0.5	D: /k:	<0.5	222	222	2222	200
1.1.1-Trichloroethane	4 2528	0.5	D: /k:	<0.5	222	222	2002	2002
1.1-Dichloropropylene	56F25825	0.5	D: /k:	<0.5	222	222	2002	2002
Carbon Tetrachloride	5628F25	0.5	D: /k:	<0.5	222	222	2002	2002
1.2-Dichloroethane	0420623	0.5	D: /k:	<0.5	222	222	2222	2002
Trichloroethene	4- XD XB	0.5	D: /k:	<0.5	222	222	2002	2002
Dibromomethane	4725Æ	0.5	D: /k:	<0.5	222	222	2222	2222
1.1.2-Trichloroethane	4- 2002	0.5	D: /k:	<0.5	222	222	2002	2002
1.3-Dichloropropane	732382	0.5	D: /k:	<0.5	222	222	2002	2002
Tetrachloroethene	342 8Z	0.5	D: /k:	<0.5	222	222	2002	2002
1.1.1.2-Tetrachloroethane	6F023026	0.5	D: /k:	<0.5	222	222	2002	2002
trans-1.4-Dichloro-2-butene	025428	0.5	D: /k:	<0.5	222	222	2222	2222
cis-1.4-Dichloro-2-butene	7462 35	0.5	D: /k:	<0.5	222	222	2222	2222
1.1.2.2-Tetrachloroethane	4- F7B	0.5	D: /k:	<0.5	222	222	2002	2002
1.2.3-Trichloropropane	- 62 82	0.5	D: /k:	<0.5	222	222	2002	2002
Pentachloroethane	462D 24	0.5	D: /k:	<0.5	222	222	2002	2002
1.2-Dibromo-3-chloropropane	- 62 328	0.5	D: /k:	<0.5	222	222	2002	2002
Hexachlorobutadiene	84Æ8Æ	0.5	D: /k:	<0.5	222	222	2222	2222
EP074F: Halogenated Aromatic Compounds	spur							
Chlorobenzene	082-024	0.5	D: /k:	<0.5	222	222	2002	2002
Bromobenzene	082862	0.5	D: /k:	<0.5	222	2222	2002	2002
2-Chlorotoluene	- 57-28	0.5	D: /k:	<0.5	222	222	2002	2002
4-Chlorotoluene	06ZFZ	0.5	D: /k:	<0.5	222	222	2002	2002
1.3-Dichlorobenzene	57 24F2	0.5	D: /k:	<0.5	222	222	2002	2002
1.4-Dichlorobenzene	0627624	0.5	D: /k:	<0.5	222	222	2002	2222



ALS)

Analytical Results

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1 i NBSUbTRBGEhAT9 & REBTRSTS 1 i ES0504062Hi i

1 6d Lot 1 ES080643F

I ftkoNtcPt

l -I 222 i F2K h W23008o 5100 130508-288-KW ES0806723-001 <0.5 <0.5 <0.5 <0.5 <0.5 102 94.3 93.1 **2** Client sample ID Client sampling date / time D: /k: D: /₹: D: /₹: D: /k: D: |} D: /k: Cnit % % % LOR 0.5 0.5 0.5 0.5 0.5 0.5 2 o. o o. 8426 25 64266F - 230王 CAS Number 45234ZI 4523523 - 52502 406020420 302832 372782 30F423625 76020027 EP074F: Halogenated Aromatic Compounds - Continued **EP074G: Trihalomethanes EP074S: VOC Surrogates** EP074H: Naphthalene Bromodichloromethane Dibromochloromethane 1.2.4-Trichlorobenzene 1.2.3-Trichlorobenzene 4-Bromofluorobenzene 1.2-Dichloroethane-D4 1.2-Dichlorobenzene Sur 2KI ytrx: SOIL Naphthalene Bromoform Toluene-D8 Chloroform Compound





gl:P 146 L04
I ftkNtcPt 1 ES080643F
i sPvy 1 i NBSUbTRB.GÆhAT9.Gi ÆBTRSTS
gtf.jPN/y 1 i ES0504062Hi i

Surrogate Control Limits

Sur 2K1 ytrx: SOIL		Recovery	Recovery Limits (%)
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	4060204	80	30
Toluene-D8	30F423625	8	4
4-Bromofluorobenzene	76020027	47	က

# ALS Laboratory Group





### **Environmental Division**

# **CERTIFICATE OF ANALYSIS**

:1of5	: Ei nobi v ei ral mologoi St Diet : RsAh CCSAabv a : 3661-1889 Y ooD4atpl oaDSv @Yi@IDOSY Rksrbalol 315T	: RsAh C	: 15th RK18008 : 38th RK18008	ღ
Page	7aLobarott y oi radr RDDess	Elwac , ele4Aoi e Facs© (B	mare Sav 4les I ede@eD  Weske mare  Oo@f sav 4les bede@eD	Oo@f sav 4les ai alt seD
: ES0806438	: CONSULTING EARTH SCIENTISTS : c S ME77K Y EW : wJ OES NRK Y BRI F 19H\$1-7J Y EI mEy M. S2 WE 131- 35HJ3 PWI Rc R I J RM PKI c J O, OSY - R2 S, I R7WR 30T0	: phette doisklr@geatrActor (a)k : 51 8+593300 : 51 03 9++3TLB9	. y L30.00331Ny y : H#H :: 1385+9 :: M@ EW/7@EOM@S	: SK/095/08
Work Order	yll@ir yoiradr RDbess	EW aC , ele4Aoi e Fads© Ce	J 1Debi kv Leb y 14 1 y i kv Leb Sav 4 leb S@	Qkore i kv Leb

AG beatons skateboedes ait abendiks beatob(s) how rake before de@leskins adalit ro rake savalle(s) as sklv oreD@Ril ages of rake beaton Aane Leei daedpeD aiD adaboneD for belease@

, AG y ebradare of Ri alt sG doi raCs rAe folloh Cg Cfobv arGi :

- Gei ebal y ov v ei rs
- Ri alt r@al I esklrs
- Sktbogare yoi rbol 70 0s

OR, R RddceDceD7aLobarott 83+ , AG Dodkveir G GskeD € addobbai de h @A OR, R Rddbe DoeD fob dov 41@ideh @A 

WORLD RECOGNISED
ACCREDITATION

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, Aß Dodkveir Aas Leei elechtoi dallt sogieD Lt rAe akrAobd2eD sogiarobolas CDdareD Leloh @ Elechtoi da sogi Cg Aas Leei dattGDokr C dov 41@i de h CA 4bodeDkbes s4edCGDC 31 y FI Pabr 11@ Signatories

Signatories	Position	Accreditation Category
EDhai Dt FaDjab	Sei @bJ tgai d y Aev Gr	Wotgai Gs
EDhai Dt FaDjab	Sei ObJ bgai Cly Aev Gr	J tgai ds
Boa Ogkt ei		Wotgai @s
SabaAc @Cgroi	Sei ØbWotgai Ø y Aev Gr	Wotgai @s
VďrobMeDďagik	Nks@ess c ai ageb HOSY	Wotgai ds

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: yJOS27, WOGERI, BSyNEO, WG, S y ES0+0605HNy y : Uof 5 : ES0805938 Yotp J tDeb y l©eir Phojedr

General Comments

Ae ai altridial 4 bodeDkbs kseD Lt rAe Ein Oberivei ral middisoliveiral middisoliveiral middisoliveiral middisoliveiral seral ISAeD footes and a sind of the contract of the contract of the seral ISAeD footes and an analysis of the contract of the contrac Denelo4eD4badeDkbss abe ev 4lot eD @ rAe aLsei de of Dodkv ei reDsrai Dabbs obLt dl@i r beqkesr@

Y Aebe v o Sirk be Dereby Caroli Aas Leei 4 befoby e D. besklis abe be4o bre Did he GAr Las G

Y Aebe a be4obeDless rAai (<) beskir & A@AebrAai rAe 7JI-rA® v at Le Dke ro 4b0 att sav 4le exrbadr/D@esrare D0kr0i ai D'ob©skff@ir sav 4le fobai alt s©@

Y Aebe rAe 71 of a be4obre Deskir Doffets frow snai Dab D 71 - rAs v at Le Doke ro AgA v osnkbe doinein- Cskffdidein sav 41e (be DkdeD heg Arev 41oteD) ob v antos Crebfetaide

Y Aei Dare(s) ai D'obr@ e(s) abe sAohi L'adpereD rAese Aane Leei asskv eDLt rAe laLobanott fob 4 bodess@g 4 ktbdoses@MrAe sav 4 (@g r@ e @ D@4 late Das 0:00 rAe @fobv ar@i has i or 4 bon DeDLt dl@in@

y RS Okv Leb = y Aev Grtd RLsrtadr Setnides i kv Leb Met :

7J1 = 7@ @of be4obr@g

^ = , AG beskir G dov 4kreDfbov CDQCkal ai alt re Deredr@i s ar obaLone rAe lenel of be4obrCg



: T of 5 : ES0805938 : y J OS2 7, WOGERI, B Sy WEO, WS, S : y ES0+0605HNy y Page Yotp JtDeb y l@ir

Phojedr

Analytical Results

SkLht arbo: SOIL		Clie	Client sample ID	150508-K57-MW	150508-K82-MW	ቜ	<b></b>	<b>I</b>
	Clie	ent samplir.	Client sampling date / time	1+HC RKH3008 1+:00	1+I4 RKI3008 1+:00	<b>#</b>	<b>=</b>	<b>=</b>
Compound	CAS Number	LOR	Unit	ES0806438-001	ES0806438-003	1	1	1
EA055: i otsune Co9ue9u								
^ i otsunre Co9ue9u(drted @ 10KC)	<b>I</b>	<del>6</del>	%	1.7	1K6	<b>I</b>	<b>I</b>	<b>I</b>
EG005T: Toul i euals by ICP-AES								
Arse9tc	6TT0HUBH3	+	bd/b v	<b>*</b>	ţ	<b>=</b>	<b></b>	<b>1</b>
Cadmtnm	€TT0HU4	-	sd/b v	₹	7	<b>=</b>	<b></b>	<b></b>
Chromtnm	6TT0H6HU	ო	bd/b v	\$	7	<b></b>	<b></b>	<b></b>
Copper	8H0+H0L9	+	bd/b v	<b>†</b>	9	<b>=</b>	<b></b>	<b></b>
Lead	6TU9H93H	+	6d/6 v	9/	4	<b>=</b>	<b></b>	<b>1</b>
Ntckel	6TT0H03H0	က	bd/b v	8	8	<b>=</b>	<b></b>	<b></b>
Zt9c	6TT0H55H5	+	sd/b v	1K	36	<b>=</b>	<b></b>	<b></b>
EG0K5T: Total Recoverable i ercnry by Fli	y Fli S							
i ercnry	€H96H6T9	<b>©</b>	6d/6 v	<b>©</b> 0>	<b>©</b> 0>	<b>=</b>	<b></b>	<b>≣</b>
EP025(Sli )B: Poly9nclear Aromatc Hydrocarbo9s	rdrocarbo9s							
Naphthale9e	911 <del>3</del> 0HU	<b>®</b>	bd/b v	₩0>	<b>I</b>	<b></b>	<b></b>	<b></b>
Ace9aphthyle9e	30819518	<b>®</b>	bd/b v	₩0>	<b>=</b>	<b></b>	<b></b>	<b></b>
Ace9aphthe9e	8UHBH9	<b>®</b>	bd/b v	₩0>	₹	<b>=</b>	<b></b>	<b></b>
Finore9e	8516Uf6	<b>®</b>	bd/b v	₩0>	₫	<b>=</b>	<b></b>	<b></b>
Phe9a9 thre9e	8+10118	<b>®</b>	bd/b v	₩0>	₫	<b>=</b>	<b></b>	<b></b>
A9thrace9e	130H3H6	<b>®</b>	bd/b v	₩0>	₹	<b>=</b>	<b></b>	<b></b>
Finora9 the 9 e	305HTH	<b>®</b>	bd/b v	₩0>	₫	<b>=</b>	<b></b>	<b></b>
Pyre9e	139H00H0	⊕0	v g/pg	₩0>	<b>#</b>	<b>=</b>	<b></b>	<b></b>
Be9z(a)a9thrace9e	H+H9+	⊕0	sd/b v	₩0>	<b>=</b>	<b>=</b>	<b>=</b>	<b>I</b>
Chryse9e	318H01H9	<b>@</b>	sd/b v	₩0>	ቜ	<b>=</b>	<b></b>	<b></b>
Be9zo(b)finora9 the9e	30+H99H3	<b>®</b>	bd/b v	₩0>	₫	<b>=</b>	<b></b>	<b></b>
Be9zo(k)finora9uhe9e	306H08H9	<b>@</b>	6d/6 v	₩0>	₫	<b>=</b>	<b></b>	<b>1</b>
Be9zo(a)pyre9e	#19H0+	<b>@</b>	sd/b v	₩0>	₫	<b>=</b>	<b></b>	<b></b>
19de9o(1.3.K.cd)pyre9e	19UHUBH	<b>®</b>	bd/b v	₩0>	₫	<b>=</b>	<b></b>	<b></b>
Dtbe9z(a.h)a9thrace9e	PLOBID+	<b>®</b>	bd/b v	₩0>	₫	<b>=</b>	<b></b>	<b></b>
Be9zo(g.h.t)peryle9e	19118TH3	<b>@</b> 0	v g/pg	<b>@</b> 0>	<b>#</b>	<b>=</b>	<b></b>	<b></b>
EP080/021: Total Petrolenm Hydrocarbo9s	s60							
C6 - C4 Fracuto9	<b>I</b>	10	6d/6 v	<10	<b>I</b>	<b>=</b>	<b></b>	<b>1</b>
C10 - C17 Fracuto9	<b>I</b>	0+	bd/b v	0+>	₫	<b>=</b>	<b></b>	<b></b>
C15 - C38 Fracuto9	<b>I</b>	100	bd/b v	<100	₫	<b>=</b>	<b></b>	<b></b>
C34 - CK6 Fracuto9	#	100	v g/pg	<100	<b>≢</b>	<b>=</b>	<b></b>	<b>≣</b>
EP080: BTEX								
Be9ze9e	61HU#	<b>®</b>	bd/b v	<b>®</b> 0>	<b>=</b>	<b>=</b>	<b></b>	<b>≣</b>
Tolne9e	108H88HU	<b>@</b>	sd/b v	₩0>	ቜ	<b>=</b>	<b></b>	<b></b>
E.h./lbo0100	100H1H	<b>®</b>	v a/ba	€00>	<b>1</b>	<b>1</b>	<b>=</b>	





: + of 5 : ES0805938 : y JOS27, WOGERI, BSy WEO, WS, S : y ES0+0605HNy y Page YobpJbDeb y l@ir Phojedr

Analytical Results

SkLlt artos: SOIL		Clier	Client sample ID	150508-K57-MW	150508-K82-MW	重	重	<b></b>
	Clie	ent sampling	Client sampling date / time	1+1¢ RK13008 1+:00	1+14 RK13008 1+:00	<b>=</b>	<b>±</b>	<b>=</b>
Compound	CAS Number	LOR	Unit	ES0806438-001	ES0806438-003	1	1	1
EP080: BTEX - Co9ugned								
meta- & para-Xyle9e 108HBH	108HJBHJ 105H3HJ	<b>@</b> 0	6d/6 v	₩0>	<b>=</b>	##	<b>=</b>	ቜ
ortho-Xyle9e	9+H6H <del></del> €	<b>@</b>	sd/b v	₩0>	<b>=</b>	<b>=</b>	<b>=</b>	<b>=</b>
EP025(Sli )S: Phe9oltc Compon9d Snrrogaues	(0							
Phe9ol-d6	1U136H88HU	<b>®</b> 0	%	105	<b>=</b>	#	<b>=</b>	<b></b>
3-Chlorophe9ol-D7	9U9+1H6UH5	<b>©</b>	%	20.4	<b>=</b>	##	≣	ቜ
3.7.6-Trtbromophe9ol	118 <del>16</del> 91 <del>5</del>	<b>©</b>	%	20.7	#	#	<b>=</b>	<b>=</b>
EP025(Sli )T: PAH Snrrogaues								
3-Finorobtphe9yi	UB11450148	<b>®</b> 0	%	8K8	<b>=</b>	#	<b>=</b>	<b></b>
A9thrace9e-d10	1619H05H8	<b>©</b>	%	26.6	<b>=</b>	##	<b>=</b>	<b></b>
7-Terphe9yl-d17	1618H+1H	<b>©</b>	%	8K4	<b>=</b>	<b>=</b>	<b>=</b>	<b>=</b>
EP080S: TPH(V)/BTEX Snrrogaues								
1.3-Dtchloroeuha9e-D7	16050Н06НФ	<b>©</b>	%	40.1	<b>=</b>	#	<b>=</b>	<b>=</b>
Tolne9e-D8	30U6H85H	<b>©</b>	%	84.K	<b>=</b>	#	<b>=</b>	<b>=</b>
7-Bromofinorobe9ze9e	T50H00H	<b>©</b>	%	24.5	<b>=</b>	<b>=</b>	≣	<b>=</b>





: 5 of 5 : ES0805938 : y JOS27, WOGERI, BSy WEO, WS, S : y ES0+0605HNy y Page YobpJbDeb

y l@i r Phojedr

### Surrogate Control Limits

SkLlte arts: SOIL		Recovery Limits (%)	Limits (%)
Compound	CAS Number	Том	High
EP025(Sli )S: Phe9oltc Compon9d Snrrogaues			
Phe9ol-d6	1U136H88HU	3Т	110
3-Chlorophe9ol-D7	9U9+1H6UH5	30	101
3.7.6-Trtbromophe9 ol	118 <del>16</del> 91 <del>5</del>	19	133
EP025(SII )T: PAH Snrrogaues			
3-Finorobtphe9yl	U311501€	3	11+
A9thrace9e-d10	1619H05H8	36	U1
7-Terphe9yl-d17	16181+111	18	106
EP080S: TPH(V)/BTEX Snrrogaues			
1.3-Dtchloroeuha9e-D7	16050Ю6Ю	80	130
Tolne9e-D8	30U6H85H	81	116
7-Bromofinorobe9ze9e	T50H00H	Т9	131

# ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



### **Environmental Division**

# **CERTIFICATE OF ANALYSIS**

a:10f	gEin Obiv sinFatm 1900 CinSt Dist gRIA h COSAFby F g255-28H1Y DPFbX1 FDYSv OAOSADYDSY PRuln Fa6F12:94	g RIA h CCSAFbv F@F4sin 00.dv g+9:-2-858418fff g+9:-2-858418f00	gOEec 1 HHffSdAsDuæ N(6) Fi DR7SfQy S6fæqu@sv si r g2: -c RK-2008 g28-c RK-2008 g; g;
e FPs	7FL bFr bt y inFdr RDDsll	E-v F@ TsæpAis 3Fdl@@a	Cy 17 snsa  mFrs 15 Fv pæl 1 sds GsD  W us 11 Frs  O .1 of Fv pæl 15 ds GsD  O .1 of Fv pæl 15 fål sD
: ES0807086	aCONSULTING EARTH SCIENTISTS aC SIVETTKIY EW awJ OESINRKIY BRI 31 H.2: ,17.1 Y EI 1 mEy M. SUVVE1 2: , 29-62'EWI RC R1 J Rm eKI c J OT1OSY , RUSTI RTVR 2040	gkh s@@d i Lua©PsFbAd v .Fu g+9: 18f 9H2200 g+9: 1021Hf f 246HH	qy ES0f 0509-Ny y q q q q
Work Order	yasir y inFoh RDOsill	E-vFGa TsospAis 3Fdl CoGo	eb jsdr J tDsb1 uv Lsb y-J-y1 uv Lsb SFv pæb SGs

TACT tsp br11 upsb sDs17 Fit1 pbsnCul1 bsp br(1)1 h CA1 rAC1 bsc bsids ds.11 sluar 1 Fppal1 r 1 rAs11 Fv pas(1)1 Fl11 uLv GrsD.1 Radip FPsl1 of rAC1 tsp br1 AFns1 Lssi1 dAsdksD1 FiD1 Fppb nsD1 ot baseFIs.1

TACTy stronders 1 or Ri Fall Ctd in FCI 17AS to an h CP1Co by Frcig

- GsisbFaty vvsirl
  - Ri Fair of Fail sluar
- Subb PFrs 1y in b a 170 d

OR		_
<	NATA	>

TRANSPORDMENTEL OF DE 1829 TAC1D duv si r1C1Cl usD1C1 Foldbs DOFrCi 1bsquOsv sinl. Fdd bDFids th @AtORTR1

Rddbs Dobs Dho btd v paffids 11 (PA) VSU /VEY 1 502f.

WORLD RECOGNISED ACCREDITATION

*Signatories* TAC1D duv sir1 AFI1 Lssi1 sasdobioGrand IGN sD1 Lt1 rAs1 FurA b2sD1। GN Fr b3I1 CDQFrsD1 Lsah.1 Easdobio71। GN CP1 AFI1 Lssi

Signatories	Position	Accreditation Category
B FtOPutsi		W BPFI GII
e FLŒ ULLF	Ssi Cbul bPFi Clify Asv Crt(V AFrOB)	W BPFI (CIII
eFLŒNLLF	Ssi Cbu bPFi Gtv Asv Crt(V aFra)	J BPFi @

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#### General Comments

TAS1 FiFandFalip discussitut SD1 Lt1rAs1 Ein Obivisin Falim Obivis DensapsD1pb dsDubsl Fbs 1sv patsD1C 1As FLIsids1 onD duv sirsD1 nFi DFb0 1 b1Lt 1da6sin baquslr.

Y ASBS 1/ CLUBS OBSISD OFFICE 14PF 1LSS I 10050 by SD, 1031 LIBS 1030 1 1 FOLI 1 1 S GATLFIC.

Y ASIS FEDS DISELLITATE (<) TO LIGHT (<) TO LICENSTATE TO STATE (TO DESTITE DIST DESTINANCE OF TO DESTITE DISTANCE 
YASB 148 17 JI 10 F10sp brsD10sl uarD00sb1 10b v 1 nFiDFD17 JI 140C 1v FtLsDust 140C Av Crubs 1d insin, 10cl uoodGin1Fv poor (150 DudsD1ns0Parksv patsD)1 blv Fn103 1C subsbasib ids.

Y Asi OFIS(1) Fir or brows (1) Fibs 1A hi LEGASTSD 1ASI STAFTS LSSI FILLY SOLIT 1ASI FILL IF IET IET OF BOD ASI (OFPUID) ISI MANAS IFV PACPTO BROWD STOCK DEFISION OGOTAS TO B FICE IN HI TO PO MOSDILLI ABSI F.

Nst tg y RS1Ouv Lsb≠1y Asv Crtd 1RLI rtFdr1Sstn@sl 1 uv Lsb

7JI 1=170 Clotsp brCP

^ FITACtos uantCtd v pursDtob v 1/CDQCUFaFiFatrs ObsrodnCil1Fr1 bFL ns 174s tansal obsp brCP

 EP080:The trip spike and its control have been analysed for volatile TPH and BTEX only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.



g 41 off g ES0805089 g y J OSUTTMOGERI TB'Sy WEOTWSTS g y ES0f 0509-Ny y eFPs Y bk10 bbb

ya&Bir eb jsdr

### Analytical Results

Sul-c Frb2: SOIL		Clie	Client sample ID	Client sample ID TRIP SPIKE CONTROL			! !	1 !
	CAS Number	LOR	Unit	ES0807086-001			-	1
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	1	0.:	%	6.1		-	-	
EP080: BTEX								
	5: -46-2	0.2	v P/kP	0.7		-	1	
	9-88-80:	0.f	v P/kP	11.6		-	I	-
Ethylbenzene	: 00-4: 4	0.f	v P/kP	1.6		-	-	
meta- & para-Xylene	: 08-68-61 09-42-6	0.f	v P/kP	8.3				-
ortho-Xylene	H-45-9	0.f	v P/kP	3.1		-	ı	
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	: 5090-05-0	0::	%	97.4	-	-	1	-
Toluene-D8	2065-29-f	0::	%	113	-	-	1	1
4-Bromofluorobenzene	490-00-4	0.:	%	106	-	1	I	-



Surrogate Control Limits

gf1off gES0805089 gyJOSU7TWOGERITBSyWEOTWSTS gyES0f0509-Nyy

eFPs Y bk10 bbb

yaKsir ebjsdr

Sull-c Frtos: SOIL		Recovery	Recovery Limits (%)
Compound	CAS Number	Том	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	: 5090-05-0	80	: 20
Toluene-D8	2065-29-f	έö	.: 5
4-Bromofluorobenzene	490-00-4	54	: 2:

# ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



## **Environmental Division**

# **CERTIFICATE OF ANALYSIS**

	a Ein Obiv sirFam ObCCi:StDist oYIhw CoSh Fby F ok Ko6,K8-:H D7Fbp:M FD.Sv OhoGaD:RSH:YklrbFa6E:K1T3	)Falsin Ob.d∨	gOK, GAR, K008         g11, GAR, K008	
a1: o10	գ Ein ObivsirFam Od CCi:St Dist a Yihw CCS h Fby F a K66, K8-:H D7 Ftp:M FD.Sv Of	qYI hwCCShFbv F@Fasi n0. d v q+T1, K,8683:8555 q+T1, K,8683:8500	g REec :1::Sdns g 0K, GAR, K008 g11, GAR, K008 g1	
e FFS	f FL Br ta y in Fdr YDDssll	E,v F@ I sæ7h i s 2Fdl © @	j y f snsa mFrs:SFv 7æl :Msds@sD @l ks:mFrs R .: ol Fv 7æl :tsds@sD R .: ol Fv 7æl :Fi Fal sD	
: ES0807714	GCONSULTING EARTH SCIENTISTS GC M:f ANE:ŒRNŒS GGJ RES:BYWH 9 YW2:1-,K1Uf J H EM:mEy NUSAŒE:1K1U KT,4Ke@MMYC Y:MJ Ym e WMC J RI :RSH UYASI MYf Ø:K030	gansip©l@dilkan©PsFbh.dv.Fk g+71:857-Kw00 g+71:0K-55K34	gy ES05060T,By y a, g140K33 af G ay J J NS:y J qE:YMEY:Y	
Work Order	yasir y inFohr YDObsli	E,v F@ Isæ7h is 2Fdl © @s	ebusdr Jubskirkvisb y,J,y:ikvisb SRv 7æb SGs j krs:ikvisb	

1 hC; ts7 tr: 1k7stb sDs1; Fit; 7tsnCk1; ts7 trQ(; wtdn: hnC; tscstsids.: Ms1kal: F77al: r; ths: 1Fv7asQ(; F1: 1kLv tsD.; Yan 7FPs1; o thC; ts7 tr: hFns; Lssi; thstpsDsD; FiD; F77b nsD; ot bsasFIs.:

INC:ysbroldFrs: oYiFall C:dirFCl:mhs:oanwCP:CobyFrCig

- z si sbFay v v si rl
- Yi Fat r@FaMsI karl
- Sktb PFrs:y i rb af @ G

íΥ		
<	NATA	>

YI Y:YddbsDcsD:fFL bFr bt:8K5

Signatories

Foldbs DOZFrCi:bs)k Obsv sinl. I hC:D dkv si r.C:Cl ksD:C: Fdd IbDFi ds:w@n:RYI Y:

Yddbs Dûs Dodd v 7affids:w@h: SJ /Œy :160K5.

WORLD RECOGNISED ACCREDITATION

INOC: Dolky sin: hPI: Lasi: sascibio Fatil Grad: IOPisD: Lt: ma: Fkm-boSsD: IOPiFr brossi: CDOSFrsD: Lsaw: Easchbiod: IOPio PP: Lasi dFtbs.D. kr.C.d v 7a6i ds.w@n.7b ds.Dkbsl:17sd@s.D.C.K1.y2Mte.Fbr.11.

Accreditation Category	0 LPFi CII	J BPFI GII	(D) BPFi (Q)
Position	0 bPFi G:y hsv Cr	Ssi CbJ bPFi @:y hsv @r	Ssi CbO bPFi City hsv Cr
Signatories	Yi p@G I hC	EDWFI Dt:2FDJFb	SFbFh:c@nCPri

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H tp:J tDsb g ES0806613
y 48i r g y J RSAf1 (Rz : EYMI 9 : Sy ŒRI (S) S eb ts dr

#### General Comments

I HS: FiFandFa 7b dsDkB1: kISD. Lt: ms: EinObiv sinFa mOCCi: hFns: Lssi: Dsnsa 7sD. dov: sInFLaChsD. CnsbiFrCiFall: bad PiOsD. 7b dsDkbs1: kdh: FimIs: 7kLaChsD: Lt: ms: ASEeYU Ye9YU YS: FID. REec.: O: hkls: Densa 7s D.7b ds Dkbsl: Fbs.sv 7ats D.0.:nhs.FLIsids: oD dkvsirs D.1rFiDFbDl: bLt:daßir.bs)kslr.

Historichs: J.M. oFts7 bs.Dbs kar.Dbs 
Hhis iDFsQ(iFi D'brosQ(iFbsih wi:LFdpsrsDUhis s:hFns:Lssi iFlikv sDLt;mhs:#E bF tio b7b dsllCP?kb7 Isl :@msiFv 74CProsc(iFi D'brosc) :0000;ms:Cob FrCi :wH :i :r7b mCsDLt;ddsir.

Nst:g y YS:Rkv Lsta=:y hsv Crtd::YLI rtFdr:Sshn@sl:i kv Lsb

fJM:=:f @ G abs7 brCP

^:=:1 hC:tssl kar:C:d v 7krsD:dv v :CDQ@kFaFi Fars:DsrsdrCi I :Fr. txFL ns:rhs:ænsa ots7 txCP

EP080: Level of Reporting raised for toluene due to ambient background levels in the laboratory.



eFPs H tp:JbDsb ya&Bir

g 3: 010 g ES0806613 g y J RSAf1 @z :EYMI 9 :Sy ŒRI ©I S q y ES050607,By y

Analytical Results

ebusdr

SkL, c Frb@: WATER		Clier	Client sample ID	290508-07-LJ		1111	,,,,	1111
	Clie	nt sampling	Client sampling date / time	K-,c YWK008:15g00	1111	1111	1111	1111
Compound	CAS Number	LOR	Unit	ES0807714-001	1	1	1	1
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	""	1	hS/dv	1240	1111	1111	1111	1111
EA015: Total Dissolved Solids								
^ Total Dissolved Solids @180°C	z <b>3</b> ,K10,010	-	v P/f	726	1111	1111	1111	1111
EA020EC: Salinity								
Salinity	""	0.01	P/pP	0.62	1111	1111	1111	1111
EA080: Resistivity								
^ Resistivity at 25°C	"""	1	hv :dv	908	1111	1111	1111	1111
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	mc J ,K10,001	_	v P/f		1111	1111	1111	1111
Carbonate Alkalinity as CaCO3	481K,4K,T	-	v P/f	7		1111	1111	1111
Bicarbonate Alkalinity as CaCO3	61,5K,4	-	v P/f	153	9333	1111	1111	1111
Total Alkalinity as CaCO3	*****	1	v P/f	153	1111	1111	1111	,,,,
ED040F: Dissolved Major Anions								
Sulfate as SO4 2-	13808,6-,8	1	v P/f	129	1111	1111	1111	1111
ED045G: Chloride Discrete analyser								
Chloride	1T886,00,T	1.0	v P/f	234	1111	1111	1111	,,,,
ED093F: Dissolved Major Cations								
Calcium	6330,60,K	1	v P/f	76	1111	1111	1111	1111
Magnesium	634-,-5,3	1	v P/f	24	1111	1111	3333	1111
Sodium	6330, K4, 5	1	v P/f	122	1111	1111	1111	1111
Potassium	6330,0-,6	-	v P/f	20	1111		,,,,	
EG020F: Dissolved Metals by ICP-MS								
Arsenic		0.001	v P/f	0.010	1111	1111	1111	1111
Cadmium	6330,34,-	0.0001	v P/f	<0.0001	1111	1111	1111	1111
Chromium	6330, 36, 4	0.001	v P/f	<0.001	11111	1111	1111	,,,,
Copper	6330, 50,8	0.001	v P/f	<0.001	1111	1111	1111	1111
Lead	634-,-K,1	0.001	v P/f	<0.001	1111	1111	1111	1111
Nickel	6330, 0K, 0	0.001	v P/f	<0.001	1111	1111	3333	1111
Zinc	6330, TT, T	0.005	v P/f	<0.005	1111	1111	,,,,	,,,,
EG035F: Dissolved Mercury by FIMS								
Mercury	634-,-6,T	0.0001	v P/f	<0.0001	1111	1111	1111	1111
EK055G: Ammonia as N by Discrete Analyser	ser							
Ammonia as N	6TT3,31,6	0.010	v P/f	0.971	1111	1111	1111	1111
EK059G: NOX as N by Discrete Analyser								
Nitrite + Nitrate as N		0.010	v P/f	0.022	11111	1111	1111	1111
EK061: Total Kjeldahl Nitrogen (TKN)								



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6FPs 95: 010 H tp:J tb:Sb 9 ES08066°

g 5: 010 g ES0806613 g y J RSAf1 (Rz :EYMI 9 :Sy ŒRI (St S g y ES05060T,By y

#### Analytical Results

		i						
SkL, c Frb2: WATER		Clien	Client sample ID	290508-07-LJ	1111	1111	1111	1111
	Clie	ent sampling	Client sampling date / time	K-, c YWK008:15900	1111	,,,,	1111	4444
Compound	CAS Number	LOR	Unit	ES0807714-001	i	1	1	1
EK061: Total Kjeldahl Nitrogen (TKN) - Continued	ned							
Total Kjeldahl Nitrogen as N		0.1	v P/f	2.7	1111	1111	666	1111
EK062: Total Nitrogen as N								
^ Total Nitrogen as N	""	0.1	v P/f	2.7	1111	1111	1111	1111
EK067G: Total Phosphorus as P by Discrete Analyser	Analyser							
Total Phosphorus as P	""	0.01	v P/f	1.11	1111	1111	1111	1111
EN055: Ionic Balance								
^ Total Anions	1111	0.01	v s) /f	12.4	1111	1111	1111	1111
^ Total Cations	1111	0.01	v s) /f	11.6	1111	1111	1111	1111
^ Ionic Balance	1111	0.01	%	3.22	****	1111	1111	1111
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	""	-	µP/f		1111	1111	1111	1111
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	41-,83,T	0.5	µP/f	<0.5	1111	1111	1111	1111
Hexachlorobenzene (HCB)	118,63,1	0.5	µP/f	<0.5	1111	1111	1111	1111
beta-BHC	41-,85,6	0.5	µP/f	<0.5	1111			
gamma-BHC	58,8-,-	0.5	µP/f	<0.5	8888	1111	1111	1111
delta-BHC	41-,8T,8	0.5	µP/f	<0.5	1111	,,,,	1111	1111
Heptachlor	6T,33,8	0.5	µP/f	<0.5	1111	1111	1111	1111
Aldrin	40-,00,K	0.5	µP/f	<0.5	1111	1111	1111	1111
Heptachlor epoxide	10K3, 56, 4	0.5	µP/f	<0.5	****	1111	1111	1111
trans-Chlordane	5104,63,K	0.5	µP/f	<0.5	1111	1111	1111	1111
alpha-Endosulfan	-5-,-8,8	0.5	µP/f	<0.5	1111	""	1111	1111
cis-Chlordane	5104,61,-	0.5	µP/f	<0.5	8888	1111	1111	1111
Dieldrin	T0,56,1	0.5	µP/f	<0.5	1111	1111	1111	1111
4.4`-DDE	6K,55,-	0.5	µP/f	<0.5	1111	1111	1111	1111
Endrin	6K,K0,8	0.5	µP/f	<0.5	1111	1111	1111	1111
beta-Endosulfan	44K14, T5,-	0.5	µP/f	<0.5	1111	1111	1111	1111
4.4`-DDD	6K,53,8	0.5	µP/f	<0.5	1111	1111	1111	1111
Endrin aldehyde	63K1,-4,3	0.5	µP/f	<0.5	****	1111	1111	1111
Endosulfan sulfate	1041,06,8	0.5	µP/f	<0.5	****	1111	1111	1111
4.4' -DDT	50, K-, 4	¥	µP/f	¥	1111	1111	1111	1111
Endrin ketone	543-3,60,5	0.5	µP/f	<0.5	****	1111	1111	1111
Methoxychlor	6K,34,5	エ	μΡ/f	¥	1111	,,,,,	1111	1111
EP068B: Organophosphorus Pesticides (OP)	<u>.</u>							
Dichlorvos	TK,64,6	0.5	µP/f	<0.5	1111	1111	1111	1111
Demeton-S-methyl	- 1- ,8T,8	0.5	µP/f	<0.5	1111	,,,,	1111	
Monocrotophos	T- K4, KK, 3	¥	µP/f	¥	1111	1111	1111	1111



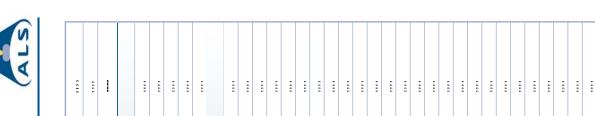
eFPs H tp:JtDsb

g T: 010 g ES0806613 g y J RSAf1 @z :EYMI 9 :Sy ŒRI (\$I S q y ES050607,By y

#### Analytical Results

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SkL, c Frb2: WATER		Clie	Client sample ID	290508-07-LJ	1111	1111	1111	1111
	Clie	ent samplir	Client sampling date / time	K-,c YWK008:15g00	1111	1111	1111	1111
Compound	CAS Number	LOR	Unit	ES0807714-001	i	1	1	1
EP068B: Organophosphorus Pesticides (OP) - Continued	(OP) - Continued							
Dimethoate	T0,51,5	0.5	µP/f	<0.5	1111	1111	::	,,,,
Diazinon	444,31,5	0.5	µP/f	<0.5	1111	1111	1111	1111
Chlorpyrifos-methyl	55-8,14,0	0.5	µP/f	<0.5	1111	""		,,,,
Parathion-methyl	K-8,00,0	ᅩ	µP/f	¥	1111	1111	1111	1111
Malathion	1K1,65,5	0.5	µP/f	<0.5	1111	1111	1111	1111
Fenthion	55,48,-	0.5	µP/f	<0.5	1111	****		,,,,
Chlorpyrifos	K-K1,88,K	0.5	µP/f	<0.5	1111	1111		1111
Parathion	5T,48,K	ᅩ	μΡ/f	¥	1111	1111		1111
Pirimphos-ethyl	K4505, 31, 1	0.5	µP/f	<0.5	1111	1111	1111	1111
Chlorfenvinphos	360,-0,T	0.5	µP/f	<0.5	1111	1111	1111	1111
Bromophos-ethyl	38K3,68,T	0.5	µP/f	<0.5	1111	1111		1111
Fenamiphos	KKKK3,-K,T	0.5	µP/f	<0.5	1111	1111		1111
Prothiofos	43T34,3T,3	0.5	µP/f	<0.5	1111	1111		1111
Ethion	5T4, 1K,K	0.5	µP/f	<0.5	1111	****		,,,,
Carbophenothion	68T, 1- ,T	0.5	µP/f	<0.5	1111	1111		1111
Azinphos Methyl	8T,50,0	0.5	µP/f	<0.5	1111	1111		1111
EP074A: Monocyclic Aromatic Hydrocarbons	ons							
Benzene	61,34,K	2	μΡ/f	<5	1111	1111		1111
Toluene	108,88,4	2	µP/f	<5	1111	1111	1111	1111
Ethylbenzene	100,31,3	2	µP/f	<5	1111	****		,,,,
meta- & para-Xylene	108,48,4:10T,3K,4	2	µP/f	<5	1111	1111	1111	1111
Styrene	100,3K,5	5	µP/f	<5	1111	1111	1111	1111
ortho-Xylene	- 5,36,T	5	μP/f	<5	1111	1111	1111	1111
Isopropylbenzene	- 8,8K,8	2	µP/f	<b>~</b> 5	1111	1111	1111	1111
n-Propylbenzene	104, T5, 1	2	µP/f	<5	1111	1111	1111	1111
1.3.5-Trimethylbenzene	108, T6, 8	5	μΡ/f	<5	1111	1111	1111	1111
sec-Butylbenzene	145, - 8,8	5	μP/f	<5	1111	1111	1111	1111
1.2.4-Trimethylbenzene	- 5,T4,T	2	µP/f	<5	1111	****	1111	1111
tert-Butylbenzene	- 8,0T,T	2	µP/f	<5	23.33	,,,,		1111
p-Isopropyltoluene	T,98,	2	µP/f	<5	1111	****	1111	1111
n-Butylbenzene	103,51,8	2	µP/f	<5	1111	"""		,,,,
EP074B: Oxygenated Compounds								
Vinyl Acetate	108,05,3	20	µP/f	<50	1111	*****		1111
2-Butanone (MEK)	68,-4,4	20	μΡ/f	<50	1111	*****		1111
4-Methyl-2-pentanone (MIBK)	108,10,1	20	µP/f	<50	1111	1111	1111	1111
2-Hexanone (MBK)	5- 1,68,T	50	μΡ/f	<50	1111	****	1111	1111
EP074C: Sulfonated Compounds								
Carbon disulfide	65,15,0	2	µP/f	<5	1111	1111	1111	1111



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Analytical Results

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SKL, c From: WATER		Cle Cle	Cilent sample ID	290508-07-LJ	1111		,,,,	,,,,
	Clie	nt samplin	Client sampling date / time	K-,c YWK008:15g00	1111		1111	1111
Compound	CAS Number	LOR	Unit	ES0807714-001	1	1	ļ	1
EP074D: Fumigants								
2.2-Dichloropropane	5-3,K0,6	2	μP/f	<5	:::	:	1111	1111
1.2-Dichloropropane	68,86,5	2	μP/f	<b>~</b> 2	""		1111	1111
cis-1.3-Dichloropropylene	100T1,01,5	2	μP/f	<5	1111		1111	1111
trans-1.3-Dichloropropylene	100T1,0K,T	2	µP/f	<5	1111	1111	1111	1111
1.2-Dibromoethane (EDB)	10T,-4,3	2	µP/f	<5	1111	1111	1111	1111
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	65,61,8	20	μP/f	<50	""		1111	1111
Chloromethane	63,86,4	20	µP/f	<50	1111	1111	1111	1111
Vinyl chloride	65,01,3	20	µP/f	<50	1111	1111	1111	1111
Bromomethane	63,84,-	20	μP/f	<50	1111	1111	1111	1111
Chloroethane	65,00,4	20	μΡ/f	<50	1111	1111	1111	1111
Trichlorofluoromethane	65,T-,3	20	μP/f	<50	1111	1111	1111	1111
1.1-Dichloroethene	65,45,3	c2	µP/f	<5	1111	1111	1111	1111
Iodomethane	63,88,3	22	μP/f	<5	1111		1111	1111
trans-1.2-Dichloroethene	15T, T0,5	2	μP/f	<5	""		1111	1111
1.1-Dichloroethane	65,43,4	ß	μP/f	<5	1111		1111	1111
cis-1.2-Dichloroethene	15T,5- ,K	ω	μΡ/f	<5	1111	1111	1111	1111
1.1.1-Trichloroethane	61,55,T	ω	μΡ/f	<5	1111	1111	1111	1111
1.1-Dichloropropylene	5T4,58,T	2	µP/f	<5	1111	11111	1111	1111
Carbon Tetrachloride	5T,K4,5	2	μP/f	<b>~</b> 5	1111		1111	1111
1.2-Dichloroethane	106,0T,K	2	μP/f	<b>~</b> 5	""		1111	,,,,
Trichloroethene	6-,01,T	2	µP/f	<5	1111	11111	1111	1111
Dibromomethane	63,-5,4	2	µP/f	<5	1111	1111	1111	1111
1.1.2-Trichloroethane	6-,00,5	ω	μP/f	<5	1111	1111	1111	1111
1.3-Dichloropropane	13K,KB,-	2	μΡ/f	<5	1111	1111	1111	1111
Tetrachloroethene	1K6, 18,3	2	µP/f	<5	1111	1111	1111	1111
1.1.1.2-Tetrachloroethane	T40, K0, T	2	μP/f	<5	1111	11111	1111	1111
trans-1.4-Dichloro-2-butene	110,56,T	2	μΡ/f	<5	1111	1111	1111	1111
cis-1.4-Dichloro-2-butene	136T,11,5	2	μP/f	<5	1111	1111	1111	1111
1.1.2.2-Tetrachloroethane	6-,43,5	2	µP/f	<b>~</b> 5	1111		1111	1111
1.2.3-Trichloropropane	- T,18,3	2	μP/f	<b>~</b> 5	""		1111	,,,,
Pentachloroethane	6T,01,6	2	µP/f	<5	1111	11111	1111	1111
1.2-Dibromo-3-chloropropane	- T,1K,8	2	µP/f	<b>~</b> 5	1111		1111	1111
Hexachlorobutadiene	86,T8,4	2	μP/f	<5	""		1111	,,,,
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108,-0,6	2	µP/f	<5	1111	11111	1111	1111
Bromobenzene	108,8T,1	2	µP/f	<b>~</b> 5	1111		1111	1111
2-Chlorotoluene	- 5,3-,8	2	μΡ/f	\ \ \	1111	1111	1111	1111



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#### Analytical Results

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SKL, C FIDX: WAIER		8	Client sample 10	Z90508-07-LJ	1111	1111	1111	3333
	Clie	ent samplir	Client sampling date / time	K-, c YWK008:15g00	1111	1111	1111	1111
Compound	CAS Number	LOR	Unit	ES0807714-001	1		1	1
EP074F: Halogenated Aromatic Compounds - Continued	- Continued							
4-Chlorotoluene	10T, 34,3	2	µP/f	<5	""	"""		,,,,
1.3-Dichlorobenzene	531,64,1	22	µP/f	<b>~</b> 2	::			1111
1.4-Dichlorobenzene	10T, 3T, 6	2	µP/f	<b>~</b> 2	""	"""	1111	1111
1.2-Dichlorobenzene	- 5,50,1	2	µP/f	<5	1111	1111	1111	1111
1.2.4-Trichlorobenzene	1K0,8K,1	ß	µP/f	<5	1111	1111	""	,,,,
1.2.3-Trichlorobenzene	86,T1,T	22	µP/f	<5		1111	1111	1111
EP074G: Trihalomethanes								
Chloroform	T6,TT,4	5	µP/f	<5	::	:::	1111	1111
Bromodichloromethane	65,K6,3	22	μP/f	<b>~</b> 2	1111	"""	1111	1111
Dibromochloromethane	1K3,38,1	2	μP/f	<5	1111	1111	1111	1111
Bromoform	65,K5,K	2	µP/f	<b>~</b> 2	1111	1111	1111	1111
EP074H: Naphthalene								
Naphthalene	- 1,K0,4	2	µP/f	<5	""	"""	1111	1111
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	arbons							
Naphthalene	- 1,K0,4	1.0	µP/f	<1.0	:::	:::	****	1111
Acenaphthylene	K08,-T,8	1.0	µP/f	<1.0		1111		,,,,
Acenaphthene	84,4K,-	1.0	µP/f	<1.0	1111	1111	****	1111
Fluorene	8T,64,6	1.0	μΡ/f	<1.0	11111	1111	,,,,	1111
Phenanthrene	85,01,8	1.0	μΡ/f	<1.0	11111	1111	,,,,	4 4 4 4
Anthracene	1K0, 1K,6	1.0	µP/f	<1.0	1111	1111	1111	1111
Fluoranthene	K0T, 33,0	1.0	μΡ/f	<1.0	11111	1111	,,,,	1111
Pyrene	1K-,00,0	1.0	µP/f	<1.0	1111	1111	1111	1111
Benz(a)anthracene	5T,55,4	1.0	µP/f	<1.0	1111	1111	,,,,	1111
Chrysene	K18,01,-	1.0	μΡ/f	<1.0	1111	1111	,,,,	1111
Benzo(b)fluoranthene	K05,,K	1.0	µP/f	<1.0	1111	1111		1111
Benzo(k)fluoranthene	K06,08,-	1.0	µP/f	<1.0	1111	1111	1111	1111
Benzo(a)pyrene	50,4K,8	0.5	µP/f	<0.5	1111	1111	,,,,	1111
Indeno(1.2.3.cd)pyrene	1-4,4-,5	1.0	µP/f	<1.0	""	1111	1111	3333
Dibenz(a.h)anthracene	54,60,4	1.0	µP/f	<1.0	1111	1111	1111	1111
Benzo(g.h.i)perylene	1-1,K3,K	1.0	µP/f	<1.0	1111	1111	,,,,	* * * * * * * * * * * * * * * * * * * *
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	1111	8	µP/f	o¥>	1111	1111	1111	1111
C10 - C14 Fraction	1111	20	µP/f	<50	""	"""	1111	1111
C15 - C28 Fraction	1111	100	µP/f	<100	""	1111	,,,,	3333
C29 - C36 Fraction	1111	20	µP/f	<50	1111	1111	1111	,,,,,
EP080: BTEX								
Benzene	61,34,K	_	µP/f	₹	1111	1111	,,,,	1111



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1 ... ... : : .... ... ,,,, : : ... : : ... : : "" ... ... : : ,,,, ... ,,,, ... : : : : : : l ... ... : : ,,,, "" : : ,,,, : : .... : : : : : : "" :: : : ,,,, .... .... ,,,, ... ... .... .... : : İ : : K-, c YWK008:15g00 290508-07-LJ ES0807714-001 0.09 123 70.0 91.8 104 107 26.0 67.9 82.7 93.0 106 91.6 103 107 δ <u>수</u> 수 수 Client sample ID Client sampling date / time Unit uP/f uP/f uP/f % % % % % % % % % % % % % % % LOR 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 저 저 저  $\checkmark$ K051, K3,4 K1T55,64,K 68,38,8 141K6,88,4 160T0,06,0 3T0,00,3 118,6-,T 4K1, T0,8 1618,51,0 160T0,06,0 K046, KT, 5 3T0,00,3 CAS Number 108,88,4 100,31,3 108,48,4:10T,3K,4 - 5,36,T K046, KT, 5 - 4-51,64,T 161-,0T,8 EP068T: Organophosphorus Pesticide Surrogate EP075(SIM)S: Phenolic Compound Surrogates EP068S: Organochlorine Pesticide Surrogate EP080S: TPH(V)/BTEX Surrogates EP075(SIM)T: PAH Surrogates **EP074S: VOC Surrogates EP080: BTEX - Continued** EP066S: PCB Surrogate 4-Bromofluorobenzene 4-Bromofluorobenzene 1.2-Dichloroethane-D4 1.2-Dichloroethane-D4 2.4.6-Tribromophenol meta- & para-Xylene Decachlorobiphenyl SkL, c Frb&: WATER 2-Chlorophenol-D4 2-Fluorobiphenyl 4-Terphenyl-d14 Anthracene-d10 Dibromo-DDE Ethylbenzene ortho-Xylene Toluene-D8 Toluene-D8 Compound Phenol-d6 Toluene 岜



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y 4&i r g y J RSAf1 t\text{Rz} :EYMI 9:Sy \text{GRI (\$\mathbb{S}\)I S \text{eb usdr}

### Surrogate Control Limits

SKL, C FROX: WAIEK		Recovery Limits (%)	Imits (%)
Compound	CAS Number	Гом	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	K051, K3,4	10	1T3
EP068S: Organochlorine Pesticide Surrogate	ite		
Dibromo-DDE	K1T55,64,K	10	14T
EP068T: Organophosphorus Pesticide Surrogate	rogate		
DEF	68,38,8	10	14T
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	160T0,06,0	80	1K0
Toluene-D8	K046, KT,5	88	110
4-Bromofluorobenzene	3T0,00,3	8T	115
EP075(SIM)S: Phenolic Compound Surrogates	ates		
Phenol-d6	141K6,88,4	10	-3
2-Chlorophenol-D4	- 4-51,64,T	<b>4</b>	143
2.4.6-Tribromophenol	118,6- ,T	10	<u>‡</u>
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	4K1, T0,8	34	11T
Anthracene-d10	161-,0T,8	K6	144
4-Terphenyl-d14	1618,51,0	44	131
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	160T0,06,0	80	1K0
Toluene-D8	K046, KT, 5	88	110
4-Bromofluorobenzene	3T0,00,3	8T	115

# ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



## **Environmental Division**

## **CERTIFICATE OF ANALYSIS**

	eECIy: On aCASAyiyFy CySrmCar eRybb. Lgo amybys 2D e-669 8Hyh::m73lpgG:3mgSnykya2nguSAgYOF1d328ggPl4	eYRu Øysk3ln 3@3æd y: .D n e+I P9 &684ø555 e+I P9 &684ø500 eJ EI d g <b>PH+y</b> ßCkamæg (T)gOng/oSgdt STgaqOyan aCb	
e Pg gPP	e EG yl: On a COSQv ý yFy Co§r mCar e RyDb (gramyDy, s2D e - 669 8 HgA :: m73 (pog5: 3 mg5n yb	eYFkuyoySk3ln 3@37aG y: .D n e+l P9 98684g555 e+l P9 98684g500 eJEI d gPH+tg5CkamCag5(T)gOm	e-PHBNKJ 9 008 e-1 9hKJ 9 008 eP eP
l 3sa	o3f: 13b Lr t: CA8Cb YmfaFF	E9n 3/2 Ua/2h7k: Ca 13 DFyn yê Qt goal a2	v 3tag53n 72aFg3aDay am NFCtagv 3ta J:.g g3n 72aFgaDay am J:.g g3n 72aFgC32Fam
: ES0808708	e1 04 SCNUI4T EI GUA S1 IE4 UISUS ed SG EooMGA ENG ehw J ESGYMGA WYG1GPHB P, gwwA EGg/ Et c., GKNUEGP- P, - I 9T-g NGGYd YGWYV I MGd w J UgJ SA, GYKSUGYONY G 040	epu ay@D G-ObCsa3lbk.D n .3O e+I Pg51 H - 00 e+I Pg0-g-55-4 THH et ES050601 98t t	eP-86PP ehEJCNS ec/tgg/GEYg4 eSM20H208
Work Order	t 等Ob t: C&Db Ymmla开	E9n 3/2 Ua2a7k: Ca 13DFyn ya I L jaDb wtmatgOOn faL	t swergoon fal. Ssn 72al. Syba QO bagoon fal.

Uky 与 La7: Lbg FO7al Fama Fg 3Cr g 7Laiy CFg La7: Lbg Fg La yky Bg La a LaCDa.g Ga FCDFg 3772 g b g kkag F3n 72a(F)g 3Fg FCf n ybbamg Y2bg 73sa Fg: g kky Fg La7: Lbg k3i ag f aa Cg Dka Dpamg 3Ong 377L i amg: L La2a3Fa.g

UkyFg albyDBtag gYC32 FyFgD CByOFgtkag: 22 uyCsgC: In 3by Ce

- / aCal32t : n n aOF
- YC32 bD82GaFO2F
- SQL: s3kag : Ob: 20yn yF



JYUYGYDDambango3f:L3bLrg-5 Ukyfgm DOn actoglight Campicg 3DD Im8 Chaguykgi YUYg 3DD amy8by CgaqOjan aCF.

YDDamyang: LgD. n 738 Chagu ykg NSw2NEt gP60-5.

WORLD RECOGNISED
ACCREDITATION

Ukyōy m Doh a Chaj k3Fg faacg a 2010. O 10322 g Fys Camg frg tkag 3 COk: Lykamg Fys Clob LyaFg y OnyDolbamg fa2 u.g E 2010. O 103 Fys O Csg k3Fg faac Signatories B(1)80

**Environmental Division Sydney** 

Part of the ALS Laboratory Group
- 669 8Hpt :: m³34pg.3 angsn jk yazig SA g/GR13pg P1 4
UBH : 46 8782 8855 g/3x.g/1 P9 89684@500gwwwling@blankom

A Campbell Brothers Limited Company



### General Comments

Ukag 3G219030 71: DandaFg Gramg fig tkag Ed 1: On ad082 v 1/3 / Q k3i ag faaQ mai a2 7amg Ling aF1861 3/4 mm 10 aF1861 3/4 mm mai a 2 7 ang 11. Dam Cha Fighagan 72 r amg Cgkag f Fa Chag gm Don a Chamg Fis Cm8 Lin Figha Chga Chaga q Char

A kalagn : yFiClagrabaln yC3by Ogk3Fg aa Qg7la : In amgaa FOBFG laga7: Ibamg Cggnfr gu ayskbg 3FyF.

carge t YSgl On falgegikan yFburgYf Fbu3DpgSaliyDaFgOn faL

ow Gg-goyn yag gla7: LbyCs

^g-gdk√FgaF@gFgD. n 7Oamgl: n gOny ynO3@C32 bagnabaDy OFg8g Lgff: i agkagei a2g ga7: bbβs

EP080: NeveRof Geporting raised for to Rene due to ambient background Revers in the ReboratoryH



ET 0x5Z: DissoRed Kercury by ZIKS

l3sa e4gg—F A∶Lpgv/maL eES0801 t3paCb etwJSh

e 4g *g*P e ES0808608

etwJSKoUN/ @YGUMGSTNEJUNGUS

e t ES05060I Bt t

L: jaDb

#### Analytical Results

88 88 88 88 88 88 88 8 8 8 8 88 8 8 8 8 8 8 8 8 88 88 88 88 88 88 88 88 88 88 888 88 888 88 888 68 68 68 6866 888 88 88 88 88 88 88 88 88 88 88 88 88 886 8 8 8 8 88 888 88 88 68 68 88 88 88 88 686 88 88 88 88 88 88 88 88 88 88 88 P691KJ 9 008gPP600 +70.08@26N9 ES0808708600+ <0.000P <0.00P <0.00P +. 000 000+ 0H9-2 0H002 ×+. 0 -0₩0 0**₩**0 7127 3145 +20 0× ÷ : å ₽ 1. œ. က် ž Client sample ID Client sampling date / time 7WfKOb 7WdKOb : kn g n sæ n SZD μSzDn n SZO n sæ n sæ n sæ n sæ n SZD n S20 n sæ n sæ n sæ n sæ n szo n sæ n sæ n szo n sæ sæs Unit 0.000P 0.00P 0.00P LOR 0.00P 0.00P 0.005 0.0P 0.0P 0.0P 0.P0 0.00P Ф Ф P.0 Ф ۵ ۵ а а ۵ م Ф Δ Ф 686 686 88 686 6P55- 9T 88 Т8Р- 9Т- 9 88 644090-90 CAS Number 0406046\$N / 4 d w9 P0900P P480896H98 PI 8869009 64409 TS 644090H96 64409T89 644094T9H 64409469T 644095098 64THBH 9P 6440919 64409609 ED02+: SuRate BlurbidimetricFas SO2 - 6 ET 0-02: DissoRved KetaRs by LI POKS El 0+0P: 1 onductivity by P1 Uitrator ED025T: 1 hroride Discrete anaryser ED03xZ: DissoRed KaXr 1 ations ED0x7P: I Ramity by P1 Uitrator El 070: pAs PpA of SaturationF El 0+5: UotaRDissoRed SoRds ^ UotaRDissoRed SoRds @+80°1 jicarbonate I RkaRnity as 1 a1 Ox AydroMde I RaRnity as 1 a1 0x 1 arbonate | Ramity as 1 a1 Ox ERectricaRI onductivity @ -5°1 Surate as SO2 6Uurbidimetric El 005P: pA by P1 Uitrator El 07+: NangeRers IndeM UotaRI RaRnity as 1 a1 0x El 0-0E1: Saranity El 080: Gesistivity A Gesistivity at -5°1 SCF 8d 3tbys: WI UEG NangeRer IndeM Kagnesium Compound Potassium 1 hromium 1 admium pA JaRie 1 hroride Sodium 1 aRcium Sarnity Irsenic 4 ickeR 1 opper Nead pAS inc (



l 3sa A∶lpgwlmaL

t 2yaCb IL:jaDb

e 5g gP e ES0808608 e t wJ SKoUN/ &YGUMB; NEJ UNGUS e t ES050601 93t t

#### Analytical Results

SCf 9d 3fbyx: WI UEG		Clien	Client sample ID	+70.08@2@N9	6866	6866	6886	6866
	Clier	ıt sampling	Client sampling date / time	P69hKJ 9 008gPP@0	6666	6866	6666	6666
Compound	CAS Number	LOR	Unit	ES0808708600+	9999	9999	9999	9999
ET 0x5Z: DissoRed Kercury by ZIKS 61 ontinued	þe							
Kercury	4THBH69	0.000P	n sæ	<0.000P	6866	6866	6666	6666
E) 055T: I mmonia as 4 by Discrete I nar								
I mmonia as 4	611494P96	0.0P0	n sæ	2H3	6666	6666	6666	6666
E) 053T: 4Oz as 4 by Discrete I narger								
4 itrite   4 itrate as 4	6366	0.0P0	n sæ	-0157-	6666	6666	6666	6666
E) 0. +: UotaR) XeRlahR4 itrogen BJ) 4F								
UotaR) ÆRlahR4 itrogen as 4	6666	0.P	n sæ	<b>31</b> .	6666	6666	6666	6666
E) 0: UotaR4 itrogen as 4								
^ UotaR4 itrogen as 4	6366	0.P	n sæ	710	6666	6666	6666	6666
E) 0. 7T: UotaRPhosphorus as P by Discrete I nar	nalyser							
UotaRPhosphorus as P	6666	0.0P	n sæ	OH7.	6866	6866	6666	6666
E4055: Lonic ja Rance								
^ UotaR nions	6666	0.0P	n aqzo	+3x	6866	6565	63666	6666
UotaRI ations	6666	0.0P	n aqzo	+77	6666	6866	6666	6366
Lonic ja Rance	6666	0.0P	%	2Ht3	6666	6666	6666	6666
EP0: Porychroninated j iphenyr BP1 j F								
UotaRPoRch Brinated bipheny B	6666	Д	œsn	Ф>	6866	6866	66666	6666
EP0. 81: Organoch Porine Pesticides ED1 F								
arphag A1	TPH9849	0.5	œsn	<0.5	6866	6866	6866	6366
AeMach Roben ene BA1 j F	PP89649P	0.5	æsn	<0.5	6666	6866	6666	6366
gamma@ A1	5898HgH	0.5	æsn	<0.5	6666	6666	6666	6366
deRag A1	TPH881 98	0.5	æsn	<0.5	6666	6666	6666	6366
Aeptach Ror	61 94498	0.5	æsn	<0.5	6666	6666	6666	6366
I Retrin	4000H0T	0.5	æsn	<0.5	6666	6666	6666	6366
Aeptach Por epo Mde	P0- 49569T	0.5	æsn	<0.5	6666	6866	6666	6666
trans61 hRordane	5P0T9649	0.5	æsn	<0.5	6666	6866	6666	6366
arβhaŒndosurkan	H5H9H898	0.5	æsn	<0.5	6666	6666	6666	6366
cis61 hRordane	5P0T96P9H	0.5	œsn'	<0.5	6866	6666	6666	6866
DieRin	1 0566	0.5	œsn	<0.5	6866	6666	6666	6866
21428DDE	6- 9559H	0.5	æsn	<0.5	6866	6666	6866	6366
Endrin	806-9	0.5	æsn	<0.5	6866	6866	6666	6366
beta Endos u Ran	TT- PT9 59H	0.5	æsn	<0.5	6866	6866	63666	6666
212 8ED DD	6- 95498	0.5	ns.zo	<0.5	6866	6866	6886	6666
Endrin artehyde	64- P9-IT94	0.5	æsn	<0.5	6666	6866	6886	6666
Endosuran surate	P0TP90698	0.5	æsn	<0.5	6866	6866	6666	6866
21428DDU	509 H9T		æsn	<b>'</b>	6666	6666	6666	6366
Endrin ketone	5T4H496095	0.5	фsф	<0.5	6666	6666	6666	6866



l 3sa A∶lpgwlmaL

t 2yaCb IL:jaDb

elggPeES080808 etwJSKoUN/gYGUMGStNEJUNGUS etES05060198tt

Analytical Results

SOT 9d 3byx: WI UEG		Clie	Client sample ID	+70.08@2@N9	6886	6666	6866	6666
	Clie	nt samplir	Client sampling date / time	P691KJ 9 008gPP600	6666	66666	6666	6666
Compound	CAS Number	TOR	Unit	ES0808708@0+	9999	988	<b>988</b>	9999
EP0. 81: Organoch Perine Pesticides ED1 F61 ontinued	ontinued							
KethoMychRv	6- 94TS5	,	asn	v	6566	6866	6666	6886
EP0. 8j : Organophosphorus Pesticides EOPF								
DichRivos	1 - 96T96	0.5	ozsn'	<0.5	6666	6866	6666	0386
Demeton 68 6 methy R	86 1881-H	0.5	œsn	<0.5	6666	6866	6666	6366
Konocrotophos	₽2 - PT + I		ozsn	v	6666	6866	6666	6866
Dimethoate	1 0 5 P 5	0.5	œsn	<0.5	6666	6866	6666	0000
Dia` inon	TTT94P95	0.5	asn	<0.5	6666	6366	6886	0000
1 hRrpyrifos@nethyR	55H89PT90	0.5	ozsn	<0.5	6666	6866	6666	6866
Parathion@methyR	- H890090		ozsn	v	6666	6866	6666	0366
Kalathion	P- P96595	0.5	ozsn	<0.5	6666	6866	6666	0386
Zenthion	559T89H	0.5	ozsn	<0.5	6666	6866	6666	0386
1 hBrpyrifos	- H P9889	0.5	dz sn	<0.5	6866	6866	6866	6866
Parathion	51 9189		ozsn	v	6666	6866	6666	0386
Pirimphos@thyR	- T50594P9P	0.5	ozsn	<0.5	6666	6866	6666	6866
j romophos@thyR	48-49689	0.5	dz sn	<0.5	6666	6866	6666	0386
Zenamiphos	49H g	0.5	ozsn	<0.5	6666	6866	6666	0386
Prothiofos	T4I 4T94I 94	0.5	ozsn	<0.5	6666	6866	6666	6866
Ethion	51 TgP- 9	0.5	dz sn	<0.5	6866	6866	6866	6866
1 arbophenothion	681 gPHg	0.5	uszo	<0.5	6666	6666	6666	6886
I `inphos KethyR	81 55030	0.5	œsn	<0.5	6666	6866	6666	6366
EP0721: KonocycRc I romatic Aydrocarbons	ø							
j en`ene	6P94T9	2	ds sh	<5	6866	6666	6866	63366
Uorene	P089889T	2	asn	<b>~</b> 2	6666	6866	6666	6886
Ethy Roen`ene	P0094P94	2	uszo	<b>~</b>	6866	6666	6866	6866
meta6V para@yRene P089∏	P089T89TgP0I 94- 9T	2	ozsn'	<b>^</b> 2	6666	6666	6866	6666
Styrene	P0094- 95	2	ozsn'	<5	6666	6666	6666	6006
ortho@yRene	H59469	2	ash	<5	6866	6666	6866	6356
LsopropyRben`ene	88-88H	2	æsn	<5	6866	6666	6866	6366
nePropyRen`ene	P0T9 59P	2	uszo	<5	6866	6666	6866	6866
+kt/5@rimethy/Ren`ene	P089 698	2	asa	<b>~</b>	6666	6866	6666	6886
sec@iutyMben`ene	PT59-898	2	ash	<5	6866	6666	6866	6366
+H126UrimethyRben`ene	H59 T9	2	ds sh	<5	6866	6666	6886	6666
tertej uty Rben`ene	B 1068H	2	ash	<5	6866	6666	6866	6366
pdsopropyRoRene	HH8869	2	æsn	<5	6866	6666	6866	6366
ng utyRen`ene	P0495P98	2	ds sh	<5	6366	6666	6666	63366
EP072j : OMygenated 1 ompounds								
- Propanone B cetoneF	I 69 49P	20	ds St	<50	6866	6666	6866	6866
JinyR cetate	P0890594	20	œsn	<50	6666	6666	6666	6666

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l 3sa A∶lpgwlmaL

t 2yaCb IL:jaDb

e 6g gP e ES0808608 e t wJSKoUN/ ÆYGUMØS NEJ UNGUS e t ES050601 ØBt t

Analytical Results

SCF9d 3byx: WI UEG		Clie	Client sample ID	+70. 08@2@N9	63366	6666	6886	6366
	Clie	nt samplir	Client sampling date / time	P69hKJ 9 008gPP600	6866	6866	6866	6666
Compound	CAS Number	LOR	Unit	ES0808708@0+	9999	9999	9999	9999
EP072j: OMygenated 1 ompounds 61 ontinued	þí							
-6 utanone BKE) F	689-1191	20	ozsn	<50	6886	6886	6886	6866
26KethyRs epentanone BK ij.) F	P089P09P	20	æsn	<50	6666	6666	66666	6366
-64eManone BKj) F	5HP9689	20	œsn	<50	6666	6866	6886	6866
KethyRebutyRether	PI T490494	2	œsπ	<5	6666	6666	6666	6366
EP0721: SuRonated 1 ompounds								
1 arbon disurbide	659590	2	ozsn	<5	6866	6886	6886	6866
EP072D: Zumigants								
- H Dich Rropropane	5H49 096	2	dz Srj	<5	6866	6886	6886	6866
+H6DichRopropane	68969	ß	œsn	<5	6666	6666	6866	6866
cis6+1xtのichr&ropropyr≠	P001 P30P35	2	œsn	<5	6666	6666	6666	6366
trans6+1★6DichRopropyRene	P001 P30- 9	2	œsn	<5	6666	6866	6866	6866
+H⊕ibromoethane ŒDj F	POI 9-11:94	2	œsπ	<5	6666	6866	6666	6666
EP072E: Aar Benated   Rephatic 1 ompounds	(0							
Dich Rrodif Roromethane	6596P98	20	ozsn (	<50	6666	6866	6866	6866
1 hR romethane	649869T	20	œsn	<50	6666	6866	66666	6866
JinyRchRoride	6590P94	20	œsn	<50	6666	6866	6666	6866
j romomethane	6498T9H	50	œsn	<50	6666	6866	66666	6366
1 hroethane	659009T	20	œsn	<50	6666	6866	6866	6666
UrichRoromethane	659 H94	20	œsn	<50	6666	6666	6666	6666
+HeDich Roroethene	6591594	2	œsn	<5	6666	6666	6666	6666
Lodomethane	6498894	2	OZSH	<5	6666	6866	0000	6666
Kethy Rene ch Roride	6590HB	2	æsn	<5	6666	6866	6666	6666
trans6+H @ichroethene	P51 g 0g5	2	œsn	<5	6666	6666	6666	6006
+HeDich Poroethane	659T49T	2	œsn	<5	6666	6666	6666	6366
cis6+HФichRorethene	P51 95H9	2	œsn	<5	6666	6666	6666	6366
+HH+6Urichroethane	6P9559	2	œsn	<5	6666	6666	6866	6866
+HeDichRoropropyRene	51 T9589	2	œsn	<5	6666	6666	6666	6666
1 arbon Uetrach Poride	51 9 TS	2	œsn	<5	6666	6666	6666	6366
+H cDich Roroethane	P06901 9	2	œsn	<5	6666	6666	6666	6006
UrichRoroethene	6H90P9	2	œsn	<5	6666	6666	6666	6666
Dibromomethane	649 <del>-15</del> 9T	2	œsn	<5	6666	6666	6666	6366
+HH durich Roroethane	6H90035	2	œsn	<5	6666	6666	6666	6006
+IX6DichRopropane	P4-9-89H	2	OZ SH	<5	6666	6866	0000	6666
<b>Uetrach Roroethene</b>	P- 69P894	2	œsn	<5	6666	6666	6666	63366
+HHH eletrach Proethane	I T09-09	2	œsn	<5	6666	6666	6666	6006
trans6+12的ichrorof chutene	PP09569	2	OZSH	<5	6666	6666	6886	6366
cis6+12t0ichRoro6 toutene	P461 9PP55	2	OZSH	<5	6866	6866	6886	6336
+HHHUeltrach Proethane	6H9T455	2	æsn	<5	6366	6666	6006	6866

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l 3sa A∶LpgwLmaL t 2yaCb I ĽjaDb

e 8g gP e ES0808608 e t wJSKoUN/ ∉YGUM§St NEJ UNGUS e t ES050601 93t t

Analytical Results

SCF 9d 3tbyx: WI UEG		Clie	Client sample ID	+70.086026N9	666	6886	6866	6666
	Clie	nt samplii	Client sampling date / time	P69hKJ 9 008gPP@0	6666	6666	6666	66666
Compound	CAS Number	LOR	Unit	ES0808708600+	9999	988	988	988
EP072E: Aarogenated   Riphatic 1 ompounds 61 ontinued	61 ontinued							
+HIX @Jrich Roropropane	#88£ H	2	œsn'	<5	6666	6866	6866	6866
Pentach Roroethane	61 30P36	2	œsn'	<5	6666	6866	6666	6366
+HeDibromo&&hopropane	₩ 9-8	2	œsn'	<5	6666	6866	6666	6366
AeMach Pobutadiene	869 891	ည	æsn	<5	6866	6866	6866	6366
j romoch <b>r</b> omethane	649-695	ည	æsn	<5	6666	6866	6666	6366
+61 hRoro 6 Caropene BiRR/R	P069059P	2	ozsn	<5	6866	6666	6886	6886
ch <b>R</b> rideF								
EP072Z: Aaregenated I romatic 1 ompounds								
1 hroben ene	P089+D96	2	œsn'	<b>~</b> 2	6866	6886	6666	<b>68</b>
j romoben` ene	P0898I PP	2	œsn'	<5	6666	6666	6666	6666
-61 hRorotoRene	H594H98	2	æsn	<5	6866	6866	6666	6366
261 h Broto Rene	POI 94T94	Ŋ	æsn	<5	6666	6866	6666	6366
+IX6DichRoben`ene	54P96T9P	2	œsn'	<5	6666	6866	6666	6366
+126DichRoben`ene	PO 1941 96	2	œsn'	<5	6666	6866	6666	6366
+H@Dichroben`ene	H55509P	Ŋ	æsn	<5	6666	6866	6666	6366
+H126Jrichroben ene	P- 098- 9P	2	œsn'	<5	6866	6866	6666	6366
+HIXOLrichRoben`ene	869 Pg	2	œsn'	<5	6666	6866	6666	6366
EP072T: Urihare methanes								
1 hRoform	169191	2	œsn'	<5	6866	6866	6866	63666
j romodich <b>®</b> romethane	659 634	ည	æsn	<5	6666	6866	6666	6366
DibromochRomethane	P- 49489P	ß	æsn	<5	6866	6866	6866	63666
j romoform	626 28	2	æsn	<5	6666	6666	6666	6366
^ UotaRUrihaRemethanes	6666	ည	æsn	<5	6666	6866	6666	6366
EP072A: 4 aphtha Rene								
4 aphtha Rene	HP9 09T	9	ozsn'	9>	6666	6666	66666	6336
EP072) : Kisceraneous 1 ompounds								
I cryRamide	6H90I 9P	2	œsn	<5	6666	6666	6366	63366
EP075BLK引: Polynuclear I romatic Aydrocarbons	arbons							
4 aphtha Rene	HP9 09T	P.0	æsn	<p.0< th=""><th>6666</th><th>6866</th><th>6666</th><th>6366</th></p.0<>	6666	6866	6666	6366
I cenaphthy Rene	- 089H 98	P.0	æsn	<p.0< th=""><th>6666</th><th>6866</th><th>6666</th><th>6366</th></p.0<>	6666	6866	6666	6366
I cenaphthene	8Т9Т- 9Н	P.0	æsn	<p.0< th=""><th>6866</th><th>6666</th><th>6666</th><th>6366</th></p.0<>	6866	6666	6666	6366
ZRorene	81 95 T36	P.0	œsn'	<p.0< th=""><th>6666</th><th>6866</th><th>6666</th><th>6366</th></p.0<>	6666	6866	6666	6366
Phenanthrene	8590P98	P.0	æsn	<p.0< th=""><th>6666</th><th>6866</th><th>6666</th><th>6366</th></p.0<>	6666	6866	6666	6366
I nthracene	P- 09P- 36	P.0	æsn	<p.0< th=""><th>6866</th><th>6666</th><th>6666</th><th>6366</th></p.0<>	6866	6666	6666	6366
ZRoranthene	- 01 94490	P.0	œsn'	<p.0< th=""><th>6666</th><th>6866</th><th>6666</th><th>6366</th></p.0<>	6666	6866	6666	6366
Pyrene	P- H50050	P.0	œsn'	<p.0< th=""><th>6866</th><th>6866</th><th>6666</th><th>6366</th></p.0<>	6866	6866	6666	6366
jen`Baranthracene	5। क्र59ा	P.0	uszo	<p.0< th=""><th>6866</th><th>6666</th><th>6666</th><th>6666</th></p.0<>	6866	6666	6666	6666



A: LpgwLmaL t 2yaCb IL:jaDb

e Hg gP e ES0808608 et wJSKoUN/gFYGUMGStNEJUNGUS et ES050601981t

Analytical Results							
SCF 9d 3 dbyc; WI UEG	Ö	Client sample ID	+70.08@2@N9	688	6886	6886	6666
	Client sampli	Client sampling date / time	P69hKJ 9 008gPP@0	6666	6666	6666	6666
Compound CAS Number	LOR	Unit	ES0808708@0+	9999	9999	9999	9999
EP075BIK月: Polynuclear I romatic Aydrocarbons 61 ontinued	ntinued						
1 hrysene - P800P9H	4 P.0	фsи	<p.0< th=""><th>6666</th><th>6666</th><th>6666</th><th>6666</th></p.0<>	6666	6666	6666	6666
j en`oBoffRoranthene	P:0	фsф	<p.0< th=""><th>6666</th><th>6666</th><th>6666</th><th>6336</th></p.0<>	6666	6666	6666	6336
j en`obkffRoranthene - 069089H	P.0	фsи	<p.0< th=""><th>6666</th><th>6866</th><th>6666</th><th>6366</th></p.0<>	6666	6866	6666	6366
j en`oBirpyrene 5091-98	9.0	ozsn	<0.5	6666	6666	6886	6866
IndenoBHIKItedfpyrene PHT9TH95	P.0	ozsn'	<p.0< th=""><th>6666</th><th>6666</th><th>6886</th><th>6666</th></p.0<>	6666	6666	6886	6666
Diben Bill Fauthracene 5T900ff	- P.0	œsn	<p.0< th=""><th>6666</th><th>6565</th><th>6666</th><th>6666</th></p.0<>	6666	6565	6666	6666
jen`obghhiriperyRene	P.0	æsn	<p.0< th=""><th>6666</th><th>6666</th><th>6666</th><th>6666</th></p.0<>	6666	6666	6666	6666
EP080/07+: UotaRPetroRum Aydrocarbons							
1. 613 Zraction 9999	0- 6	œsn	0->	6666	6866	6666	6866
1+0 61+2 Zraction 9999	9 20	oz sn	<50	6666	6566	6666	6666
1+5 61 - 8 Zraction 9999	9 P00	œsn	<p00< th=""><th>6666</th><th>6666</th><th>6666</th><th>6366</th></p00<>	6666	6666	6666	6366
1-3 61x. Zraction 9999	9 20	фsи	<50	6666	6666	6366	6666
EP080: j UEz							
j en`ene 6P94T9	۵	œsn	<del>Q</del>	6666	6666	6666	6666
Uoranne P089899		ozsn	\$	6666	6866	6886	6866
Ethy Ren`ene P0094P94	'	фsф	Ÿ	6666	6666	6666	6666
meta6V para@yRene P089T89TgP01 94- 9T		фsи	Ÿ	6666	6866	6666	6366
ortho@yrene H59469	,	uszo	<b>\</b>	6666	6666	6666	6366
EP0. S: P1j Surrogate							
	- 0.P	%	0+	6866	6666	6666	6666
EP0. 8S: OrganochRorine Pesticide Surrogate							
Dibromo@DE - PI 5598T9	0.P	%	+02	6866	6666	6666	6366
EP0. 8U: Organophosphorus Pesticide Surrogate							
<b>DEZ</b> 6894898	9 O.P	%	elx.	6666	6666	6666	6666
EP072S: JO1 Surrogates							
+H@ichRroethane@2 P60I 090690	0.P	%	8510	6866	6666	6666	6366
<b>UorRene (D)8</b> - 0769   95	9.0 9.0	%	+0+	6666	6666	6666	6366
2g romofRoroben`ene 4l 090094	1 0.P	%	82l <del>X</del>	6866	6666	6666	6666
EP075BLK R: PhenoRc 1 ompound Surrogates							
Phenorad. PTP- 69889	- 0.P	%	x01 <b>2</b>	6866	6666	6666	6366
-61 hBrophenoRD2 HTH5PSST9	0.P	%	8518	6866	6666	6666	6666
- IZH 6JribromophenoR PP895Hg	0.P	%	8210	6666	6866	6666	6666
EP075BIKRJ: PI A Surrogates							
- 62RiorobiphenyR T- Pg 098	9.D	%	37H	6666	6666	6666	6366
I nthracene@t+0 P6PH201 98		%	₩+8	6666	6666	6366	6366
26JerphenyRd+2	0.P	%	80H	6666	6666	6666	6666
EP080S: UPABIFj UEz Surrogates							

A Campbell Brothers Limited Company



e P0g gPP e ES0808608

l 3sa A : LpgwlmaL

t 2yaCb IL:jaDb

etwjskoun/ @YGUMBTNEJUNGUS eteso5060198t

### Analytical Results

SOf 9d 3fbyx: WI UEG		Clien	Client sample ID	+70. 086026N9	6666	GBB6	6886	63366
	Clie	nt sampling	Client sampling date / time	P691KJ 9 008gPP600	6666	66666	6666	6666
Compound	CAS Number LOR	LOR	Unit	ES0808708600+	9999	9999	9999	9999
EP080S: UPABI Fij UEz Surrogates 61 ontinued	penu							
+H @ich Proethane@2	P60I 090690	0.P	%	X++	6866	6866	6866	6366
Uorene 608	- 0T69 I S5	0.P	%	·0	6866	6866	6866	6366
26 romofRoroben ene	4I 090094 0.P	0.P	%	‡	6666	6666	6666	6336





l3sa A∶lpgwlmaL t3acb lLjaDb

e PPg gP e ES0808608 e t wJSKoUN/ &YGUM&St NEJUNSUS e t ES050601 93t t

### Surrogate Control Limits

ate - 05P9 49T   Po rine Pesticide Surrogate - PI 558T9   Po   Po   Po   Po   Po   Po   Po   Po	SOT 93 3tbyc; WI UEG		Recovery Limits (%)	Limits (%)
1916   1916	Compound	CAS Number	Гом	High
- 05P9-49T PO Fine Pesticide Surrogate - PI 558T9 PO Sphorus Pesticide Surrogate 6894898 PO FO	EP0S: P1j Surrogate			
rine Pesticide Surrogate - PI 5569T9 PO sphorus Pesticide Surrogate 689488 PO - 0T69-1 55 88 41 050094 81 Rc 1 ompound Surrogates PTP-6889T PO HTH5P95T9 - T PP865H9 PO TT P69198 - 6 P6985P90 TT 2 Surrogates P601000690 80 - 0T69-1 55 88 41 050094 81	Decach Robipheny R	- 05P <del>9</del> 49T	8	Pl 4
Po Po Pol 5580T9 PO Pol 5580T9 PO Pol 5894878 PO Pol 6894878 PO Pol 6894878 PO Pol 689487 PO Pol 689478 PO Pol 689478 PO Pol 689678 PO Pol 6996879 PO Pol 6996879 PO Pol 6996879 PO Pol 6996879 PO Pol 6996879 PO Pol 6996879 PO Pol 69968799 PO Pol 69968799 PO Pol 69968799 PO Pol 69968799 PO Pol 69969799 O Pol 699697 PO Pol 699697 PO Pol 699697 PO Pol 699697 PO Pol 699697 P	EP0. 8S: Organoch Brine Pesticide Surrogate			
States	Dibromo@DE	- PI 5596T9	2	툽
Pol   Pol	EP0. 8U: Organophosphorus Pesticide Surrogate			
P601 090693   80   - 0T69-1 55   88   88   41 090094   81   81   82   82   83   84   84   84   84   84   84   84	DEZ	6894898	В	Ш
P601 090690 80	EP072S: JO1 Surrogates			
- 0T69-1 55 88 41 030094 81 81	+H @ich Broethane@2	P601 030630	80	P-0
## 1090094   81   81   82   82   83   84   84   84   84   84   84   84	UoRene (D8	- 0T69-1 SE	88	PPO
#C 1 ompound Surrogates   PTP-69889T   PO   HTH-FPGST9  T   PP895H9   PO   PP895H9   PP8	2g romofRoroben`ene	41 030094	81	PP5
HTH-FR9019 PO HTH-FR9019 PO HTH-FR9019 -T PR908149 PO HTH-FR90199 AT PR901909 PO HTH-FR90199  PO HTH-	EP075BIK B: PhenoRc 1 ompound Surrogates			
HTH-FREST9 - T PPSSSH4 PO UTrogates T-P9 038 T-P9 038 TT PPRSSP30	Phenorad.	PTP- 69889T	9	芏
PP896Hg   PO   PO	- 61 h Bropheno RD2	нтнързета		PT4
PI A Surrogates  T-P9 098 4T  P6PHDI 98 -6  P6PRBDP9 TT  FFI UEz Surrogates  P60 0969 80  Inne6D2 -0169 155 88  en'ene 41 090094 81	- IŽH GJribromophenoR	PP896Hg	8	P-T
RA         T - Pg 098         4T           P6PH201 93         - 6           F6P855Pg)         TT           InnedD2         P601 090690         80           en'ene         41 090094         81	EP075BIK N: PI A Surrogates			
P6PH201 93         - 6           Infi UEz Surrogates         TT           Infi UEz Surrogates         P601 090690         80           - 0T69 I 55         88         81           enì ene         41 090094         81	- GRuorobiphenyR	T- Pg 098	4T	Ы
Ifj UEz Surrogates         TT           netD2         P601 090690         80           - 0T69   55         88         88           an'ene         41 090094         81	I nthracene€d+0	P6PH201 98	9 -	PTT
P601 090699 80 - 0169 1 95 88 41 090094 81	26JerphenyRd+2	P6P895P90	F	Р4Р
P601 090690 80 - 0T69-1 95 88 41 090094 81	EP080S: UPABIRj UEz Surrogates			
- 0T69-1 55 88 88 41 090094 81	+H @ich Broethane@2	Pe0I 030630	80	P-0
41 090094	UoRene@8	- 0T69 I SE	88	PPO
	2g romofRoroben ene	41 090094	18	PP5



# **CERTIFICATE OF ANALYSIS**

**Environmental Division Sydney** : 1 of 10 Laboratory **CONSULTING EARTH SCIENTISTS** ES1703949 Amendment **Work Order** 

277-289 Woodpark Road Smithfield NSW Australia 2164 Customer Services ES Contact Address Suite 3, Level 1 55-65 Grandview Street Mr Mitchell Read

20-Feb-2017 15:00 +61-2-8784 8555 Date Samples Received Telephone PYMBLE NSW, AUSTRALIA 2073 +61 02 8569 2200 CES130608-BP

27-Feb-2017 09:58 21-Feb-2017 Date Analysis Commenced Issue Date

TRISTAN GOODBODY SY/488/14

Accreditation No. 825 Accredited for compliance with ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

General Comments

No. of samples analysed No. of samples received

Quote number

C-O-C number

Sampler

Order number

Telephone

Project

Contact

Client

Address

Analytical Results

Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11. Accreditation Category Position Signatories Signatories

Sydney Inorganics, Smithfield, NSW Sydney Inorganics, Smithfield, NSW Sydney Inorganics, Smithfield, NSW Sydney Organics, Smithfield, NSW Senior Spectroscopist Organic Coordinator Inorganic Chemist Celine Conceicao Edwandy Fadjar Ashesh Patel



 Page
 : 2 of 10

 Work Order
 : ES1703949 Amendment 1

 Client
 : CONSULTING EARTH SCIENTISTS

 Project
 : CES130608-BP

#### General Comments

procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. Key:

LOR = Limit of reporting

This result is computed from individual analyte detections at or above the level of reporting

 $\emptyset$  = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

Amendment (27/02/2017): This report has been amended to alter the project reference code. All analysis results are as per the previous report.

Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(b/fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.



Client Project

CONSULTING EARTH SCIENTISTS CES130608-BP

3 of 10 ES1703949 Amendment 1

Work Order

| 1 1 I -1 1 ŀ 1 ļ 1 I I l İ | -1 1 I 1 1 1 ŀ I 1 1 I I l l l l l l l l l 1 l l ı I ŀ I İ İ I l l l İ l l l | | | l ŀ 1 П l İ ŀ l 17-Feb-2017 00:00 ES1703949-001 Result <0.0001 <0.001 <0.001 <0.005 <0.0001 <0.001 <0.001 1110 9440 5580 <0.01 323 622 205 96.0 0.62 323 437 Ÿ Ÿ 5. 5. Client sample ID Client sampling date / time mg/L Chit 7439-97-6 0.0001 0.0001 0.005 0.001 0.001 0.001 LOR 0.001 0.01 0.01 0.001 7664-41-7 0.01 0.1 0.1 EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser 7440-66-6 7440-38-2 7440-43-9 7440-02-0 14808-79-8 16887-00-6 7440-47-3 7440-50-8 7439-92-1 | Ī 3812-32-6 7440-70-2 7439-95-4 7440-23-5 CAS Number DMO-210-001 71-52-3 7440-09-7 EK061G: Total Kjeldahl Nitrogen By Discrete Analyser EK067G: Total Phosphorus as P by Discrete Analyser ED041G: Sulfate (Turbidimetric) as SO4 2- by DA EK055G: Ammonia as N by Discrete Analyse ED045G: Chloride by Discrete Analyser EG020F: Dissolved Metals by ICP-MS EG035F: Dissolved Mercury by FIMS **ED093F: Dissolved Major Cations ED037P: Alkalinity by PC Titrator** Bicarbonate Alkalinity as CaCO3 Hydroxide Alkalinity as CaCO3 Carbonate Alkalinity as CaCO3 Sulfate as SO4 - Turbidimetric Total Kjeldahl Nitrogen as N Total Alkalinity as CaCO3 Total Phosphorus as P Nitrite + Nitrate as N ^ Total Nitrogen as N Sub-Matrix: WATER (Matrix: WATER) Ammonia as N Magnesium Potassium Chromium Cadmium Mercury Compound Chloride Calcium Copper Sodium Arsenic Nickel Lead Zinc



Project Client

: 4 of 10 : ES1703949 Amendment 1 : CONSULTING EARTH SCIENTISTS : CES130608-BP

Sub-Matrix: WATER		Clie	Client sample ID	QAQC2	-	-	!	1
(Mathx: WAIEK)	Cli	ent samolin	Client sampling date / time	17-Feb-2017 00:00	-	!	-	-
Company	CAS Mumber	108	Unit	ES1703949-001				
Composition				#11000				
EN055: Ionic Balance				Mesuit				
Total Anions	I	0.01	meq/L	296	-	-	1	I
Total Cations	1	0.01	med/L	321				
Ionic Balance		0.01	%	4.07				I
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls		-	hg/L	<1			-	-
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5			-	
Hexachlorobenzene (HCB)	118-74-1	0.5	hg/L	<0.5				
beta-BHC	319-85-7	0.5	hg/L	<0.5				
gamma-BHC	58-89-9	0.5	hg/L	<0.5				
delta-BHC	319-86-8	0.5	hg/L	<0.5				
Heptachlor	76-44-8	0.5	hg/L	<0.5				
Aldrin	309-00-2	0.5	hg/L	<0.5			-	
Heptachlor epoxide	1024-57-3	0.5	hg/L	<0.5				
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5				-
alpha-Endosulfan	8-86-626	0.5	µg/L	<0.5				
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5			-	
Dieldrin	60-57-1	0.5	hg/L	<0.5			-	-
4.4`-DDE	72-55-9	0.5	hg/L	<0.5			-	
Endrin	72-20-8	0.5	hg/L	<0.5				
beta-Endosulfan	33213-65-9	0.5	hg/L	<0.5			-	
4.4`-DDD	72-54-8	0.5	hg/L	<0.5			-	-
Endrin aldehyde	7421-93-4	0.5	hg/L	<0.5			1	1
Endosulfan sulfate	1031-07-8	0.5	hg/L	<0.5			1	1
4.4`-DDT	50-29-3	2	hg/L	<2.0			-	-
Endrin ketone	53494-70-5	0.5	hg/L	<0.5			-	-
Methoxychlor	72-43-5	2	hg/L	<2.0			-	-
^ Total Chlordane (sum)		0.5	hg/L	<0.5			-	-
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5	0.5	hg/L	<0.5	1	1	1	1
	7-0	L		L				
Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	hg/L	<0.0				
EP068B: Organophosphorus Pesticides (OP)	(OP)							
Dichlorvos	62-73-7	0.5	hg/L	<0.5				
Demeton-S-methyl	919-86-8	0.5	hg/L	<0.5				



Project Client

: 5 of 10 : ES1703949 Amendment 1 : CONSULTING EARTH SCIENTISTS : CES130608-BP

Sub-Matrix: WATER (Matrix: WATER)		Clie	Client sample ID	QAQC2	!	1	1	1
	Clie	nt samplin <sub>e</sub>	Client sampling date / time	17-Feb-2017 00:00				
Compound	CAS Number	LOR	Unit	ES1703949-001		-		
				Result				
EP068B: Organophosphorus Pesticides (OP) - Continued	OP) - Continued							
Monocrotophos	6923-22-4	2	hg/L	<2.0			-	•
Dimethoate	60-51-5	0.5	hg/L	<0.5		-	-	i
Diazinon	333-41-5	0.5	hg/L	<0.5				
Chlorpyrifos-methyl	5598-13-0	0.5	hg/L	<0.5	-	i	ŀ	i
Parathion-methyl	298-00-0	2	hg/L	<2.0	-		-	:
Malathion	121-75-5	0.5	hg/L	<0.5	-			i
Fenthion	55-38-9	0.5	hg/L	<0.5		-		!
Chlorpyrifos	2921-88-2	0.5	hg/L	<0.5		-		
Parathion	56-38-2	7	hg/L	<2.0		-	-	I
Pirimphos-ethyl	23505-41-1	0.5	hg/L	<0.5		-		:
Chlorfenvinphos	470-90-6	0.5	hg/L	<0.5				
Bromophos-ethyl	4824-78-6	0.5	hg/L	<0.5				-
Fenamiphos	22224-92-6	0.5	hg/L	<0.5				
Prothiofos	34643-46-4	0.5	hg/L	<0.5			-	•
Ethion	563-12-2	0.5	µg/L	<0.5		-	ļ	Į
Carbophenothion	786-19-6	0.5	hg/L	<0.5				
Azinphos Methyl	86-50-0	0.5	hg/L	<0.5				
EP074A: Monocyclic Aromatic Hydrocarbons	suc							
Styrene	100-42-5	2	hg/L	<5				
Isopropylbenzene	98-82-8	2	hg/L	<5				
n-Propylbenzene	103-65-1	2	hg/L	<5				
1.3.5-Trimethylbenzene	108-67-8	2	hg/L	<5				-
sec-Butylbenzene	135-98-8	2	hg/L	<5			-	-
1.2.4-Trimethylbenzene	95-63-6	2	hg/L	<5			-	
tert-Butylbenzene	9-90-86	2	hg/L	<5				-
p-IsopropyItoluene	9-84-6	2	hg/L	<5			-	-
n-Butylbenzene	104-51-8	Ω	hg/L	<5			-	-
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	20	hg/L	<50			-	•
2-Butanone (MEK)	78-93-3	20	hg/L	<50			-	
4-Methyl-2-pentanone (MIBK)	108-10-1	20	hg/L	<50				-
2-Hexanone (MBK)	591-78-6	20	hg/L	<50				
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	22	hg/L	<5				



Project Client

: 6 of 10 : ES1703949 Amendment 1 : CONSULTING EARTH SCIENTISTS : CES130608-BP

•								
Sub-Matrix: WATER (Matrix: WATER)		Ö	Client sample ID	QAQC2	1	1	I	!
	Cli	ent samplii	Client sampling date / time	17-Feb-2017 00:00	-	-	-	
Compound	CAS Number	LOR	Unit	ES1703949-001	!	1	!	!
				Result				
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	2	hg/L	<5			-	
1.2-Dichloropropane	78-87-5	2	hg/L	<5	I		-	1
cis-1.3-Dichloropropylene	10061-01-5	2	hg/L	<5				
trans-1.3-Dichloropropylene	10061-02-6	2	hg/L	<5				
1.2-Dibromoethane (EDB)	106-93-4	2	hg/L	<5	I		-	
EP074E: Halogenated Aliphatic Compounds	spuno							
Dichlorodifluoromethane	75-71-8	20	hg/L	<50	-	-	-	-
Chloromethane	74-87-3	20	hg/L	<50				
Vinyl chloride	75-01-4	20	hg/L	<50				-
Bromomethane	74-83-9	20	hg/L	<50				
Chloroethane	75-00-3	50	hg/L	<50				
Trichlorofluoromethane	75-69-4	20	hg/L	<50			-	-
1.1-Dichloroethene	75-35-4	2	hg/L	<5	i		-	i
lodomethane	74-88-4	2	hg/L	<5	I		-	!
trans-1.2-Dichloroethene	156-60-5	2	hg/L	<5			-	-
1.1-Dichloroethane	75-34-3	2	hg/L	<5				
cis-1.2-Dichloroethene	156-59-2	2	hg/L	<5				
1.1.1-Trichloroethane	71-55-6	2	hg/L	<5				
1.1-Dichloropropylene	563-58-6	2	hg/L	<5				
Carbon Tetrachloride	56-23-5	2	hg/L	<5	i		-	i
1.2-Dichloroethane	107-06-2	2	hg/L	<5				
Trichloroethene	79-01-6	2	hg/L	<5				
Dibromomethane	74-95-3	2	hg/L	<5	-	-	-	-
1.1.2-Trichloroethane	2-00-62	2	hg/L	<5				
1.3-Dichloropropane	142-28-9	2	hg/L	<5				
Tetrachloroethene	127-18-4	2	hg/L	<5				
1.1.2-Tetrachloroethane	630-20-6	2	hg/L	<5				-
trans-1.4-Dichloro-2-butene	110-57-6	2	hg/L	<5		-		-
cis-1.4-Dichloro-2-butene	1476-11-5	2	hg/L	<5				
1.1.2.2-Tetrachloroethane	79-34-5	2	hg/L	<5		-		-
1.2.3-Trichloropropane	96-18-4	2	hg/L	<5				
Pentachloroethane	7-10-92	2	hg/L	<5				
1.2-Dibromo-3-chloropropane	96-12-8	2	hg/L	<5				
Hexachlorobutadiene	87-68-3	2	hg/L	<5	1	1	1	1



Project Client

: 7 of 10 : ES1703949 Amendment 1 : CONSULTING EARTH SCIENTISTS : CES130608-BP

Sub-Matrix: WATER		Clie	Client sample ID	QAQC2	1	1	1	1
<i>(</i> ,	Clik	ent samplii	Client sampling date / time	17-Feb-2017 00:00	-	-		-
Compound	CAS Number	LOR	Unit	ES1703949-001	-	-		-
				Result	1	1	1	1
EP074F: Halogenated Aromatic Compounds	spu							
Chlorobenzene	108-90-7	2	hg/L	<5	-			-
Bromobenzene	108-86-1	5	hg/L	<5	-			
2-Chlorotoluene	92-49-8	2	hg/L	<5	-			-
4-Chlorotoluene	106-43-4	5	hg/L	<5	-			I
1.3-Dichlorobenzene	541-73-1	5	hg/L	<5				-
1.4-Dichlorobenzene	106-46-7	2	hg/L	<5				-
1.2-Dichlorobenzene	95-50-1	2	hg/L	<5				-
1.2.4-Trichlorobenzene	120-82-1	2	hg/L	<5	-			1
1.2.3-Trichlorobenzene	87-61-6	2	hg/L	<5	-			-
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	hg/L	<5				1
Bromodichloromethane	75-27-4	2	hg/L	<5	-			-
Dibromochloromethane	124-48-1	2	hg/L	<5				-
Bromoform	75-25-2	5	hg/L	<5				
EP074H: Naphthalene								
Naphthalene	91-20-3	2	hg/L	<5	-			-
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	rocarbons							
Naphthalene	91-20-3	-	hg/L	<1.0	-			
Acenaphthylene	208-96-8	_	hg/L	<1.0	-			-
Acenaphthene	83-32-9	-	hg/L	<1.0	-			
Fluorene	86-73-7	7	hg/L	<1.0				-
Phenanthrene	85-01-8	τ-	hg/L	<1.0	-			
Anthracene	120-12-7	~	hg/L	<1.0	-		-	
Fluoranthene	206-44-0	-	hg/L	<1.0	-			-
Pyrene	129-00-0	-	hg/L	<1.0	-			-
Benz(a)anthracene	56-55-3	7	hg/L	<1.0	-			
Chrysene	218-01-9	_	hg/L	<1.0	-			
Benzo(b+j)fluoranthene 20	205-99-2 205-82-3	-	hg/L	<1.0	-			
Benzo(k)fluoranthene	207-08-9	~	hg/L	<1.0	-			
Benzo(a)pyrene	50-32-8	0.5	hg/L	<0.5	-			-
Indeno(1.2.3.cd)pyrene	193-39-5	_	hg/L	<1.0				
Dibenz(a.h)anthracene	53-70-3	~	hg/L	<1.0	-			
Benzo(g.h.i) perylene	191-24-2	1	hg/L	<1.0	-		-	-
<ul> <li>Sum of polycyclic aromatic hydrocarbons</li> </ul>	1	0.5	hg/L	<0.5				



Client Project

: 8 of 10 : ES1703949 Amendment 1 : CONSULTING EARTH SCIENTISTS : CES130608-BP

Sub-Matrix: WATER (Matrix: WATER)		Clie	Client sample ID	QAQC2			-	
	Clie	int samplii	Client sampling date / time	17-Feb-2017 00:00		-		
Compound	CAS Number	LOR	Unit	ES1703949-001	1			
				Result				
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued	/drocarbons - Conti	panı						
A Benzo(a)pyrene TEQ (zero)		0.5	hg/L	<0.5		-		
EP080/071: Total Petroleum Hydrocarbons	ons							
C6 - C9 Fraction		20	hg/L	<20		-		
C10 - C14 Fraction	-	20	hg/L	<50		I		
C15 - C28 Fraction	1	100	hg/L	<100		-		
C29 - C36 Fraction		20	µg/L	<50		I		
^ C10 - C36 Fraction (sum)	-	20	hg/L	<50		i		
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions	rbons - NEPM 2013	Fraction	SI					
C6 - C10 Fraction	C6_C10	20	hg/L	<20		-	-	
<sup>^</sup> C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	1	1	1	1
>C10 - C16 Fraction	1	100	µg/L	<100		-	-	
>C16 - C34 Fraction	1	100	µg/L	<100		-	-	
>C34 - C40 Fraction	-	100	hg/L	<100		1		
^ >C10 - C40 Fraction (sum)	1	100	hg/L	<100		1		
>C10 - C16 Fraction minus Naphthalene	-	100	hg/L	<100			-	
(F2)								
EP080: BTEXN								
Benzene	71-43-2	_	hg/L	<b>^</b>				
Toluene	108-88-3	2	hg/L	<2		1		
Ethylbenzene	100-41-4	2	µg/L	<2		-		
meta- & para-Xylene	108-38-3 106-42-3	2	hg/L	<2		1	-	
ortho-Xylene	92-47-6	2	hg/L	<2		-		
^ Total Xylenes	1330-20-7	2	µg/L	<2		-		
^ Sum of BTEX	-	-	µg/L	<1		1		
Naphthalene	91-20-3	2	µg/L	<5		1		
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	-	%	93.6		-		
EP068S: Organochlorine Pesticide Surrogate	rogate							
Dibromo-DDE	21655-73-2	0.5	%	112		1	-	
EP068T: Organophosphorus Pesticide Surrogate	Surrogate							
DEF	78-48-8	0.5	%	62.8				
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	110		-	-	-



Project Client

: 9 of 10 : ES1703949 Amendment 1 : CONSULTING EARTH SCIENTISTS : CES130608-BP

Sub-Matrix: WATER (Matrix: WATER)		Clier	Client sample ID	QAQC2				
	Clie	ent sampling	Client sampling date / time	17-Feb-2017 00:00	-		-	-
Compound	CAS Number	LOR	Unit	ES1703949-001	!		!	!
				Result				
EP074S: VOC Surrogates - Continued								
Toluene-D8	2037-26-5	2	%	122	1		-	-
4-Bromofluorobenzene	460-00-4	2	%	104		-	1	i
EP075(SIM)S: Phenolic Compound Surrogates	gates							
Phenol-d6	13127-88-3	-	%	21.5	-	-	-	i
2-Chlorophenol-D4	93951-73-6	-	%	55.1				
2.4.6-Tribromophenol	118-79-6	_	%	60.3	-		-	-
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	_	%	76.4	1	-	-	1
Anthracene-d10	1719-06-8	-	%	71.9				
4-Terphenyl-d14	1718-51-0	-	%	92.2				
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	117			-	-
Toluene-D8	2037-26-5	2	%	111	-		-	-
4-Bromofluorobenzene	460-00-4	2	%	118	-	-	-	!



Surrogate Control Limits

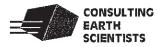
Client Project

: 10 of 10 : ES1703949 Amendment 1 : CONSULTING EARTH SCIENTISTS : CES130608-BP

Sub-Matrix: WATER		Recovery Limits (%)	Limits (%)
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	29	129
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	30	120
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	27	129
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128



#### **Appendix 4 Field Data Sheets**



Client:		CES Project Code:
Project:		Location:
Sampler (s):	Signature(s): MK	Project Manager:
BHID: ANW	103	Sample ID:
Purging Date: 1410%	117 10:39	Sampling Date:

Well Status						<i>←</i>
Well damaged:		YES/NO	Well	locked:		(FES)NO
Cement footing damaged:		YES/NO\	Cap	on PVC cas	ing:	YESINO
Internal obstructions in casing:		YES/NO	Well	ID visible:		YES/NO)
Standing water, vegetation around monu	ment:	YES/NO	Mons	ıment dam	aged:	YES/NO
Water between PVC and protective casin	ıg:	YESNO	Odou	irs from gro	oundwater:	YES/NO
Well purged to dry?		YES/NO 45V	Veather Condition	ons		
Standing Water Level (SWL):	1.47	Z(mBTOC) 2.		perature:	20	°C
Well volume:	6.3	<u>z</u> (L)				
Water level after purging:	<del>-</del> ·	(mBTOC)	Clear	Partl	y Cloudy	Overcast
Water level at time of sampling:		(mBTOC)				
Volume of water purged:	20	(L)	Calm	Sligh	t breeze	Moderate Breeze
Purging equipment:		Pump / micro-Purging /	Wind	ly		
Sampling equipment:		Bailer / Foot Valve Pump / Bailer	Fine	Shov	vers	Rain

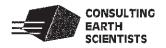
**Purging Details** 

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	pH 	Eh mV	Temp. (°C)	Comments
:		<b>7940</b> ,	054	2538	予化	-227.5	25.9	Grey, tubid, stron
		8	0.67	29174	7.35	-2371	25.6	oregnet, s. turby
		is	0.67	29672		-239.3	26.3	Crey siturded bolo
		20	0.70	ZIG 08	7.27			organic soldini
				<i>\$</i>				
				•				
								·

Groundwater field parameters at the end of purging to be marked "Field Measurements".

\* Hit blockage? at 1.68 m8TOC, Roots + sard come up on olip meter (has buzzing at bottom)

topof casing 2 00 80 mm bg1



#### **GROUNDWATER FIELD DATA SHEET**

Client:		CES Project Code:
Project:		Location:
Sampler (s):	Signature(s): MA	Project Manager:
BHID: ABH 2100	· · · · · · · · · · · · · · · · · · ·	Sample ID:
Purging Date: 16/02//7 1	1:00 AM	Sampling Date:

Well Status	_			
Well damaged:	YES/NO.	Well locke	ed;	YESINO
Cement footing damaged:	YES/NO\	Cap on PV	/C casing:	YES/NO
nternal obstructions in easing:	YES/NO	Well ID vi	isible:	YES/NO)
Standing water, vegetation around monument:	YES/NO	Monumen	it damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours fro	om groundwater:	YESMO
	<b>—</b>	4n	ā	
Well purged to dry?	VBS/NO 601 Weather	r Conditions		
Standing Water Level (SWL): 1. S	7 (mBTOC) 6. +3 m 678	Temperati	ire: 3.0	°C
Well volume:	Ø (L)		~	
Water level after purging:	(mBTOC)	⊘lear.	Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)			
Volume of water purged:	(L)	Çalın	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging /	Windy		
	Bailer / Foot Valve			
Sampling equipment:	Pump / Bailer	Effre.	Showers	Rain

**Purging Details** 

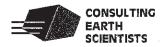
Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	рН -	Eh mV	Temp.	Comments
		2_	0.98	5526	7.28	-168.1	235	Pale gray / brown /m Saturbid stage
		8	0.77	5354	1	-162.5	24.6	
		15	08z	5311	- 2	-157.7	24. C	hight brown aream,
		20	0.85	5254	6.68	-115.6	24.5	11
		Dra	2 2	のし				

Groundwater field parameters at the end of purging to be marked "Field Measurements".

& Slow recovery I cm = 1-2 secs.



\$ 4.91



Client:		- CES Project Code:	
Project:	-	Location:	
Sampler (s):	Signature(s): Nich	Project Manager:	
BH ID: A 33472110		Sample ID:	
Purging Date: 16102119	12:00 PM	Sampling Date:	

Well Status	6			
Well damaged:	YES/NO	Well locked:		YE8/NO
Cement footing damaged:	YES/NO	Cap on PVC casir	ıg:	YES/NO
Internal obstructions in casing:	YES/NO YES/NO	Well ID visible:		YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damag	ged:	YES/NO
Water between PVC and protective casing:	YE3/NG	Odours from grou	ndwater:	YES/NO
Well purged to dry?  Standing Water Level (SWL):  Well volume:	YES/NO Weather (mBTOC) Weather (L)	Conditions Temperature:	30	°C
Water level after purging:	(mBTOC)	Glear Partly	Cloudy	Overcast
Water level at time of sampling:	(mBTOC)	-		
Volume of water purged: 0,5 🦚	(L)	Calm Şlight	breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy		
Sampling equipment:	Pump / Bailer	Fine Showe	rs	Rain

**Purging Details** 

Purging D	etans							
Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )		Eh mV	Temp, (°C)	Comments
		0.5	208	3050	7.08	709.5	267	orage, libid,
	·						·	
		******						v
	-							
			*.					

Groundwater field parameters at the end of purging to be marked "Field Measurements".

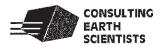
bot@ 1.86 m8TOZ?

Very

Delittle rechange, but recovery,

only 500 ml brought up and put in cup

I cm = 20-30 seconds. & Top of casing = 60 mm bg 1



Client:

## **GROUNDWATER FIELD DATA SHEET**

CES Project Code:

Windy

(Fine)

Showers

Rain

Project:		Location:					
Sampler (s):	Signature(s):	-	Project N	Aanager:			
BHID: ABU102		•		Sample I	D:		
Purging Date: 16/02/17	12:3	0 pm		Samplin	g Date:		
,		•					
Well Status		m					
Well damaged:		YES/NO		Well lock	ed:		YESINO
Cement footing damaged:		YES/NO		Cap on P	VC casing:		YES/NO
Internal obstructions in casing:		YES/NO					YES/NO)
Standing water, vegetation around mon	ument:	YES/NO		Monument damaged:			YES/NO
Water between PVC and protective cas	ing;	YENO		Odours fi	rom groundy	water:	YES
Well purged to dry?		VES/NO	Weather C	Conditions			_
Standing Water Level (SWL):	1:315	(mBTOC) 4.03		Tempera	ture: 🐪	J)	°C
Well volume:	12	(L)		~	3		
Water level after purging:	1 "	(mBTOC)		Glear)	Partly Clo	udy	Overcast
Water level at time of sampling:		(mBTOC)					
Volume of water purged:	70	(L)		Calph	Slight bree	eze	Moderate Breeze

Pump/micro-Purging/

Bailer / Koot Valve Pump / Bailer

Purging Details

Purging equipment:

Sampling equipment:

Purging D	etans							
Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	pH -	Eh mV	Temp. (°C)	Comments
		2	0.30	1709	696	135	24.8	Bran, V. Turbia,
Wis		10	1.30	१६६६	6.78	-108,2	24.9	Bran, Viturbia, odories Role brown, Sturbia odories
-		15	3.16	"16 <sup>4</sup> 4	6.71	-801	2°t.4	11
		20	12	1607	6-71	-67.7	239	<i>11</i>
			1.00					
		9						
		ga:	:					
		<u>.</u>						

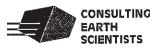
Groundwater field parameters at the end of purging to be marked "Field Measurements".

Recherche waits = HHT

& & Moderate recovery.

4

2.715



	*			
Client:		4		CES Project Code:
Project:	*.			Location:
Sampler (s):		Signature(s):	W	Project Manager:
BH ID:	ABH 2105	43		Sample ID:
Purging Date:	16/02/17	1:00 PM		Sampling Date:

Well Status	· · · · · · · · · · · · · · · · · · ·		
Well damaged:	YES/NO.	Well locked:	X ÉS NO
Cement footing damaged:	YES/NO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YEŞNO
Water between PVC and protective casing:	YESING	Odours from groundwater:	KE&/NO
Well purged to dry?		Veather Conditions	
Standing Water Level (SWL):	.44(mBTOC) 3.87	Temperature: 30	$^{\circ}\mathrm{C}$
Well volume:	10 (L)		
Water level after purging:	(mBTOC)	Clear Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)		
Volume of water purged:	(L)	Calm Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging /	Windy	
	Bailer Foot Valve		
Sampling equipment:	Pump / Bailer	Rine Showers	Rain

Purging Details

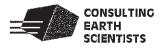
Purging D	etails							
Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	pН	Eh mV	Temp.	Comments
		2	0.04	875	6.69	-79.2	241	Brack / derk grey V. Tished, Strong HE o: Ock grey, turned, the odor
		(0	0.68	845	6.59	-89.2	23.8	Och grey, turbia,
		15	0.98	<b>3</b> 53	6.57	-1271	23.3	tic odow
		20	0.70	8.33	6-55	747.1	225	Pula gray, S. harbit
ž.		25	615	δ37	6.55	-146.2	23.0	n .
		30	0.81	824	6.46	-1442	22.8	N
	75							

Groundwater field parameters at the end of purging to be marked "Field Measurements".

A Strong HC adour on dup meter
A Top of casing = 40 mm bg/
A Good recovery



2.43



Client:			CES Project Code:	
Project:			Location:	
Sampler (s):		Signature(s):	Project Manager:	
BH ID:	1MW 205		Sample ID:	
Purging Date:	16/02/17	"1:50 PM	Sampling Date:	
0 0		(1,001.1	Towns 2 most	

Well Status				
Well damaged:	YES/NO	Well lock	ed:	YES/NO
Cement footing damaged:	YES/NO	Cap on P	VC casing:	YES NO
Internal obstructions in casing:	YES/NO	Well ID v	risible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monume	nt damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours fr	om groundwater:	KE9/NO
Well purged to dry?	YES/NO Weathe	r Conditions		
Standing Water Level (SWL):	(mBTOC) 2.04 weather	Temperat	ure: 25	°C
Well volume:	, (L)			
Water level after purging:	(mBTOC)	Clear	Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)		Colombia.	The state of the s
Volume of water purged:	(L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy		Comment
Sampling equipment:	Pump / Bailer	Fine)	Showers	Rain

Purging Details

Purging D	etans							
Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	pH -	Eh mV	Temp. (°C)	Comments
		)	0.50	3540	6.86	-244.9	23.0	Pale grey, S. terbiel
		产工	223	3572	7.02	-238.8	22.7	Pall grey, S. turbed
		104	1.31	3632	6.96	-236.7	22.7	4 / grean, s. twold
								9

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Purged to dry = 1st Recovered to 40 0.45 mbTOC

2nd " 0.45 mbTOX Compatient)

3rd 0.45 mbTOX Compatient)

A Moderate recovery 10cm = 8 secs



Client:

## GROUNDWATER FIELD DATA SHEET

**CES Project Code:** 

Slight breeze

Showers

Moderate Breeze

Rain

Calm

Windy

Fine

Project:		Location:	
Sampler (s):	Signature(s): 🏒	Project Manager:	
BHID: 3MW40H		Sample ID:	
Purging Date: 16/02/17	2:30 PM	Sampling Date:	
Well Status			
Well damaged:	YES/NO	Well locked:	YESMO
Cement footing damaged:	yesho)	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	XES/NO	Well ID visible:	YES/MO
Standing water, vegetation around monume		Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	XES/NO
	, O		
Well purged to dry?	YES/NO \ We	eather Conditions	
Standing Water Level (SWL):	.16 (mBTOC) 3.64	Temperature: 2-5	$^{\circ}\mathrm{C}$
Well volume:	6.5 (L)	N. Carlotte	
Water level after purging:	(mBTOC)	Clear Partly Cloudy	Overcast

(mBTOC)

Pump / Bailer

Pump / micro-Purging /

Bailer / Foot Valve

20 (L)

Sampling equipment:

Purging equipment:

Water level at time of sampling:

Volume of water purged:

Purging D	etails							
Elapsed	Water level	Cumulative	DO	EC	pН	Eh	Тетр.	·
time (min)	mBTOC	volume (L)	(mg.L <sup>-1</sup> )	(uS.cm <sup>-1</sup> )	-	mV	(°C)	Comments
		2	074	7946	7.19	-262.7	226	v. Pale grey, s. turbid, organic odow Ato V. V pul Grey/gram; V. S turbid, organic po v. V. Pale green, W. Stur organic odow.
		10	0.78	11388	7.07	-277.3	21.7	Visturbed o game to
		20	0.50	1157	7.08	-2821	21.6	v. v. Pale green &. 5 tur
					-		<del>                                     </del>	

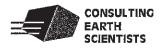
Groundwater field parameters at the end of purging to be marked "Field Measurements".

\* meds
weeds

\* 105ger inside well. (cable off logger) 1.48

\* Top of casing = 60 mm bg/

\* cood recovery



Client:			CES Project Code:	
Project:			Location:	
Sampler (s):		Signature(s):	Project Manager:	
BH ID:	3 MW403		Sample ID:	
Purging Date:	16/02/17	3:00 pm	Sampling Date:	

Well Status			^
Well damaged:	YES/NO	Well locked:	YÉSYNO
Cement footing damaged:	YES/NO\	Cap on PVC casing:	YES/NO
Internal obstructions in easing:	YES/NO)	Well ID visible:	YES/MO)
Standing water, vegetation around monument:	YES NO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YESNO	Odours from groundwater:	YES/NO
		2 g	
Well purged to dry?	YES/NO Weath	er Conditions	
Standing Water Level (SWL): 2 K	(mBTOC) 4 66	Temperature: 75	°C
Well volume:	(L)		
Water level after purging:	O <sub>(mBTOC)</sub>	Clear Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)	100 m	
Volume of water purged:	(L)	Calm Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging /	Windy	
	Bailer / Foot Valve		
Sampling equipment:	Pump / Bailer	Fine Showers	Rain

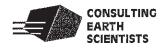
Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	pH -	Eh mV	Temp. (°C)	Comments
		1	第0年	3450	6-91	-1887	23.7	Stight organic och
		3	3.82	2802	6.77	-143.5	22.9	grey, tubold, stight
		5	270	2907	6.94	-175.8	22.2	9 3 11
	,d	e.						
					:			
		***************************************	-				i	
						-		

Groundwater field parameters at the end of purging to be marked "Field Measurements".

\* logger installed (calle attached ofurged to dry = 1st - Recovered to 3.5/@ 1-15 litres

2nd - Recovered to 3.5/@ 1-5-2 litres

3rd - Recovered to 3.5/@ 1.5-2 Why



Client:

## GROUNDWATER FIELD DATA SHEET

Chenti		CESTIGIEU COU.				
Project:	.0	Location:				
Sampler (s):	Signature(s): W	R	Project Manager:			
BHID: BMW401			Sample ID:			
Purging Date: 15/02/17 3	40 PM		Sampling Date:			
Well Status	Ĺ			_		
Well damaged:	YES/NO		Well locked:	MES/NO		
Cement footing damaged:	YES/NO	₹:	Cap on PVC casing:	YESNO		
Internal obstructions in easing:	YES/NO		Well ID visible:	YES/MO		
Standing water, vegetation around monument:	YES/NC	=	Monument damaged:	YES/NO		
Water between PVC and protective casing:	YES/NO		Odours from groundwater:	YES/NO		
Well purged to dry?	YES/NO	Weather C	Conditions			
Standing Water Level (SWL):	) (mBTOC) 4 /	r' m	Temperature: 15	°C		
	pho	Ø	=			

Well volume: Water level after purging:

Water level at time of sampling: Volume of water purged:

Purging equipment:

Sampling equipment:

(mBTOC) (mBTOC)

Pump / micro-Purging /

Bailer / Root Valve Pump / Bailer

Clear

Calm

Windy

CES Project Code:

Partly Cloudy

Overcast

Slight breeze

Moderațe Breeze

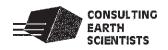
Kine Showers Rain

**Purging Details** 

Water level	Cumulative	DO (mg I <sup>-1</sup> )	EC	рН	Eh	Temp.	
mBTOC	volume (L)	(mg.L)	(us.cm)		mV	( C)	Comments
	0.5	2.45	941	6.85	-104.8	25.6	Scome sing My turbed
		2.09	859	628	~78·8	24.3	11
	1.5	2.10	829	6.65	-1017	23.5	<b>§</b> (
							Recovered to
							Fecarered to 1 4.13 mBTOC each time
							each time
							in about 3 min
							:
	Water level mBTOC	mBTOC volume (L)  0.5	mBTOC volume (L) (mg.L <sup>-1</sup> )  0.5 2.99	mBTOC volume (L) (mg.L <sup>-1</sup> ) (us.cm <sup>-1</sup> )  0.5 2.45 941  2.09 859	mBTOC volume (L) (mg.L <sup>-1</sup> ) (us.cm <sup>-1</sup> ) -  0.5 2.45 941 6.85  1 2.09 859 6.28	mBTOC volume (L) (mg.L <sup>-1</sup> ) (us.cm <sup>-1</sup> ) - mv  0.5 2.45 941 6.85 -1048  2.09 859 628 -78.8	mBTOC volume (L) (mg.L <sup>-1</sup> ) (us.cm <sup>-1</sup> ) - mV (°C)  0.5 2.45 941 6.85 -104.8 25.6  1 2.09 859 6.28 -78.8 24.3

Groundwater field parameters at the end of purging to be marked "Field Measurements".

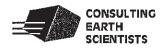
1 cms 4 secs \* Top of casing = 90 mm byl
\*\* Star recovery. \*\* logger installed Catached to itself)



Client:	w/	CES Project Code:	
Project:		Location:	
Sampler (s): MR	Signature(s): (A)	Project Manager:	
вн id: Дм//203	•	Sample ID: AMW2	03, QAQUI, JAQC
Purging Date: 17/02/17		Sampling Date: 17/02	117
		*. /	
Well Status	_		
Well damaged:	YES/NO	Well locked:	YESNO
Cement footing damaged:	YESANO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YESNO	Monument damaged:	YESNO
Water between PVC and protective casing:	YESINO	Odours from groundwater:	VES/NO
Well purged to dry?	YES/NO Weather	Conditions	
Standing Water Level (SWL):	(mBTOC)	Temperature: 30	· °C
Well volume:	(L)		
Water level after purging:	(mBTOC)	Clean Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)		
Volume of water purged:	(L)	Calm Slight breeze	Moderate Breeze
Purging equipment:	Pump/micro-Purging/	Windy	
	Bailer / Foot Valve		
Sampling equipment:	Pump / Bailer	Fane Showers	Rain

**Purging Details** 

	Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	рН -	Eh mV	Temp.	Comments
9:52	0		0	0.64	9290	4.47		25.6	Pale gray, stribia
	2		0.5	0-16	15261	4.52	-967	25.7	
	4		· ·	0.11	20082	4.61	-117.5	25.6	
	6		1.5	0.09	22120	4.67	-122.3	25.6	
	8		2	0.08	24024	4.74	-133.7	25.5	
	10		2.5	0.08	25134	4.78	-131.7	25.5	
									Roots in water



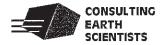
Client:		•		CES Project Code:
Project:				Location:
Sampler (s):	MK	Signature(s):	MA	Project Manager:
BH ID:	ABH2100			Sample ID: AGH 2100
Purging Date:	17/02/17			Sampling Date: 17/02/17

Well Status			•
Well damaged:	YES/NO	Well locked:	YESYNO
Cement footing damaged:	YESANO	Cap on PVC casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO
Standing water, vegetation around monument:	YESNO	Monument damaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from groundwater:	YES/NO
Well purged to dry?	YES/NO Wea	ther Conditions	
Standing Water Level (SWL): 1.60	(mBTOC)	Temperature: 30	°C
Well volume:	(L)	30	
Water level after purging:	(mBTOC)	Clean Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)		
Volume of water purged:	(L)	Calm (Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging /	Windy	
	Bailer / Foot Valve		
Sampling equipment:	Pump / Bailer	Fine Showers	Rain

**Purging Details** 

10:45

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	рН -	Eh mV	Temp. (°C)	Comments
9		0	1.56	6041	4.04	72.6	25.5	odowners
2_		0.5	0.93	5461	6.69	-104.6	25.6	
2F		(	0.81	5354	6.60	-105.3	25.4	
б		1.5	0.83	5307	6.53	-105.2	25.3	
8		2	0.76	5263	6-51	-los.3	25.3	
		-						



Client: Project:

## **GROUNDWATER FIELD DATA SHEET**

CES Project Code:

Location:

(Fine

Showers

Rain

Sampler (s): (VVK	Signature(s): M	Project Manager:	
BH ID: ABH 2110		Sample ID:	
Purging Date: 14 102 14		Sampling Date:	
Well Status			estillas.
Well damaged:	YES/NO	Well locked:	YESMO
Cement footing damaged:	YES/NO	Cap on PVC casing:	VES/NO
Internal obstructions in casing:	YES/NO	Well ID visible:	YES/NO)
Standing water, vegetation around monument:	YES/NO	Monument damaged:	YESMO
Water between PVC and protective casing:	(E) Note that the second of th	Odours from groundwater:	YES/NO
Well purged to dry?	YES/NO Weather	r Conditions	
Standing Water Level (SWL):	(mBTOC)   .86	Temperature: 30	°C
Well volume:	(L)		
Water level after purging:	(mBTOC)	Clear Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)		
Volume of water purged:	(L)	Calm Slight breeze	Moderate Breeze
Purging equipment:	Pump/micro-Purging/	Windy	

Bailer / Foot Valve

Pump / Bailer

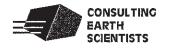
**Purging Details** 

Sampling equipment:

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	рН -	Eh mV	Temp. (°C)	Comments
0		0	2-77	4189	6.62	-85.2	27.)	
	· A STATE OF THE PARTY OF THE P	gy o g Cale and Makes are go take on a prime and Ald (27 a 190 ) week deeple	***************************************	et management of the second			And other water of the state of	Well don't you had a secure of the first of the secure of
		140 S1	gwyr	1	WEN	T Of	24.	
	-							
: :								
								4

Groundwater field parameters at the end of purging to be marked "Field Measurements".

11:30

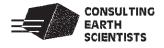


Client:			CES Project Code:
Project:		orth-	Location:
Sampler (s):	MR	Signature(s):	Project Manager:
BH ID:	ABH202		Sample ID: ABH)201
Purging Date:	17/02/17		Sampling Date: 17/02/17
		·	, ,

Well Status							
Well damaged:		YES/NO		Well lock	ed:		YE\$/NO
Cement footing damaged:		YES/NO\		Cap on P	VC casi	ing:	YES/NO
Internal obstructions in casing:		YES/NO		Well ID v	isible:		YES/NO
Standing water, vegetation around m	onument:	YES/NO		Monume	nt dama	ged:	YES/NO
Water between PVC and protective c	asing:	YESINO		Odours fi	om gro	undwater:	YES/AO
Well purged to dry?		YES/NO	Weather Co	onditions		ži.	
Standing Water Level (SWL):	1.49	(mBTOC)		Temperat	ure:	30	$^{\circ}\mathrm{C}$
Well volume:		(L)					
Water level after purging:		(mBTOC)		Clear	Partly	Cloudy	Overcast
Water level at time of sampling:		(mBTOC)		-			
Volume of water purged:		(L)		Calm	Slight	breeze	Moderate Breeze
Purging equipment:		Pump / micro-Purg Bailer / Foot Val	_	Windy	-	-	
Sampling equipment:		Pump / Bailer		Rine	Show	ers	Rain
				1.5			

**Purging Details** 

	I mighig D	Clans							
	Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	pH _	Eh mV	Temp.	Comments
1:25		пытос	©	1.22		7.23	1	<del></del>	Comments  Les brown, services of the documents
~	2		0.5	0.34		6.73		26.4	
	4		j.	0.26	1679	6.64	-105.7	25.9	
	6			0.18			-109.9		
	Š		2	0.16	1658	6.57	-113.3	25.3	
		·							
							· · · · · · · · · · · · · · · · · · ·		
						<u> </u>			



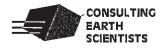
Client:		CES Project Code:
Project:		Location:
Sampler (s): MR	Signature(s): W.	Project Manager:
ви ф: Ави 2105	·	Sample ID: ABH2105
Purging Date: 17/02/17		Sampling Date: 17/02/17

Well Status							
Well damaged:		YES/NO		Well loc	ked:		YESINO
Cement footing damaged:		YES/NO \		Cap on I	PVC casi	ng:	YES/NO
Internal obstructions in casing:		YES/NO .		Well ID	visible:		YES(NO)
Standing water, vegetation around monument:		YES NO		Monum	ent dama	ged:	YES/NO
Water between PVC and protective casing:		YESINO		Odours	from grou	ındwater:	YES/NO
Well purged to dry?		YES/NO	Weather C	onditions	ŀ		
Standing Water Level (SWL):	40	(mBTOC)		Tempera	ature:	30	°C
Well volume:	0.0	(L)			'	North Control	
Water level after purging:		(mBTOC)		Clear	Partly	Cloudy	Overcast
Water level at time of sampling:		(mBTOC)		_			
Volume of water purged:		(L)		Calm	Slight	breeze	Moderate Breeze
Purging equipment:		Pump / micro-Purging	/	Windy	Wat Land		
		Bailer / Foot Valve					
Sampling equipment:		Pump / Bailer		Fine	Show	ers	Rain

**Purging Details** 

1136

Purging D	etaus							
Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	pH -	Eh mV	Temp. (°C)	Yellon Comments
- 0		Ó	1.15	1119	5.72	-120.1	261	grong HC odat
2		0.5	0.30	1039	5.39	-125.0	24.9	
4			D-18	1025	5.27	-121.7	24.7	
6		1.5	0.14	1018	5.17	-118.2	24.7	
\$		2	0.13		5.07	-113.8	24.7	
10		2.5	0.14	1013	5.02	-110.2	24.7	
						,		



Client:		CES Project Code:
Project:		Location:
Sampler (s):	Signature(s): NAR	Project Manager:
вн ID: ДМW 205		Sample ID: ANN 205
Purging Date: 17/02/12		Sampling Date: 17/02/17
Well Status		

Well Status				
Well damaged:	YES/NO	Well locked	1:	YES/NO
Cement footing damaged:	YES/NO	Cap on PV	C casing:	YES/NO
Internal obstructions in casing:	YES/NO	Well ID vis	rible:	YES/NO
Standing water, vegetation around monument:	YES/NO	Monument	damaged:	YES/NO
Water between PVC and protective casing:	YES/NO ———	Odours-fro	m-groundwater;	XE\$/NO
Well purged to dry?	YES/NO Weather	Conditions	40	
Standing Water Level (SWL): 0.4)	(mBTOC)	Temperatu	re: 3	°C
Well volume: Water level after purging: Water level at time of sampling:	(L) (mBTOC) (mBTOC)	Clear	Partly Cloudy	Overcast
Volume of water purged:	(L)	Calm	Slight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging / Bailer / Foot Valve	Windy	Water Bridge	
Sampling equipment:	Pump / Bailer	Fine	Showers	Rain

**Purging Details** 

Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	pH -	Eh mV	Temp. (°C)	Comments
0		0	1.50	3837	6.54	-202	23.3	Coloness/dear
2		05	0.20	3761	5.97	-211.8		Strong organic colons
4		1	0.11	3774	5.79	-2147	23.3	
6		1.5	0.12	3787	5.68	-215.5	23.3	
8		2	0.13	3790	5.72	-222.5	23.3	
10		2.5	0.12	3791	5.67	- 220.)	23.3	
	<u>.</u> \$							
								·

Groundwater field parameters at the end of purging to be marked "Field Measurements".

12:33

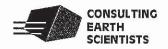


Client:		CES Project Code:
Project:		Location:
Sampler (s):	Signature(s): MK	Project Manager:
BHD: SMU404		Sample ID: BMV1404
Purging Date: 17/02/17		Sampling Date: 17/02/17

Well Status		^		4		_
Well damaged:		YES/NOT	V	Vell locked:		YENNO
Cement footing damaged:		YES/NO\	C	ap on PVC	casing:	YESINO
Internal obstructions in casing:		YES/NO	V	Vell ID visib	le:	YES/NO
Standing water, vegetation around mo	nument:	YES/NO	N	Ionument da	amaged:	YESNO
Water between PVC and protective ca	sing:	YES/NO	C	dours from	groundwater:	VES/NO
Well purged to dry?		YES/NO	Weather Con	ditions		
Standing Water Level (SWL):	2.24	(mBTOC)	, T	emperature:	20	°C
Well volume:		(L)				
Water level after purging:		(mBTOC)	۶	lean Pa	rtly Cloudy	Overcast
Water level at time of sampling:		(mBTOC)	-	Many Park		
Volume of water purged:		(L)	C	alm S1	ight breeze	Moderate Breeze
Purging equipment:		Pump / micro-Purg Bailer / Foot Val	-	Vindy		
Sampling equipment:		Pump / Bailer	F	ine, Sl	nowers	Rain

Purging Details

Purging D	Ctalls							
Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	pH -	Eh mV	Temp. (°C)	Comments
0		0	0.68	12361	6.79	-2968	22.7	organic sodow
2		0.5	0.18	14019	6.95.	-3094	22.5	9
4		1	0.15	14820	6.93	-311.7	22.5	
6		1.5	014	14142	6.92	-313.9	22.4	
2								



Client:

Project:

## **GROUNDWATER FIELD DATA SHEET**

CES Project Code:

Slight breeze

Showers

Moderate Breeze

Rain

Calm

Fine

Windy

Location:

Sampler (s): AAK	Signature(s):	Project Manager:	
BH ID: BMW403		Sample ID: BAWHO	13
Purging Date: 17 102/17	22.50		0217
Well Status		/	
Well damaged:	YES/NO	Well locked:	NESINO
Cement footing damaged:	YES/NO \	Cap on PVC casing:	YESNO
Internal obstructions in casing:	YESNO	Well ID visible:	YES/MO
Standing water, vegetation around monum	ent: YES/NO	Monument damaged:	YESAIO
Water between PVC and protective casing	: YES/10	Odours from groundwater:	XES/NO
Well purged to dry?	YES/NO V	Weather Conditions	
Standing Water Level (SWL):	3.50 (mBTOC)	Temperature: 20	°C
Well volume:	(L)	, .	E.
Water level after purging:	(mBTOC)	Clear Partly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)	Est.	

Pump / micro-Purging / Bailer / Foot Valve

Pump / Bailer

(L)

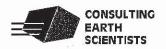
**Purging Details** 

Volume of water purged:

Purging equipment:

Sampling equipment:

	Purging D			г					
	Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	pH -	Eh mV	Temp. (°C)	Comments
:35	0		0	1.00	3077	7.02	-135.0	23.8	V. Pale brown, S. tube
	2		0.5		1939	6-64	-164.3	22.9	V. Pale brown, S. turbe S. organie adow
	4			0.52	1817	6.54	-192.8	22.9	
	6		1.5	0.39	1768	6.49	-200.0	22.9	
	જ	280 (1004-10		0.37	1716	6.83	-190.3	22.9	
	10		2.5	0.35	1721	6.30	-1852	22.9	
					12.00				
•									200000000000000000000000000000000000000
		*	3				3		



Client:		CES Project Code:
Project:		Location:
Sampler (s): IWR	Signature(s): IVI	Project Manager:
BH ID: 13 MAN401		Sample ID: Banky (1)
Purging Date: 17/02/17		Sampling Date: 13 002 17+

Well Status	<i>st.</i> 9			
Well damaged:	YES/NO	Well locked:		NES/NO
Cement footing damaged:	YES/NO	Cap on PVC	casing:	YE\$/NO
Internal obstructions in casing:	YESNO	Well ID visib	le:	YES/NO)
Standing water, vegetation around monument:	YES/NO	Monument da	amaged:	YES/NO
Water between PVC and protective casing:	YES/NO	Odours from	groundwater:	YES/
Well purged to dry?	YES/NO Weather	Conditions	20	
Standing Water Level (SWL):	(mBTOC)	Temperature:	30	°C
Well volume:	(L)			
Water level after purging:	(mBTOC)	Clear Pa	untly Cloudy	Overcast
Water level at time of sampling:	(mBTOC)		Conjugation	
Volume of water purged:	(L)	Calm Sl	ight breeze	Moderate Breeze
Purging equipment:	Pump / micro-Purging /	Windy	Samuel Hard South	
	Bailer / Foot Valve			
Sampling equipment:	Pump / Bailer	Fine Sh	nowers	Rain
ACC 4621				

**Purging Details** 

	Elapsed time (min)	Water level mBTOC	Cumulative volume (L)	DO (mg.L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	pH -	Eh mV	Temp.	Comments
2:05	0		0	1.03	ବିଷଷ	7.09	-130	23.4	v. Pale brong? yellow v. s. turbed odowness
	2		0.5	0-43	827	6.5%	-135.9	22.7	odowness
	H		1	0.37	814	6.45	-141.5	22.6	
	6		1,5	0.32	806	6.55	-1557	22.6	
	8		2	0.30	804	6.54	-150.2	225	
	4 4	5 P							114
			Ā						

Groundwater field parameters at the end of purging to be marked "Field Measurements".

hob barnes.

0418664775

airmet

10/02/2017

Instrument

Geotech Interface Meter (60M)

Serial No.

4037

Air-Met Scientific Pty Ltd 1300 137 067

ltem	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	1	8.8
Probe	Cleaned/Decon.	✓	- · · · · · · · · · · · · · · · · · · ·
	Operation	<b>✓</b>	
Connectors	Condition	<b>✓</b>	
		✓	·
Tape Check	Cleaned	✓	
Connectors	Checked for cuts	<b>✓</b>	
Instrument Test	At surface level	✓	
1			
		1	

## **Certificate of Calibration**

This is to certify that the above instrument has been cleaned and tested.

Calibration date:

Calibrated by:

10/02/2017

Next calibration due:

11/04/2017

airmet

15/02/2017

Instrument

**YSI Quatro Pro Plus** 

Serial No.

12D100012

## Air-Met Scientific Pty Ltd 1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	<b>V</b>	
	Fuses	<b>✓</b>	
-	Capacity	<b>✓</b>	
Switch/keypad	Operation	✓	
Display	Intensity	<b>✓</b>	
	Operation (segments)	<b>✓</b>	
Grill Filter	Condition	1	
	Seal	1	
PCB	Condition	<b>✓</b>	
Connectors	Condition	<b>V</b>	
Sensor	1. pH	1	. ,
	2. mV	1	
	3. EC	· /	
	4. D.O	<b>/</b>	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

## Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle	Instrument Reading
				Number	
1. pH 10.00		pH 10.00		291176	pH 9.72
2. pH 7.00		pH 7.00		288773	pH 6.84
3. pH 4.00		pH 4.00		288994	pH 4.20
4. mV		229.6mV		OB1388/OB1390	229.5mV
5. EC		2.76mS		290786	2.76mS
6. D.O		0.00ppm		4347	0.00ppm
7. Temp		22.0°C		MultiTherm	21.8°C

Calibrated by:

Joanna Wong

Calibration date:

15/02/2017

Next calibration due:

14/08/2017



# MONITORING WELL DEVELOPMENT FIELD DATA SHEET

Sampler (s): Signature(s):	Project:	Client	
Project Manager:		CES Project Code:	

## Well Development Record

	,		Note 1:  B = Bailer, SB = Surge Block: AIR = Air spagning/air lift. NLIFT = Nitrogen pas spagning/lift. DI IMD = Discription of the state of the sta	sparoino/air lit: NLII	ge Block: AIR = Air	Note 1: B = Bailer, SB = Sui
		Sign of the second				
Date brown to part brown, U-tobal to slightly the trubial in Excellent recovery, U. Shong He s colour	100	2.52/2.54 3.56/3.56	2.52/2.54	77	BMUSGOD	12/06/09
bound brown, v. hubid, no other funded to du every 2 life.	0 1	4.57/4.57	3.69	FU	BMLW403	12/06/09
Nowh brown Down Grey, Ules humbed, no odar. Parged to day every 3-4 lites	<b>秦</b> 上	0.96/2.21 2.53/2.58	12.2/96.0	Z	Bruffor	80/90/11
Ruged to duy every tropied. No odour.	8	3.92/4.09 4.57/457	3.92/4.09	5	BMWGI	12/06/09
Brown I harried to not harried adoutess	10	2.62/2.62	1.17/250	7.2	BMWSS	21.5.08
Dark brown to pute brown U. turbol to need turbol Speed pecaucing the Social terrorial	7:5~	356/355	2.45/2.47	FU	BMW404	21.5.08 BMW404
parged to dry overy IL	10	b.t./ bb.t	3.57/4.40	TU	BMW403	50.5.12
Pale brown V. Andred becoming about clear. odoubes	S	4.57/4.57	4.04/4.26	27	BMIN 401	21.5.08
Description and comments (eg. Turbidity, odours, free-phase product, changes through development process)	Water Volume Removed (L)	Depth to Bottom of Well (before/after)	Standing Water Level (before/after)	Development Method (s)	Weil ID	Date



	ORDINARY A BOOK OF THE STATE OF		
Client: Boyds Cooks Cove		CEDITOJET	CE\$050706-BCC
Project: Kograh Golf Course		Location: Area	B.
Sampler (s): JA	Signature(s):		Petrozzi
BH ID: BBH 304		Sample ID: 1806	08-06-LJ
Purging Date: 18/06/08	100	Sampling Date: 18/0	06/08
		7	t
Well Status	244		
Well damaged:	YES/NO)	Well locked:	(YESANO
Cement footing damaged:	YES (NO)	Cap on PVC casing:	YES(NO
Internal obstructions in casing:	VECKIO	Well ID visible:	YES/NO)
Standing water, vegetation around monument		Monument damaged:	YESMO
Standing water, vegetation around monument	YESINO) COULTED	Odours from groundwa	YESMO
Water between PVC and protective casing:			
Comments: sand falling into Well	tour in out.		
1.000	(mBTOC) Weather C	onditions —	
Standing Water Level (SWL): 0-43	(22)	Temperature 15-20	20-25
Well volume:	(L)		>30
Water level after purging: 0-47	(mBTOC)	25-30	
Water level at time of sampling: 0-47	(mBTOC)	Clear Partly cloudy	Overcast
Volume of water purged: 23	(L)	Calm Slight breeze	Moderate Breeze
Well purged to dry?: YES/NO)		Windy	· ·
Purging equipment: Pump / micro-	Purging / Bailer / Foot valve	Fine Showers	Rain
Sampling equipment: Pump/Bailer	TFoot valve peristalfic		S

<b>Purging Det</b>	ails			1112				
Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS.cm <sup>-1</sup> )	р <b>Н</b> -	Eh (mV)	Temp. (°C)	Comments
10:17	0.47	4	-0-01	6-39ms	6.95	-99	19-0	Slight turbid, Some partial matter, black green / Hzs adour
1073	0.47	R	- 0.08	6.96ms		-137	10 1	clow don't brown,
10:34	0.47	12	-0.14	6.21	6.99	-162	18.2	Some p. matter, M75 of
10:47	0.47	ib	-0.64	625	7.02	- 184	18.1	clear 119hd bown; some p.matte, Hzsodo
10:47	0.47	20	-0.07	6.32	7.03	-190	18.	( [
10:56	0.47	24	-0.16	6.41	7.04	-196	18.1	((
10.03	0.47	23	-0.23	6.44	7.05	-211	18.0	Mas adour
	19							

rging Det SWL	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	pH -	Eh (mV)	Temp. $(^{\circ}C)$	Comments
n BTOC	voiding (E)	(200, 200)	/ //		,	- 1	
200000		9					
			1			4	
						A LOCK MANAGEM	
	Field Data Sheet		lanua 3 Ed	vision 1. Undate	1 06/11/2002		Page 1



		CES Project Code: CES050706-BCC
Client: Boyds Cooks Cove		Location: Area 8
Project: Kograh Golf Course	and a	
Sampler (s): Ochland	Signature(s):	Project Manager: Petrozzi
BHID: BMW GODI GOI		Sample ID: 120608-01-45
DH 101 N. 1- 3-1		Sampling Date: 12.06.08
Purging Date: 17.6.08		

Well Status

YESNO Well locked: YES/MO) Well damaged: XES/NO Cap on PVC casing: YES(NO) Cement footing damaged: YESMO Well ID visible: YES (TO) Internal obstructions in casing: YES/NO Monument damaged: Standing water, vegetation around monument: YES/SD YES/NO Odours from groundwa

Water between PVC and protective casing: Comments:

Standing Water Level (SWL): Well volume:

3.96

(mBTOC) (L)

Weather Conditions

Temperature (15-20)

20-25 25-30

>30

Water level after purging: Water level at time of sampling: C+ .0 (mBTOC) (mBTOC) 4-0

Clear Calm Partly cloudy Slight breeze

overgast Moderate Breeze

Volume of water purged: Well purged to dry?:

Purging equipment:

Sampling equipment:

YES/I

in / micro-Purging / Bailer / Foot valve timp/Bailer/Foot valve Peristall's

Windy Fine

Rain

L <sup>-1</sup> ) (us	00	pH - 6⋅32 6⋅33	Eh (mV)	Temp. (°C) 21-1	Clear, brown tot (she odowless. C/c/odowkes
, 6 9	37	6.33			
	<del>"</del>		100	21-1	C/c/odowkes
101 9	179				<del> </del>
	21	G.32	99	21-1	۸. لا
17 9	42	6-31	87	21.1	c/c/odowless
.16 9	44	6.30	85	21.1	Clear of colombess
					feeld necourements.
	<del>-   -</del>		.16 944 6.30	.16 944 6.30 85	.16 944 6.30 85 21.1

SWL	Cumulative	DO .	EC	pH	Eh	Temp.	Comments
m BTOC	volume (L)	$(\operatorname{mg} \operatorname{L}^{-1})$	(uS cm <sup>-1</sup> )		(mV)	(°C)	
			<u> </u>				



				CES Project Code:	CES050706-BCC
Client: Boyds Co	oks Cove			1	1
Project: Kograh C	olf Course			20	ea A
	/	nature(s):	4.	Project Manager:	Petrozzi
	213			Sample ID: 1200	608-05-65
BH ID: BMW 402				Sampling Date: 1.	NEGER€ 17.6.08
Purging Date: //	6.08			Simplify.	7

Well Status

Well damaged:

YEŞMO

Cement footing damaged:

Internal obstructions in casing:

Standing water, vegetation around monument: YES

Water between PVC and protective casing:

YES/NO

Well locked:

Cap on PVC casing:

Well ID visible: Monument damaged:

Odours from groundwa

YES/NO.

Comments:

Well volume:

Standing Water Level (SWL):

Water level at time of sampling:

Water level after purging:

2-13

2.18

2.18

(mBTOC)

(mBTOC)

(mBTOC)

Weather Conditions

Temperature (5-20)

20-25 >30

25-30

Clear Calm Partly cloudy

Overcaşı Moderate Breeze

Volume of water purged: Well purged to dry?:

YES/NO

Pump / micro-Purging / Bailer / Foot yalve Pump/Bailer/Foot valve

(L)

Windy Fine

Showers

Slight breeze

Rain

Purging equipment:

Sampling equipment:

oun hit
4
_
less had
**
masaverent.
-

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Development

21.5.08

2:3000

SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	pH -	Eh (mV)	Temp.	Comments
2.50	5	2.15	2744	7-33	-197	19.1	Drown V. furbil oclowless
2.50	10	2.60	3.07	8-28	-188	19.3	Brown . Furtid odowless
					-	-	
CEC Crowndwater	Field Data Sheet		Issue 2. R	evision 1. Undal	e# 06/11/2002	1	Page 1



To 1 Coulo Covo	CES Project Code: CES050706-BCC
Client: Boyds Cooks Cove	Location: Avea B
Project: Kograh Golf Course  Sampler (s): 3 College Signature(s): Signature(s):	Project Manager: Petrozzi
Bampler (8).	Sample ID: 170808-02-L5
BH ID: 8MW 403	Sampling Date: 17-6-08
Purging Date: 12.6.08	

Well Status

YES/NO Well locked: Well damaged: MES/NO Cap on PVC casing: Cement footing damaged: YESONO Well ID visible: Internal obstructions in casing: YES(NO) Monument damaged: Standing water, vegetation around monument: YES YES/NO Odours from groundwa

Water between PVC and protective casing:

Comments:

Weather Conditions 3.48 (mBTOC)

Standing Water Level (SWL): Temperature (15-20) 20-25 (L) Well volume: >30 25-30 (mBTOC) 3.59

Water level after purging: Partly cloudy Overcast Clear Water level at time of sampling: (mBTOC) 3.59 Moderate Breeze Cair) Slight breeze Volume of water purged:

Well purged to dry?: Pump / mic o-Purging / Bailer / Foot valve

Fine Showers Purging equipment: Perestaltie Pupp / Bailer / Foot valve Sampling equipment:

**Purging Details** Comments Temp.  $\mathbf{H}\mathbf{q}$ Eh EC DO Cumulative SWL Elapsed (°C)  $(mg L^{-1})$ (uS cm<sup>-1</sup>) (mV)volume (L) m BTOC time (min) 20.6 96 6.77 2.94 5 -0.01 12:32 3-8859 -94 6.78 20.6 2.59 -0.01 3.57 10 12:44 -94 20.6 6.78 2.50 3-59 -0.03 15 12:59 6.77 -87 2.46 20.6 7.59 -0.01 20 13:17 -93 20.5 6.77 2.46 3.59 25 0.01 13:32

Windy

Rain

[Aucliprocut		
Verelopment Details	21.5.08	1:30 pm

CIVII Det	Cumulative	DO	EC	pН	Eh	Temp.	Comments
SWL m BTOC	volume (L)	$(\text{mg L}^{-1})$	(uS cm <sup>-1</sup> )	-	(mV)	(°C)	
	سن	2.90	2360	7.10	-2	20-5	Dak brown V. furbid organic
4.48	50	2-68	2202	7.09	-11	20-4	Oak boun turbil organic
7 (6				ì			
CES Groundwater			Issue 2 Re	evision 1. Undate	06/11/2002		Page 1



	To also Covin	1	CES Project Code: CES050706-BCC
Client:	Boyds Cooks Cove		Location: Area A
Project:	Kograh Golf Course	21/-	
Sampler (s	: Sentins	Signature(s):	110 Ject Manager
			Sample ID: 170608 -03/04/LT
BH ID:	BMW 404		Sampling Date: 12.6.08
Purging Da	ite: 12-6-08		

Well Status

YES/NO Well damaged: YESMO Cement footing damaged: Internal obstructions in casing:

Standing water, vegetation around monument: YES/100 Water between PVC and protective casing:

Comments:

Standing Water Level (SWL):

Well volume: Water level after purging:

Water level at time of sampling:

Volume of water purged: Well purged to dry?:

Purging equipment: Sampling equipment: 2.45 (mBTOC) 25

2.38

YES/NO Pump/micro-Purging/Bailer/Foot valve Fump / Bailer / Foot valve Perstallic

(mBTOC)

(L)

(L)

2 · 4 (mBTOC)

Well locked:

Cap on PVC casing: Well ID visible:

Monument damaged: Odours from groundwa

YES/NO

20-25

(vercas

YES/NO

YES/NO

YES(NO)

YESMO

Weather Conditions

Temperature (15-20

>30 25-30 Partly cloudy Slight breeze

Calm Windy

Clear

Fine)

Showers

Rain

Purging Deta	SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	pH -	Eh (mV)	Temp.	Comments
time (min)	2.44	5	Q-0.33	15.02	6-89	-290	19-7	Black . V turbiel
14:08	2.45	10	-o·J3	15.30	6.90	-292	19.7	4
14:17	2-45	15	-6.23	15-53	6.88	- 291	19.7	<i>u u</i>
14.28	2-45	20	-0.31	15.74	6.87	-298	19.7	6
14:35	2.45	25	-0.33	15.80	6.83	- 299	19.7	Plack V, habid Mich organic oclow. Protel ressurements.
4.05								nich organic octour.
		L.		*				perus revis

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Developing 21.5.08

SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	pH -	Eh (mV)	Temp.	Comments
2.95	25	0-11	16-39	6.98	-311	19. 7	Dark brown V. tertial He sodown.
2.50	60	6.29	14.44	695	-307	19.8	Pale bour Med for bil Het oden
2.50	75	0.21	14.74	6.95	-307	19.7	Pale Grown Mad Lubid H2S.
	r Field Data Sheet		legue 2 R	evision 1 Unda	te ( 06/11/2002		Page 1



Client:	Boyds Cooks Cove		CES Project Code: CES050706-BCC
Project:	Kograh Golf Course		Location: Avea A
Sampler (s)	: K. Weir / L. Jenkins	Signature(s):	Project Manager: Petrozzi
BH ID:	Amw203		Sample ID: 290508-01-15
Purging Da			Sampling Date: 29.05-08

## Well Status

YES/NO Well locked: Well damaged: Cap on PVC casing: Cement footing damaged: Well ID visible: Internal obstructions in casing: Standing water, vegetation around monument: YES Monument damaged: Odours from groundwa Water between PVC and protective casing: Comments: 1.59 Weather Conditions (mBTOC) Standing Water Level (SWL): Temperature 15-20 Well volume: (L) (mBTOC) 25-30 Water level after purging: 1.64 Partly cloudy Water level at time of sampling: (mBTOC) Clear Overcast 1.64 Calm Slight breeze (L) Moderate Breeze

Volume of water purged: Well purged to dry?: Purging equipment:

Sampling equipment:

25 YES/NO

Pump/Bailer/Foot valve Pentalhe puno

Windy Pump / micro-Purging / Bailer / Foot yalve (Fine)

Showers

Rain

**Purging Details** 

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	pH -	Eh (mV)	Temp. (°C)	Comments
9:48	1-63	S	0.39	12.59	7.07	-121	20.1	Almost C/C grey I brown hist.
9.53	164	40	0.27	10.39	7.09	-152	20.1	
9:59	1-64	15	0.22	10-15	7-10	- 167	20.1	brown hit Hz Soclow
10:05	1.64	20	0.16	9.72	7-11	400 128°	20.1	τ. τ.
10210	1.64	25	0.18	9.64	7.12	-180	20.1	brown fur & the sader
1							The state of the s	Feild sun, ole.
·								

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Development

21,5.08 8:00am Purging Details

SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	р <b>Н</b> -	Eh (mV)	Temp.	Comments
1.54	2	2.78	10,110	7.10	-33	18.6	Grey, twoid, Has odown.
1.67	15	5.03	10.660	7.14	-98	19.3	larry fint, shahtly tubed 4, sodo
1.55	25	1.08	10566	ク・ル	- 134	19.7	Grey that, show to the sook
1.50	50	0.82	10060	7.15	-154	19-7	Crey but , slightly bubid, Hos and
CES Groundwater	Field Rafa Sheet	0-94	10 <b>40/0</b> Issue 2. Re	フ・2 ( vision 1 Undat	- 12 1 et 06/11/2002	19.7	light grey but almost che Mes Colon

19.7 light grey but about clar Harrolaus 10740 1-50



Client:	Boyds Cooks Cove		/ CES Project Code: CES050706-BCC
			Location: Area A
Project:	Kograh Golf Course	Signature(s):	Project Manager: Petrozzi
Sampler (s)	AB2105	Dignatur 5(3)*	Sample ID: 290508-02-LT
BH ID: Purging Da	00 - 0		Sampling Date: 29.5.08

Well Status

Well damaged: Cement footing damaged: Internal obstructions in casing:

Standing water, vegetation around monument: YES Water between PVC and protective casing:

Comments:

Standing Water Level (SWL):

Well volume: 1:66 Water level after purging: 1.66

Water level at time of sampling: Volume of water purged:

Well purged to dry?: Purging equipment:

Sampling equipment:

1.59 (mBTOC)

> (L) (mBTOC) (mBTOC)

(L) YES Pump/mioro-Purging/Bailer/Foot valve Pump/Bailer/Foot valve

Weather Conditions

Temperature (15-20 25-30

Well locked:

Cap on PVC casing:

Monument damaged:

Odours from groundwa

Well ID visible:

(vercas) Partly cloudy

Moderate Breeze Slight breeze

Windy

Fine

Clear

Calm

Showers)

Rain

20-25

>30

YES/(VO)

Purging	Details
0 0	
70.1	Y

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-t</sup> )	EC (uS cm <sup>-1</sup> )	pH -	Eh (mV)	Temp.	Comments
11:35	1.66	2	0.31	1121	6.41	-126	18.9	Clear brown hint
11:40	1.66	4	0.24	1073	6.42	-140	18-9	k ••
11:44	1.66	6	0.24	1049	6.42	146	18.9	ľ.
11:47	1.66	8	0.21	1041 0	6-43	-149	18.9	4
11.50	1.66	10	0.21	1064	6.44	-153	18-9	
11:5-3	1.66	12	6-23	1022	6.44	_161	18-9	almost clear brown to I He adour
11:50	1.66	14	0.23	1071	6.44	_ 162	19.0	Feetlel sample

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Development 01.500

Eging Det SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	pH -	Eh (mV)	Temp.	Comments
1.50	10	0.25	902	6.64	-81	19.1	Brown turbid HC oclow.
1.50	30	0-47	920	6-61	-22	19.4	Brown turbid HC oclour
1:50	45	0 - 37	927	6-60	-78	19.7	Brown table He delour
1.50	GO	0.43	963	6.61	-73	19.0	Brown tarbid He Oclow
	r Field Data Sheet		Issue 2 Re	vision 1. Undate	06/11/2002		Page 1



		<del></del>	CES Project Code: CES050706-BCC
Client:	Boyds Cooks Cove	V.	CES Project Code: CES050706-BCC
	Kograh Golf Course	1	Location: Area A
Project:		Signature(s):	Project Manager: Petrozzi
Sampler (s BH ID:	ABH 202	Digital C(c).	Sample ID: 290508-03-15
Purging Da	- 1 / -		Sampling Date: 29/05/68

Well Status

YES/NO Well locked: Well damaged: YES/NO Cap on PVC casing: Cement footing damaged: Well ID visible: Internal obstructions in casing: Monument damaged: Standing water, vegetation around monument: YES Odours from groundwa Water between PVC and protective casing: Comments:

Weather Conditions 1.40 (mBTOC) Standing Water Level (SWL): Temperature 15-20 20-25 (L) Well volume: 1.66 >30 (mBTOC) Water level after purging: Qvercas

1-66 Clear Partly cloudy (mBTOC) Water level at time of sampling: Moderate Breeze 12 Slight breeze **Call**n (L) Volume of water purged:

YES/NO Windy Well purged to dry?: Pump/micro-Purging/Bailer/Foot, yalve Rain Fine Shower Purging equipment: Yump) Bailer / Foot valve Perotalis

Sampling equipment:

	Purging Det			7.0	EC	-11	Eh	Temp.	Comments
	Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	р <b>Н</b> -	(mV)	(°C)	
ŀ	12:37	1.65	2	0.29	1102	6.85	-12	21.0	sheen will be odow
	12:42	1.66	ÇĘ	0.27	1084	6.85	- 9	21-0	c u
	12:52	1.66	6	0.26	1117	6.84	- 7	21-1	4
	13:00	1-66	8	0-25	1126	6.84	-6	21.1	<i>a</i>
	13.08	1.66	10	6.25	1064	6-84	-4	21.1	Pale brown trat steer will He oclow.
	13:15	1.66	12	0.25	1092	6.83	- 5	21-1	Feelel simple
1									
50.00									
	*								
			2000	1					
					1				
	ı					1			

Developing		_
Pereloping Details	21.5.00	3:30pm

SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	pH -	Eh (mV)	Temp.	Comments
3.90	10	1.20	1173	7.09	-67	19-6	Brown V. turbid slight HC odour
2.90	20	2.78	994	1.09	-31	19-9	Brown Uturoid St. HC adour
3.90	30	3.53	894	7.01	~15	20-0	Brown Wher had SLHC oclour.
3-90	40	2-65	970	6.90	-2	20.1	Brown V. tubol St HC odown
	Field Data Sheet		Jeeus 2 Re	avision 1. Updal	e# 06/11/2002		Page 1



		CES Project Code: CES050706-BCC
Client: Boyds Cooks Cov		CEB 110 July 4
Project: Kograh Golf Cour	se	Location: Area A
Sampler (s): Tentris	Signature(s):	Project Manager: Petrozzi
	25	Sample ID: 290508-04-L3
Burging Date: 29.6		Sampling Date: 29.05.08

Well Status

YES/NO Well locked: YES/MO Well damaged: **€**S/NO Cap on PVC casing: YES/NO Cement footing damaged: YES/M Well ID visible: YESMO Internal obstructions in casing: YESATO Monument damaged: Standing water, vegetation around monument: YES/NO YESMO Odours from groundwa YES/MO Water between PVC and protective casing:

Comments:

(mBTOC) Standing Water Level (SWL): 1.49 (L) Well volume: (mBTOC)

Water level after purging: 0.69 (mBTOC) Water level at time of sampling: 0-69 (L) 14

Volume of water purged: Well purged to dry?:

YES/NO Pump/micro-Purging/Bailer/Foot valve Purging equipment: Sampling equipment:

Weather Conditions

Temperature (15-20) 20-25 25-30 >30 Overcast Partly cloudy Slight breeze Moderate Breeze

Cali) Windy Fine

Showers

Rain

Purging Det Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	р <b>Н</b> -	Eh (mV)	Temp.	Comments
13:50	0-67	Q+	0.28	3.83	7.08	-149	17.8	grey but almost down .
14:03	6640.68	G	0.19	3.96	7.09	-190	17.6	,
14:10	0.68	8	0.17	4.00	7.08	-211	17.6	1
14:18	0.68	10	0.17	4-23	7.06	-235	17.6	grey but Starbil
14. 22	0.68	12	0.16	4-17	7.06	-240	17-6	4
14:29	0.69	14	0.17	4.20	7-04	-249	17-6	gry host 5. terbiel.
								Feild sample
				<u> </u>				
			1					

Groundwater field parameters at the end of purging to be marked "Field Measurements".

21.5.08 9:00 Well was pused dy approximately every 5%.

	marging ner			700	177	E.P.	Temp.	Comments
Ī	SWL	Cumulative	DO	EC	рH	Eh	-	Comments
	m ВТОС	volume (L)	$(\operatorname{mg} \operatorname{L}^{-1})$	(uS cm <sup>-1</sup> )	÷	(mV)	(°C)	
			4-11	5.72	7.38	-101	18.6	Statt organic odown
-	CHE 204	10			0.16	-144	18.6	Brown total farbill slight
	2.04	20	1.00	4.90	7.16			agent ollow.
	2.04	30	2.28	5.82	7-19	-136	19-1	Brown turbid organic odour
					1			
				Janua 2 Pe	vision 15 Undate	L06/11/2002		Page 1
	CES Groundwater	Field Data Sheet	<u> </u>	I ISSUE 2. FO	Alife	W 10/1 1/2 COZE	J	



		CES Project Code: CES050706-BCC
Client: Boyds Cooks Cove		CED 110 Jees de
Project: Kograh Golf Course		Location: Area A
	Signature(s):	Project Manager: Petrozzi
Sampler (s): Ochkus's	Signature(s).	Sample ID: 290508-05/06/07-LT
BHID: AMW 201		Sampling Date: 29.05-06
Purging Date: 29.C.08	Tr.	Sampling Date: 27 00 -00

Well Status

Well damaged:

Cement footing damaged:

Internal obstructions in casing:

Standing water, vegetation around monument: YES

Water between PVC and protective casing: Comments:

Standing Water Level (SWL):

Well volume:

Water level after purging:

Water level at time of sampling: Volume of water purged:

Well purged to dry?:

Purging equipment:

Sampling equipment:

(L) (mBTOC) 0.55

(mBTOC)

(mBTOC)

Pump / micro-Purging / Bailer / Foot valve Purap / Bailer / Foot valve Peristablic

Well locked:

Cap on PVC casing: Well ID visible:

Monument damaged:

Odours from groundwa

Weather Conditions

Temperature (15-20)

>30 25-30 Overcast

Showers

Clear

Calm<sup>L</sup> Windy

Fine)

20-25

Moderate Breeze

YES/NO

Rain

Purging Details

Purging Det	ацѕ					777.	70	Comments	1
Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	р <b>Н</b> -	Eh (mV)	Temp. (°C)		
15:00	0.51	2	0.35	1098	6.31	-46	18-2	Alnost, C/c	
15:04	0.51	4	0.27	1066	6-29	-49	18-2	4	<b>4</b>
15:09	0-51	6	0.23	1060	6.29	-50	18.2	4	<b>6</b>
15:15	0.51	8	0-21	1092	6.28	-63	18-3	t.	
15:17	0.51	10	0.21	1086	6.28	-61	18-3	poly brown fur	
£15:28	0.55	15	0.16	1089	6.25	-64	18.4	4	* 7 h
15:36	0.55	20	0.14	1080	6.22	- 66	18.4	tr	١١
15:44	0.55	25	6-16	1082	6.22	-69	18-4	Palesbrown A	inostelec
13	10.00							Feetel semple	
	-								
			<del> </del>	1					
	<u> </u>			1 1 1175	ald Magaza		<u> </u>		

Purging Det				- VI	1511-	Town	Comments
SWL	Cumulative	DO	EC	рĦ	Eh	Temp.	Comments
ш втос	volume (L)	$(\operatorname{mg} L^{-1})$	(uS cm <sup>-1</sup> )	-	(mV)	(°C)	
0-40	25	1.37	1287	6.40	-25-	18.4	Park/pale brown V. turbiel.
	50	1.37	119.3	6.57	-35	18.9	Pale brown mod turbich ochurbes
0.80	25	1.39	109	6.55	1-31	18.7	Brown turbed adouters
050	20	1-87	137	7	17.7		
<u> </u>				<u> </u>			Page 1.
OFC Commission	r Field Data Sheet		Issue 2. R	evision 1. Undat	eli 06/11/2002	1	F80931



	CES Project Code: CES050706-BCC
/	Location: Area A
Signature(s): 24	Project Manager: Petrozzi
0,4	Sample ID: 290508-08-05
	Sampling Date: 29.5.68
	Signature(s):

Well Status YES/NO Well locked: Well damaged: YES/NO Cap on PVC casing: YES/NO Cement footing damaged: YESRO Well ID visible: YES/NO Internal obstructions in casing: YESMO, Monument damaged: Standing water, vegetation around monument: YES/ YES/NO Odours from groundwa Water between PVC and protective casing:

20-25

Rain

Moderate Breeze

Slight breeze

Showers

Windy

Find

Comments:

Puelgoment

CES Groundwater Field Data Sheet

0.72 Weather Conditions Standing Water Level (SWL): (mBTOC) (L) Well volume:

Temperature (15-20) 25-30 >30 0.86 (mBTOC) Water level after purging: Overcast 0.86 Partly cloudy (mBTOC) Water level at time of sampling:

0.14

Volume of water purged: 25 YESANO Well purged to dry?:

0.84

Pump / micro-Purging / Bailer / Foot yalve Purging equipment:

Purap / Bailer / Foot valve Persotallie Sampling equipment:

15

**Purging Details** Comments Temp. EC  $\mathbf{H}\mathbf{q}$ Eh DO Cumulative SWL Elapsed ("C) (uS cm<sup>-1</sup>) (mV)  $(\text{mg L}^{-1})$ volume (L) m BTOC time (min) 18-6 -95 6-42 0-16 0.84 5 5.08 16:22 18-6 -98 0-15 6.41 10 4.91 0.84 16: 26 -99 18-6 4.54 6.40

16-24 18.6 -96 6.41 4-13 0.13 20 16:42 0.85 forbal odowless 18.6 -94 6.41 4.15 0.12 25 16:50 0.85 Feith sample.

Groundwater field parameters at the end of purging to be marked "Field Measurements".

21/5/08 Purping Details Comments Eh Temp. Hq DO EC Cumulative SWL  $(\text{mg L}^{-1})$ (°C) (uS cm<sup>-1</sup>) (mV) volume (L) Brown furbid adarties. m BTOC 18-5 6.53 4-38 -44 1.00 0-67 10 18.4 6.53 -35 3.21 0.66 NB25 6.67 18.5 -20 3.56 6.53 1-14 75 0.67 18.€ 3.61 6:53 -16 .18 0-67 50



			CES Project Code: CES050706-BCC
Client:	Boyds Cooks Cove		CES Project Code: CES050706-BCC
	Kograh Golf Course		Location: Area 4
Project:		Signature(s):	Project Manager: Petrozzi
Sampler (s)	The state of the s	Bighature(s).	Sample ID: 300008-09-15
BH ID:	AMW 207		Sampling Date: 30-5-08
Purging Da	ate: 3070 + 08		

Well Status

YES/NO Well damaged: YESNO Cement footing damaged: YES/ISO Internal obstructions in casing:

Standing water, vegetation around monument: YES/100 YES/NO Water between PVC and protective casing:

Comments:

Standing Water Level (SWL):

Well volume: Water level after purging:

Water level at time of sampling: Volume of water purged:

Well purged to dry?:

Purging equipment: Sampling equipment:

(mBTOC) 1.50

(L) 2.28 (mBTOC) (mBTOC) 2.28

12 (L) YESNO Pump / mioro-Purging / Bailer / Foot, valve

Pump Bailer / Foot valve Peru Felle

Weather Conditions

Temperature (15-20)

Well locked:

Cap on PVC casing:

Monument damaged:

Odours from groundwa

Well ID visible:

25-30 >30 Overcast Partly cloudy

Slight breeze Moderate Breeze

Showers

Rain

20-25

YES/MO

Purging Detail	SWL	Cumulative	DO	EC	Hq	Eh	Temp.	Comments
time (min)	m BTOC	volume (L)	(mg L <sup>-1</sup> )	(uS cm <sup>-1</sup> )	-	(mV)	(°C)	
8:56	2-22	C <sub>j</sub>	2.36	19.35	6-69	-33	18.0	clear kolowless
7:14	2.24	6	2-33	18-89	6.64	-30	18-0	l-
7:24	2.25	P	2-88	17.89	6-64	-26	18-0	Pale brown fruit
9:40	2 - 26	10	2-27	18.04	6.60	-28	18-1	6 4
7:51	2:28	12	2.13	18-32	6.59	-31	18-1	Pale brown dut to State
7.07								Feitel sample.
		,						
				1				
· · · · · · · · · · · · · · ·			+	<u> </u>				

8 2 2 2 2 2		7.0	-10	Ub	Tamp	Comme
Receionad Details	21.5.08	10: 20cm	Purgeel	4	dry wy	1-26.

SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	pH -	Eh (mV)	Temp.	Comments
2.81	3	2.65	17.58	6.64	-6	18.3	Brown tubich odowless
2.81	6	5-41	17.79	6.75	-16	18.4	Brown turbid oclowless
		1800 B					
	100						
CES Groundwater	Field Data Sheet		Issue 2. Re	vision 1. Update	et 06/11/2002		Page 1



		CES Project Code: CES050706-BCC
Client: Boyds Cooks Cove		1
Project: Kograh Golf Course		13000
Sampler (s): Den kur	Signature(s):	Project Manager: Petrozzi
BERIPATI (F)		Sample ID: 300508 - 10/11-L5
BH ID: ANW 206		Sampling Date: 30.5.05

Well Status

Well damaged: Cement footing damaged:

Standing water, vegetation around monument: YES Water between PVC and protective casing:

Comments:

Standing Water Level (SWL): Well volume:

Internal obstructions in casing:

0.85 1.08

(L) (mBTOC) (mBTOC)

(L)

(mBTOC)

Volume of water purged: Well purged to dry?:

Water level at time of sampling:

Water level after purging:

Purging equipment: Sampling equipment: 1.08

Pump/micro-Purping/Bailer/Foot valve Pump / Bailer / Foot valve Peritaltic

Well locked:

Cap on PVC casing: Well ID visible:

Monument damaged: Odours from groundwa

Weather Conditions

Temperature 15-20

25-30

Partly cloudy

Overcast Slight breeze

Moderate Breeze

>30

YES/MO

Showers

Rain

Purging Det	aus				-
Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	
				1	ı

Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	pH -	Eh (mV)	Temp. (°C)	Comments
10:57	1-09	4	0.40	8.70	6.75	-94	18.6	Pale brown this studiel
11:07	1.10	6	6.44	8.44	6.25	- 43	18.7	
11: 13	1.07	8	0.49	8.38	6.75	-92	18.7	4 4
11: 20	1.07	10	0.49	8.06	6.75	-93	18-7	**
11:28	1.07	12	0-49	87:86	6-25	- 94	18-7	£7
11:40	1.07	14	0.49	2.35	6.25	-96	18.7	4
	1.08	16	0.54	7.81	6.77	-900	18-7	Pale brown, Standol
N:50								Petel sample.
`'								
:	,							

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Deceloponent 21.5.08 3:00pm

SWL	Cumulative	DO	EC	pН	Eh	Temp.	Comments
m BTOC	volume (L)	$(\operatorname{mg} \operatorname{L}^{-1})$	(uS cm <sup>-1</sup> )	-	(mV)	(°C)	
2-30	-ئى	0.69	9.21	6.98	-155	18.5	Dark grey. Vturkel odowless
2.30	10	2-29	9-46	6-93	-120	18.0	Dak brown Vturbal aclourless
CES Groundwater	Cield Data Sheet		Issue 2. Re	vision 1. Undete	06/11/2002		Page 1



			CES Project Code: CES050706-BCC
Client:	Boyds Cooks Cove		CED 110 July 4
	Kograh Golf Course		Location: Area A
- "		Signature(s):	Project Manager: Petrozzi
Sampler (s):	sentuis	Signature(s).	Sample ID: 200504-12-LJ
BH ID:	1MW 202		Danipat 22
Purging Date	70-5-05		Sampling Date: 30.05-04

Well Status

Well damaged: Cement footing damaged: YES/ Internal obstructions in casing:

Standing water, vegetation around monument: YES

Water between PVC and protective casing: Comments:

Standing Water Level (SWL):

Well volume: 1.24 Water level after purging:

Water level at time of sampling: Volume of water purged:

Well purged to dry?: Purging equipment:

Sampling equipment:

0.67

(L) (mBTOC) (mBTOC) 1.74

(L) 12 YES/NO

Pump / micro-Purging / Bailer / Foot valye Pump / Bailer / Foot valve Periotalhic

(mBTOC)

Well locked:

Cap on PVC casing: Well ID visible:

Monument damaged: Odours from groundwa

Weather Conditions

Temperature 15-20

Clear Calmy

Partly cloudy Slight breeze Moderate Breeze

Windy

Showers

25-30

Rain

Purging Det	ails			<u> </u>				A
Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>1</sup> )	EC (uS cm <sup>-1</sup> )	pH -	Eh (mV)	Temp.	Comments
QU 12:57	1.72	4	0.26	7.85	6.32	9	18.9	Pale proun tempol odowless
13:01	1.22	6	0.26	8.70	6.32	11	18.9	4
13:06	1.74	8	0-26	8.16	6.32	5	18.9	4
13:0 13:10	1.74	10	0-23	8-14	6.32	4	189	ę .
13:14	1.74	12	0.22	8-14	6.33	2	18.9	Pale brown Indial octor was Faitel sangele.
10-11								Festal sungole.
-								
				· ·				
				<del>                                     </del>				
				1				
		1 -F		1 1 977	-1-1 Magnes	om ontoll	<u> </u>	

Ouclopnest	4.11	
Ricliphist Parging Details	21/5/06	11:40

SWL	Cumulative	DO	EC	pН	Eh	Temp.	Comments
m BTOC	volume (L)	$(\text{mg L}^{-1})$	(uS cm <sup>-1</sup> )	<u>-</u>	(mV)	(°C)	
0.67	10	0.62	8.33	6.45	21	18.9	Pale brown V. fubil.
0-67	20	0.86	8.24	6.36	22	18.9	Pade brown Vturbiel.
	80	0.12	8-81	632	13	18.8	Pale brown surbiel.
0-67	180 75	1.61	898	6.35	3	18-9	Pale brown furlid.
0-67	AND 13	7 07		vision 1. Update	00/44/2002		Page 1



		CES Project Code: CES050706-BCC
Client: Boyds Cooks Cove		
Project: Kograh Golf Course		Docations, ,
Sampler (s): Jenking	Signature(s):	Project Manager: Petrozzi
D4444-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-		Sample ID: 300508-13-L7
BH ID: ABA 2110 Purging Date: 29.5.06		Sampling Date: 30/05/66 -
Purging Date: 29.5.06		

Well Status

YES/80 Well locked: Well damaged: YES/NO Cap on PVC casing: YES/NO Cement footing damaged: Well ID visible: Internal obstructions in casing: Monument damaged: Standing water, vegetation around monument: YES YESMO Odours from groundwa Water between PVC and protective casing:

Comments:

Standing Water Level (SWL):

(mBTOC) 1.69

Weather Conditions

20-25

Well volume:

(L)

Temperature

>30

Water level after purging: Water level at time of sampling:

(mBTOC) 1.86 (mBTOC)

Fump / Bailer / Foot valve

(L)

Clear

Partly cloudy Overcast

Volume of water purged:

1.69

Catto Windy

Moderate Breeze Slight breeze

Well purged to dry?: Purging equipment:

Pump / micro-Purging / Bailer / Foot yalve

king

Showers

Rain

Sampling equipment:

**Purging Details** Comments Temp.  $\mathbf{H}\mathbf{q}$ Eh EC Cumulative DO SWL Elapsed (°C) (mV)  $(mg L^{1})$ (uS cm-1) volume (L) m BTOC time (min) Alnost Clear pale boun fuit odowiless.

Pt	irging	Details	23.5	.08	9:3	0
	CXX/I	Cpn	miative	DC	5	

SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	PH -	Eh (mV)	Temp. (°C)	Comments
169		erough na	for for	develops.			
OEP Groundwater			Januar 2 III	vision 1. Undate	UNB/11/2002		Page 1



	- 1610		CES Project Code: CES050706-BCC
Client:	Boyds Cooks Cove	/	Location: Area 4
Project:	Kograh Golf Course		
Sampler (s):	Senkus	Signature(s):	110 July 172
	ABH2100		Sample ID: 300808-14-CT
			Sampling Date: 30/5/68
Purging Date	e: 29.5.08		

Well Status YES/NO Well locked: YES/XX Well damaged: YES/NO Cap on PVC casing: Cement footing damaged: YES/KO Well ID visible: YES/NO Internal obstructions in casing: YESAND Monument damaged: Standing water, vegetation around monument: YES/(S) YES/MO Odours from groundwa Water between PVC and protective casing:

Windy

Comments:

Weather Conditions 1.59 (mBTOC) Standing Water Level (SWL): 20-25 Temperature 15-20 (L) Well volume:

>30 25-30 (mBTOC) Water level after purging: Pactry cloudy Overcast Clear (mBTOC) Water level at time of sampling: Moderate Breeze Slight breeze

Volume of water purged: Well purged to dry?:

Pump/micro-Purging/Bailer/Foot valve Pump/Bailer/Foot valve //www.lelfie Rain (Fine) Showers Purging equipment: Sampling equipment:

urging Deta Elapsed time (min)	SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	р <b>Н</b> -	Eh (mV)	Temp.	Comments
HEZET	2.04	S	0.21	7-35	6.20	-40	22-8	Pole brown tint almost clear oclowless
	0)					2 300	_	
			2					

Groundwater field parameters at the end of purging to be marked "Field Measurements".

Development

SWL m BTOC	Cumulative volume (L)	DO (mg L <sup>-1</sup> )	EC (uS cm <sup>-1</sup> )	р <b>Н</b> -	Eh (mV)	Temp.	Comments
2.34	10	1.58	5.32	6.46	49	21.0	Pale brown, surbil oclarless
7.78	20	0-99	5.76	6.46	52	22-0	Pale brown tertial.
5.20	20	5.00	5.66	6.64	55	21-4	Pele brown turbid
	Field Data Sheet		Serie 2 R	vision 1. Update	eli 06/11/2002		Page 1



Calibration Record Sheet

Meter: GA 45 Landfill Gas Analyser

- 1		Ė		1	Т	T	Т	I	_	Т	1		1	1	7-	Τ.		1	03		-			^	_			1
,													-						35/06/08	806/08	6/06/08	40408	106/st	08/06/08		Date		<u> </u>
			-										,						wed som	8/06/08 17-15 pm	106/08 9-15 m	15.30	11:00	15-30 pm		Time	CALIBRATION	
																				Ž			ZZ ZZ	<i>\X</i> 6	ьу	Calibrated		,
																			5	7	7	7	7	7	0.0%			Serial no:
										-									6	7	7	7		7	2.5%	CH4		
			·																9	1	7	(,		7	50.0%	,	Gas Ch	06013
																			(	0	(	(	5	7	0.0%		Gas Channel (tick)	
																				7	(		7	γ	17,0%	02		
			- :																	7	7	<u>,                                    </u>	1	7	10.0%	CO2		
																			,	123/04/	17.	13/06/08	11118/	10/06				
													-						7	\$ 2/08	12/06/08	108	80- 00-	28.		Ď	Callb	
												,								108 9-15 am	9.30 am	2.60m	4.30,000	od. Sujam	, and		Calibration check	
																			1	<b>e</b> . ]		Syl	7	AG	ьу	Calibrated		
Ì						`														7	7	7	1:0	7	0.0%			-
								-										-		7	7	7.	7	7	2.5%	CH4	9	
			-						a		-						-			7	(	7	S	1	50.0%		Gas Channel (results check)	
	,																			7	-	1	1:0	7	0.0%		(results ch	
									,								, .			1	(	7	74	Ţ	17.0%	02	eck)	
																				7	(	7	01	7	10.0%	G02		
					,												-		Brown morthy ofer.							Comments		



### Calibration Record Sheet Meter: GA 45 Landfill Gas Analyser

CALIBANIDIS   CHAIN
College/Auton   College/Auto
Caldward   City   Co2   Date   Time   Caldward of check   Caldward   Candle check   Candle check   Caldward   Candle check   Caldward   Candle check   Candle ch
Citi4   CO2   CO2   Date   Time   Coditioned   CH4   CO3
Cast Channel (text)   Cast Union check   Cast Channel (text)   C
Case Channel (tick)   Case Channel (text)
Calibration of book  Calibrated Timo  Timo  Calibrated Do Code Code Channel (results check to be code to by Code Code Code Code Code Code Code Code
Calibration of book  Calibrated Timo  Timo  Calibrated Do Code Code Channel (results check to be code to by Code Code Code Code Code Code Code Code
Co2   Date   Time   Calibrated   Do.   Co3   Channel (results ofted   10.0%   Co4   Co4   Co4   Co5
Calibration check
Calibrated   CH4   O2
Illimo Calibrated CH4 02  Timo Calibrated by 0.0% 2.5% 50.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%
Calibrated CH4 02 by 0.0% 2.5% 50.0% 0.0%  RG C C C C C C C C C C C C C C C C C C C
Gas Channel (results check
CH4 02 2.6% 50.0% 0.0%  CH4 02  CH4 02  CH4 02  CH4 02
Gas Channel (results check 4 02 60.0% 0.0% CO.1
SO 0:1
0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%
17.0% 17.0% 5°
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Comments WWW.



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Client: Boyd Cooks Cove		CES Project Code: CES050706-BCC
Project: ESA		Location: Area A - KGC
Sampler (s): L5	Signature(s):	Project Manager: M. Petrozzi
PID manufacturer and model:	Minirae 2000	Serial no:

Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV
Calibration date: 6/5/08		Calibration check and o	late: 920

Date	Location	Depth	Method	Duration	Background	Reading	gs (ppm)	Comments
dd/mm/yyyy	Details	m	(Note 1)	min.	ppm	Minimum	Maximum	
6/05/08	43		1.45	l.	0-0	19.6	0.7	
	4.4	-		1	6.0	1-2	1.3	
	45			,	6.0	5.8	6.0	
	46	-		1	0.0	12.9.1	23-1	
	4.2			,	0.0	12-1	14.2	
	49			<u> </u>	0.0	9.3	9.4	Cal Check: 86.6
	50			,	0.0	1.0	1-1	
	[]			1	0.0	0.5	0.7	
	52			1	0.0	0.8	0.9	
	53	-		1	0.0	0.5	0.6	
	54	_	V	1	0.0	0.4	0.5	
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Note 1: HS - Headspace method. SG - Ambient soil gas method.



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Client:	Boyd Cooks Cove	/	CES Project Code: CES050706-BCC
Project:	ESA		Location: Area A - 16GC
Sampler (s):	45	Signature(s):	Project Manager: M. Petrozzi
	turer and model:	Minirae 2000	Serial no:

Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 n	nV
Calibration date: 7/5/08		Calibration check and da	te: 97.3	7.505

Date	Location	Depth	Method	Duration	Background	Reading	s (ppm)	Comments
dd/mm/yyyy	Details	m	(Note 1)	min.	ppm	Minimum		
7/5/68	55/56/57	_	145	T	. 0	0.0	0 < 3	
1	58	1	1	.	0	0.0	0.2	
	59				0	0.0	0.0.	
	60				0	0.0	0-0	
	GI				0	0.2	0-4	
	63				0	0.4	0.8	
	64				0	0-1	0.2	
	65	1 1			O	0.1	0.2	
	66				B	0.2	0.3	
	67				0	0-3	0.4	
	68				0	0-2	0-3	
	G9				0	0.4	0.5	
	70				0	0-0	0.0	600 P. C
	71				B	0.2	0-3	
	72	T			0	0.5	0.2	
	73				0	0.4	0-6	200.0
	74.				0	0-1	0.2	
	75				0	0-1	0.3	
	76				0	0.2	0.3	
	78				В	0-3	p.4	
	81/82				0	0.5	0.7	
	83				0	0-1	0.3	Cleck: 98.6 ppm
	84	1			В	0.0	0.2	
	85/86	1	11		0	0.0	0.1	
	88				0	1.1	1.2	
	89				0	0.2	0-4	
	90				В	0.0	B·J	
	91				0	0.0	0.3	
	92				0	0-1	0.2	
	93				0	1-3	1.4	
	94/95				0	2.2	2.6	
	96				0	3-0	3.2	
1	97		1,1		0	1.5	2.0	
<del></del>	98/99	10	IV	11/	6	1.2	1.9	



Client: Boyd Cooks Cove		CES Project Code: CES050706-BCC
Project: ESA	. )	Location: Area A - KGW
Sampler (s): 45	Signature(s):	Project Manager: M. Petrozzi
PID manufacturer and model:	Minirae 2000	Serial no:

	Y 1 4 1 . 07 5	T amen voltage	10.6 mV
Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	
Calibration date: 7/5/08		Calibration check and d	late: 92.3 7.5.08

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Date	Location	Depth	Method	Duration	Background	Reading	gs (ppm) Maximum		Comments
dd/mm/yyyy	Details	m	(Note 1)		ppm	2.7	2-9		
7/5/08 7/5/6t	100	-	148	1	0-0			<u> </u>	~~ °7
7/5/ot	loi		1+5	_	0.0	10.3	10-5	Cheele	9/10
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Client:	Boyd Cooks Cove		CES Project Code: CES050706-BCC
Project:	ESA		Location: Area H - KGC
Sampler (s):	L. Jenkins	Signature(s):	Project Manager: M. Petrozzi
PID manufa	cturer and model:	Minirae 2000	Serial no:

Calibration gas type at	nd concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV
Calibration date:	8/5/08		Calibration check and date:	815/08-98.4 pm

Date	Location	Depth	Method	Duration	Background	Reading	gs (ppm)	Comments
dd/mm/yyyy	Details	m	(Note 1)	min	ppm		Maximum	
08/05/2006	102	-1	145	I	0.0	15.00	15.3	
,	103	1		1	0	6.8	2.0	
	104				0	21.6	21-8	
	105			1	Ò	21.5	21.6	
	106/107				0	20.7	20.9	
	108				O	(,0	CF.3	
İ	109				0	8.4	8.6	
	110				0	6.9	7.4	
	iu				0	9.4	9.5	
	112				B	2.1	2-3	
	113				0	4.0	4.1	
	114			$\neg$	0	2.0	2.8	
	115				O	0.1	0.2	
	116				0	3.1	3-2	
	117				.6	2.9	3.1	-
	118				0	2.9	2-1	
	119				0	2-1	3-3	
	120				0	0.2	0.4	Check: 98.4 ppm.
	121				O	3.0	3.1	
	122				0	2.4	2.5	
	123/124/125				0	2.7	2.9	
	126				0	101	1.3	
	127				0	2.1	2.2	
	128				0	3-6	3.7	
	129				0	4.0	3-9	
	130				0	1.0 ,	1	
	131				0	1.2	1.3	
	132				0	2.4	2.5	
	123				G	1.9	2-0	, No
	134				0	1.3	1-4	
	135				0	2.8	2.9	
	136				0	2.0	3.2	
1,1/	137	11/	1,1,	11,	G	1.7	1.0	
	138	V		$\overline{V}$	Û	1.0	2.1	



Client: Boyd Cooks Cove	1	CES Project Code:	CES050706-BCC
Project: ESA	-1/	Location:	
Sampler (s): Localzus	Signature(s):	Project Manager:	M. Petrozzi
PID manufacturer and model:	Minirae 2000	Serial no:	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV
Calibration date: 8/5/08		Calibration check and da	ate: 8/5/08 98-4pp

Date	Location	Depth	Method	Duration	Background	Reading	s (ppm)	Comments
dd/mm/yyyy	Details	m	(Note 1)		ppm	Minimum	Maximum	
8/5/08	139		Hs	1	0-0	1.8	1.9	Check 96.1 ppm
	140				0	1.6	1.8	
	191				0	1.4	1.5	
	142				0	1.2	1.4	
	143				0	1.4	1.5	
	145/146				0	2.2	2.4	·
	144				0	1-2	1.3	
	147				0	2.2	2-3	
	148		1		В	1.9	2 · 1	
	149	V	W		0	2.6	2-7	
	150							
	151	-	14-5	1	0	2-8	3-0	
	152/158			1_	0	29	3.0	
	15-4				0	2.0	2 - 1	
	155				0	3-5	3-3	
	156				0	0.9	1-0	
	157				O	2.4	2.5	
	158				0	2-6	2.7	
	159				0	4-3	4 -q	
	160				0	3.8-	3.9	
	(61				0	e4-3	4.4	
	162	11/	11/		0	2.6	2.8	
	163	V		V	Ô	2.0	2.4	Chech: 95.6 ppm
	-					T		
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Client: Boyd Cook	Cove	CES Project Code: CESO50706-BCC
Project: Aus A		Location: Area A- KCC
Sampler (s): Locakus	Signature(s):	Project Manager: Petrozzi
PID manufacturer and model:	Minural 2000	Serial no:

Calibration gas type and concentration:	Solutilare 97.5 ppm	Lamp voltage: 10.6mu
Calibration date: 9/5/08		Calibration check and date: 94, 8 pp

Г	Date	Location	Depth			Background		gs (ppm)	Comments
	d/mm/yyyy	Details	m	(Note 1)	min.	ppm	Minimum	Maximum	
9	15/08	164		1+5	ŧ	0		0.0	
L	1	165	_	1		0	0.9	1.1	
		166				0	1.3	1-4	<u>-</u>
		167				0	0.2	0.3	
		168				0	0.7	0.8	
		169				0	1-5	1-6	· .
		170				0	0.1	0.2	
		171	_			0	0.5	0.6	
		172		,		0	0.6	0-7	
		173	1			0	0.6	0.7	
L	4	174				_ 0	1-3	1-24	
		125				0	1.2	1-3	
		176				0	0-9	1.0	
		177	1			0	2-4	2.5	
		178	1	,		0	1.6	1.7	
		179	4			0	1.9	2-0	
		180	)			0	1.(	1.2	
		181	ļ			6	1.2	1.4	
		182				0	1.1	1.2	
		184				0	0-9	1.0	Chech: 96-2 ppm.
		185	منبي			_ 0	1-3	1 • 4	
		186	1			0	1.2	1.4	
		187	_			0	1.0	1.1	
		188	-			0	8001.0	(2)	
		189				0	1.4	1-5-	
		140				0	2.6	2.8	
		191				0	3.3	3.5	
		192	-			0	2.7	2-8	
		193				0	3.7	3.8	
		194/195	-			0	4-6	4-7	
		196	_			0	4-5	4-8	
		197				0	2-1	2.5	
		198	<b>-</b>		,	0	3-3	3-6	
	Vr	199		1	V	0	2.8	7.0	



Client: Boyd Cook	s love	CES Project Code: CESOSO706-BCC
Project: ESA	2/	Location: Area A- KGC
Sampler (s): Lonhis	J Signature(s):	Project Manager: Petro 221
PID manufacturer and mode	1: Minivae 2000	Serial no:

Calibration gas type a	nd concentration:	Isobotylene	97-5APM	Lamp voltage:	166mV.
Calibration date:	9/5-108		10-0 × 2-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0	Calibration check	and date: 94.8 pp

Date	Location	Depth			Background	Reading	gs (ppm) Maximum	Comments
dd/mm/yyyy	Details	m	(Note 1)	min.	ppm			***
9/8/08	200	-	148	1	0	2-7	2-8	100
	201				O	3-6	4-1	*
	202	-			_ 0	7.8	8.0	
	203				<u> </u>	5.9	6.1	
	204				0	6-0	6.2	
	205				0	6.2	6.4	
<b>'</b>	206	_			0	5.5	5.7	S SEC TOWNSON SECTION
	207				0	6.5	6.7	
	208	_			0	8.1	8.3	
	209	_			0	8.8	9.0	
	210		<b>V</b>	1/	0	6.4	2.2	Chech: 98-2 pp
				7			-	Tape. 10 ppp
				- XX - X				
				-				2
	<u> </u>			- W2 - S	8. 4.			
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	A 0 8.00							
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The state of the s	
	CES Project Code: CES050706-BCC
	Location: Area A - RGC
Signature(s):	Project Manager: M. Petrozzi
Minirae 2000	Serial no:
	Signature(s): Minirae 2000

Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV
Calibration date: 12.5-08		Calibration check and date:	94-6 ppm

Date	Location	Depth	Method	Duration	Background	Reading	gs (ppm)	Comments
dd/mm/yyyy	Details	m	(Note 1)		ppm	Minimum		
12.5.08	211	-	110	ı	0	4.2	2.2	
1	212			1	6	3.0	3-5	
	213	_			0	4-0	4.6	
	214	_			0	2.4	3.5	
	215/216	ļ			6	2.8	3.0	
	217				0	3.5	3.8	
	218	-			<u></u>	1.0	1-2	
	219	·			0	1.7	1-9	
	220				0	3.4	4.0	
	221				0	3.5	3-7	
	222				0	12-8	13.0	
	224	·-			0	4.3	4.5	
	225				0	4.1	4.2	
	226				0	2.9	3-0	.,
	227				0	3-1	3.4	
	228				0	12.0	12.8	
	280/229	-			0	7-1	7.7	chech: 97.5 ppn
	231	-			0	2.7	2.9	
	232				0	6.2	6.3	
	233				0	4-6	4.8	
	234				0	8.6	9.0	
	235				0	6-4	6-9	
	236				0	10.8	10.9	
	237	-			0	7.3	7-7	
	238	-		-  -	0	6.1	6-4	
	241				Q	3.4	3.5	-
	242				0	19-2	8.1	
	295/246				6	11-1	12.8	
	247	_			0	5-1	5.3	
	248				0	10-2	16.6	
	249	-			0	2.4	13-1	
	250				0	6.5-	6.8	
	252	-			0	8-6	8.8	
V	253		V		O	28	7.9	



Client: Boyo	Cooks Cove		,	CES Project Code	: CES050706-BCC
Project: ESA			21	Location: Av	rea A-KGC
	Jenhur	Signature(s):		Project Manager:	M. Petrozzi
PID manufacturer	. ,	Minirae 2000		Serial no:	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV
Calibration date: 12-8-08		Calibration check and da	ite: 94-61902

Date	Location	Depth	Method	Duration	Background	Reading	gs (ppm)	Comments
dd/mm/yyyy	Details	m	(Note 1)	min.	ppm	Minimum		
12-8-08	254	_	14,55		0	6.7	7.1	Cleck-98.1 ppm
1	265				0	6.9	7.1	
	256	<u> </u>			0	3.4	4-1	
	257	_			0	G-1 8-3	7.3	
	281				0_		8.4	
j j	260/25/259	-			0_	1.8	2.1	
	261	_			Ď	7-0	2-2	
	262	-			6	3.0	3.3	
	263	-			0_	10.8	11.4	
	264				0	S.2	6.3	
	265	-			0	5.3	5.7	
	266				6	省10.8	11.2	
	267	-			0	2.3	2.2	
	268	-			0	10.8	11.2	
	269				0	6.5	6.5	
	220				و ت	9.0	9.4	
	271/272	-			0	4.4	4.8	
	273	_		7	٥	4.4	2.8	Check:
	274	_		1	0	5.0	5.2	Check: 96.3 ppn
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Client:	Boyd Cooks Cove		CES Project Code: CES050706-BCC
Project:	ESA	. 1/	Location: Area A - KGC
Sampler (s)		Signature(s):	Project Manager: M. Petrozzi
1 67	acturer and model:	Minirae 2000	Serial no:

Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage: 10.6 mV	
Calibration date: 13.5.08		Calibration check and date: 96.7 pm	
Campranon date: (3 0 0 8		Canbrated District Later 10 1 015 101	

Date	Location	Depth	Method	Duration	Background	Reading	gs (ppm)	Comments
dd/mm/yyyy	Details	m	(Note 1)		ppm	Minimum		
17.5.08	276		H5	1	0	11-6	12.4	
1	277	1	1		Ø	13.4	17.0	
	280					5.4	6.2	
	281				0	4-1	4.8	
	282				0	3.1	4.2	
	283				0	2-7	2-9	
	284				0	4-4	5.6	
	285				0	2.6	2.8	
	286/287/28	ş			0	7.9	8.5	
	289				0	3.5	4.2	
	290				0	2-7	2.9	· .
	291				0	2.5	2.7	
	292				0	3.0	3.4	
	293/294/295				0	2.2	2.4	
	296				B	3.2	3.4	
	297				0	5.4	6.0	
	298				0	1-3	1.5	
	299				0	3.1	3.3	Check 98-2 ppn
	300				0	5.8	6-8	,
	301				0	9-4	10.2	
	302				0	3.4	3.8	
	303				0	3.3	3,4	
	304/205				0	3-6	3.9	
	306				0	8.4	8.5	
	307				0	4.9	5-8	
	308		TI		0	2.1	5.8	
	309				0	6.0	6.3	
	310				0	7.9	8.1	
	3/1				6	5-1	5.3	
	312				0	8.9	6.0	
	3/3				0	9-1	9.8	
	314				0	6.7	6.9	
1/	315				9	6.8	7.2	
V	316	TV	TV	V	0	6-6	7-2	Check 96.4 ppm



Client:	Boyd Cooks Cove		. /	CES Project Code:	CES050706-BCC
	ESA			Location: Area	A-KGC
Sampler (s):	L. Jenkus	Signature(s):	11/2.	Project Manager:	M. Petrozzi
	urer and model:	Minirae 2000		Serial no:	

Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV
Calibration date: 13-5-08		Calibration check and d	ate: 96-7 ppn

Date	Location	Depth	Mathad	Duration	Background	Reading	es (mmm)	Comments
dd/mm/yyyy	Details	m	(Note 1)		ppm		Maximum	
13.5.08	317		1+5	1	O	7.8	8-3	
}	318	Ī	1	1	0	7.9	8.2	
	319				Ø	2-4	2.6	
	320				0	0.4	0.5	
	321				0	11.0	12.0	
-	322				0	6.5	6.9	
	322/324	-			0	4.0	4.2	
	325				0	4-7	5.1	<u> </u>
	327				O	7.3	7-4	
	328				0	0.9	1.0	
N/	329	ī.			0	3.7	78	
	331	<del>U</del>	W	1	0	4.6	6-0	Check 92.1 ppm
	331					<del>'</del>		7//
<u> </u>			<del>                                     </del>	_	<del></del>			
		<del>                                     </del>				<del> </del>		
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C	Barrel Cooles Corre			CES Project Code: CES050706-BCC
Client:	Boyd Cooks Cove	/		1 1 11/10
Project:	ESA	/	1	Location: Area 14 - 1848
		21 12 11/1	245	Project Manager: M. Petrozzi
Sampler (s):	L'Denkins IK. Wei	Signature(s):	<u> </u>	Project Hanager. Har a databas
		Minirae 2000		Serial no:
IPID manufac	turer and model:	Minitae 2000		B01,441, 201

Calibration are type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV
Calibration gas type and concentration:	moduly, ratio y 100 pp.	Calibration check and date:	92.5 ppm

Date	Location	Depth	Method	Duration	Background	Reading		Comments
dd/mm/yyyy	Details	m	(Note 1)		ppm	Minimum		
15/5/08	332	_	IFS.	8	0	184	191	
	390	-			0	4.4	45	
	390 393/394				0	7.8	8.2	
	395	<del>}</del>			0	2-1	2.2	
	392	_			0	7.0	2.1	
	251	_			0	3912-1	2-4	
	380	_			0	4.1	5.3	
	381				0	9.6	10.3	
	382				0	4.8	4.9	
	383				0	6-6	6.8	
	384				0	5.2	2.3	
	385/384387				0	2-6	3.4	
	388	_			0	3-9	4.0	
	370/37,389				0	5.5	6.0	
	370/371	_			0	9.8	10.3	
	372	_			0	5.8	6.0	
	373				0_	6-4	6.6	
	374	-			0	2.8	3.4	
	375	-			0_	3:9	4.2	Clech: 96-1 ppn
	376	-			0	3.6	4.0	,,
	377	_			0	2.1	3.6	·
	378/379	_			0	31	69	*
	360/361	<b> </b>			6	4.4	12.9.	
	362	-			0	5.2	107	
	363	-			6	2.5	10.21	
	764		1	1	0	69	15.9	
	365	-			0	1.5	13-3	
	366	-		1-1-	0	2.3	10.5	
	367	-	1		0	7.5	14.9	
	368			1-1-	0	1.9	<b>B-</b> 1	
	369	-	11	1	0	2.0	11.5	
	351	_			0	4.0	17-0	
	352/353/354	+	1 +		0_	1.8	13.8	
	355	-	1 1,		6	10-4	14.2	



CT:	Boyd Cooks Cove		CES Project Code: CES050706-BCC
Client:	Boya Cooks Cove		10 10 00
Dundant	ESA		Location: Mead -KEC.
Project:	ESA		Project Manager: M. Petrozzi
Sampler (s)	1.1/1.10	Signature(s):	Project Manager: M. Petrozzi
Parmhier (s)	. ENV-C		
DW monuf	eturer and model:	Minirae 2000	Serial no:

Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV
Calibration date: 15.7.0%		Calibration check and date:	92-5pm

Date	Location	Depth	Method	Duration	Background	Reading		Comments
dd/mm/yyyy	Details	m	(Note 1)		ppm	Minimum		
15/5/08	35%		45		0	51_	14.6	
	357		j	l	0	2.3	15.3	
	35%	_		<u> </u>	0	1.8	15.2	
	359				0	4.3	14.4	
	340	<u>د.</u>			0	104	204	
	341				0	538	2927	
	342	_			0_	1664	1670	
	343				0	139	471	
	344	_			0	296	388	
	345	-			0	1126	1432	
	346				0	103	126	
	347				0	49.2	55.4	
	348				D	628	80-6	
_	349		<del>                                     </del>		0	58 0	608	
	350	-	1 1 -		D	260	35.9	Cleck: 92.1 ppm
	339				Ð	50.3	53.7	//
$\dashv$	338				0	50.3	19.3	·
	337	-			O O	23.0	27.6	
	336	<u> </u>			0	24-6	26.8	
	375	_			0	11-7	12.7	
	334	<del>  -</del>			D D	58.2	59.2	,
	333	-			0	901	920	
	322				,		1	
	600	<del>  _</del>	1 !		0	98.1	102	
	601	1	1		0	0.4	0.6	Chell: 925 pm.
<u> </u>		<del>                                     </del>	++-	ΙΨ			-	
<u>-</u>		<del>                                     </del>	+-					
		+	<del>                                     </del>		-			
		+	+				1	
		-		+				
	<del> </del>				-			
					-		<del> </del>	
		1	-	-	+	+	1	
		<b>_</b>		<del> </del>		<del>     </del>	-	

Note 1: HS - Headspace method. SG - Ambient soil gas method.



Client:	Boyd Cooks Cove	CES Project Code: CES050706-BCC
Project:	ESA	Location: Area B-KGC
Sampler (s):	L. Wer /L. Jenkins Signature(s):	Project Manager: M. Petrozzi
PID manufac	turer and model: Minirae 2000	Serial no:

Calibration gas type and	concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV	
Calibration date: 2	27/4/08		Calibration check and da	te: 29/1/08	97-5ep

Date	Location	Depth	Method	Duration	Background	Reading	gs (ppm)	Comments
dd/mm/yyyy	Details	m	(Note 1)	min.	ppm	Minimum	Maximum	
29/04/2008	29	-	HS	ŀ	0.0	D-0	0.0	
	30	1	<del>11</del> 5	1	0.0	4.8	5.0	
	3)	į	145		0.0	28	3.0	
1	32 /33	_	HS	- (	0.0	ق. ق	0.0	
	34	-	HS	1	0.0	11.5	11	
	35	1	HS	İ	0.0	3.9	1.0	
	36	ĺ	145		Ð.O	1.5	9.6	
¥	37	j	HS.		0.0	2-0	요-고.	
h.,	38	)	145	(	0 -D	00	0.0	
	39/46/41	þ	145	1	0.0	16.0	16.7.	
	42	-	HS	_	0.0	3.4	3.7	
	43		145		0.0	0.4	0-4	
	44		145	1	0.0	6.0	0.0	
	45	-	145		0.0	1.1	1.2.	
	46		H5	1	0.0	1.6	1.8	
	47		145		0.0	カゥ	6.0	
	48	-	HS		0.0	1.6	1.9	
	49	_	145	1	0.0	65	6.6	
	50	-	HS		0.0	4.4	4.9	
	57/52	Į	115	1	0.0	9.8	9.9	Cheek 97.5
	53	<u>1</u>	145		0,0	5.8	6.2	·
	34	-	#5		0.0	10-1	10.2	
	55	-	HS	1	0.0	13.6	13.8	
N.	576	-	#9	1	0.0	6.6	7.2.	
	57	_	145	1	0.0	11.7	11.8	·
	28		HS		0.6	7-4	7.5	
	59	-	K	1	0.0	1.3	4:2	·
	60		H5		0.0	1-1	g-D	
	61	_	148		0.0	3.4	10.4	
	62		H\$		0.0	8.1	8.5	
	63		計5		0.0	0.0	0.0	
	64	1	175	.	0.0	1.6	2.4	
	65	-	#5		0.0	2-1	2-2	
	67		145		0.0	5.6	6-0	



Client:	Boyd Cooks Cove	CES Project Code: CES050706-BCC
Project:	ESA	Location: Prea B-KGC
Sampler (s):	K. Weir & L. Jenkins Signature(s):	Project Manager: M. Petrozzi
PID manufac	eturer and model: Minirae 2000	Serial no:

Calibration gas type a	nd concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10-6mV 10.6mV
Calibration date:	29/4/08		Calibration check	cand date: 29/4/08 97/5/pm

	2					1000		
Date	Location	Depth		179	Background		gs (ppm)	Comments
dd/mm/yyyy	Details	m .	(Note 1)	min.	ppm	Minimum		
29/4/2008	68		HS	- 1	0.0	9.1	9.3	
	70		HS	1	0.0	7.4	フ・フ	
	71	_	HS	1	6.0	<b>ひ</b> フ	[.0	
	72	1	HS	} .	Ð.0	3.7	4.1	¥
	73	-	HS	l	0-0	3.0	3.3	€ 6 8
	74	-	HS	(	20	4.0	5-1	Check O7.5 ppm
	75	-	H5	1	0.0	6.8	7.0	45
	76	-	1-15	١	0-0	7.8	7-9	Check anspor
- NT	11W-2	20	4	1	200			
	7 -		, (m)					
								,
					85			***************************************
			<del>                                     </del>	<del></del>	-300		7.72	
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			-					
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11.5 1.0	*		l			100		
	751					1		
	2000							
15 miles - 15 miles (15 miles 15 miles						Pa (PCC)CC		
				35				
							7	
								1



Client:	Boyd Cooks Cove		CES Project Code: CES050706-BCC
Project:	ESA	1	Location: Area B-KGC
Sampler (s):	L. Jenlin	Signature(s):	2. Project Manager: M. Petrozzi
PID manufac	cturer and model:	Minirae 2000	Serial no:

Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV	
Calibration date: Sobuhlene		Calibration check an	d date: 30 4.08	94-6 pgr.

Date	Location	Depth	Method	Duration	Background	Reading	gs (ppm)	Comments
dd/mm/yyyy	Details	m	(Note 1)		ppm	Minimum	Maximum	
30.4.08	306408-76-16	je –	45	1	0.0	4-5	4.7	·
1	1 78- Klu		ì	1	1	4-4	4.7	
	79				\	3 -3	4-3	
	80					7.5	7.6	
	81					i - 8	1.9	
	82					1.2	1-4	
	83					0.5	0.5	
	84				1 /	1.1	1-6	
	85					4-4	4.5	
	86					11.3	11-3	
	87					3.5	3.6	
	68					1.2	1.4	-
	91		$\Box$			1.6	1-9	
	92		1 /			1.3	î-\$	
	43					1.4	2.1	
	94					2.1	2.2	
	95-					0.0	6.9	
<u> </u>	96					1.5	1.7	
	97					2.6	2.1	
	98					1.6	1.8	Check! all. Lapon
	99					1-6	1.7	
	166					3.3	3.6	
	101/102					1.8	2.0	
	103					0.9	1-0	
	104					6-7	2-3	
	106					2.2	2.4	
	107					2.7	3.2	
	109					3.4	3-5	
	110					4.3	9.9	
	HI					4.9	5.2	
	112					1.4	2.4	
	113					2-1	2.3	Check: 94.6 pm
				117	1.17			10.5
	V		V	M	T V			



Client:	Boyd Cooks Cove		CES Project Code: CES050706-BCC
Project:	ESA .		Location: Area B KGrC
Sampler (s):	L. Jenking	Signature(s):	Project Manager: M. Petrozzi
PID manufac	cturer and model:	Minirae 2000	Serial no:

Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV
Calibration date: 1.5.68		Calibration check and date:	1.508 950AP

Date	Location	Depth	Method	Duration	Background	Readin	gs (ppm)	Comments
dd/mm/yyyy	Details	m	(Note 1		ppm		Maximum	× 200 T2
1/5/08	115	ngula	145	(	0.0	1.2	1.6	
1	116	-	1	P	0-0	8.>	9-2	4
	117	Cana.		1	0.0	3.2	3.6	4
	118	-		1	0.0	10.1	10.2	
	418	_		7	0.0	8.3	9.1	10 5 200 00 0000
	126	-		ľ	0.0	8.7	9.0	
	122/123/124			1	0.0	7.2	7.4	
	121	_		ı	0.0	1.8	1.9	
	125	_		1	0.0	5.1	6.0	
N/	126	-		1	0.0	8.4	8.5	,
	128	-	-	1	0.0	15.3	15.1	
	129	_		)	0.0	7-9	7.2	
	130	-		1	0.0	5-5-	7.0	
	131	_		1	0 0	13-7	14.1	
	132	-		l l	0.0	10.6	9.9	an arma
	173	-		ı	0'0	5.0	6.3	
	134	-		1	0'0	7.9	8.1	
	136/137/138			1	0.0	2.8	2.5.	
	139			1	0.0	10.8	11.4	
	140	-		1	0'0	2.7	3.0	Check 95.0ppm
	141			9	0'0	1.5	1.9	
	143	-		1	0.0	2.4	3.2	
	144	_		11	0.0	2.7	3.0	s arecons. Is
100	145	_			0.0	1.3	1.4	
	146	-		1	0.0	8.2	8.4	
	147	-		ì	0 . 0	6.0	6.3	
	152	_		1	0.0	2.2	2.3	
	153	_		1	0.0	4.0	4.2	<u></u>
	155	~			0.0	14.9	15.0	
	156/157	-		ı	0.0	1.8	2.1	
	158	-		-1	0.0	2.0	2.1	
	159	-		1	0.0	8.0	8.1	
11,	160	-	11/	1	0.0	2.1	2.3	\$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	161	-	1	1	0.0	1.9	2.2	



Client:	Boyd Cooks Cove		CES Project Code: CES050706-BCC
Project:	ESA	1/	Location: Area 8 KGC
Sampler (s):	4. Jenhinis	Signature(s):	Project Manager: M. Petrozzi
PID manufac	cturer and model:	Minirae 2000	Serial no:

Calibration gas type a	nd concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV
Calibration date:	1.5.0%		Calibration check and date:	1.508 95-0pp

Date	Location	Depth	Method	Duration	Background	Reading	gs (ppm)	Comments
dd/mm/yyyy	Details	m	(Note 1)	min.	ppm	Minimum	Maximum	
1/5/08	162	-	145	1	0.0	15-9	16.2	
)	163		1	1	0-0	S. 2	r.c	
V	164	_	V		0.0	26.1	26.2	Check 95-Oppn
	107							0.404
			30000000					
-								
					** 8			
	10,500.00					-		
o								
<i>∞ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>		100		e=1490 sp				
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				79				
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1,000 10 10 10								
			84				É	
					ė			
					700			
					V - 224 W 3			CANCEROLAS CARROLLY 192 Pd.
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		7000-						,
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-					70 000	1		
				2				
55 505 NY								
								N. GELPHARTS CON
j.								
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Client:	Boyd Cooks Cove	1	CES Project Code: CES050706-BCC
Project:	ESA ,	-1/	Location: Aver13
Sampler (s):	1.5 Calrus	Signature(s):	Project Manager: M. Petrozzi
	turer and model:	Minirae 2000	Serial no:

			_	
Calibration gas type and concentration:	Isobutylene 97.5 ppm	Lamp voltage:	10.6 mV	7 .
Calibration date: 02/05/08		Calibration check and da	ate: 98-6nm	2/3/68

Date	Location	Depth	Method	Duration	Background	Reading	gs (ppm)	Comments
dd/mm/yyyy	Details	m	(Note 1)		ppm	Minimum		
2.5.08	165	-	<i>1+5</i>	- 1	0.0	21-3	22-3	-
1	166		1	1		28.0	28.9	
	167					20-3	20.4	
	168/169/170				_	19.7	20.1	·
	171					18.4	16.2	
	172					13-7	13.5	
	173					10-6.	1.0.7	
	174					22-4	22.4	
	4950	<b>X</b>	<u>/</u>	<u></u> _		17.9	12-9-	
	476	-						
	177					17-7	17.9	
	100							
	179					2-1	7.4	
İ	181					20-2	20-9	
l i	182				<del></del>	15.7	16-3	
	183			İ		19.8	22.1	
	184			İ		10-4	10.5	
	185					19-0	19-3	
	186					17.1	17.5	
1/	187	11/	11,	Į.		10.2	10-4	
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	188	V	1	V		22.2	22.4	Charl as began
								, ,
<u> </u>		·						
		<u> </u>						
			<b>†</b>					
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-		$\vdash$	<del>                                     </del>			<u> </u>	1	
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ļ		<del>                                     </del>	+					
		<del>                                     </del>						
	-	-	<del> </del>					
					<u> </u>			
			1		<u> </u>		<u> </u>	<u> </u>



Client:

### SUBSURFACE GAS FIELD DATA SHEET

Project: Kograh Golf Co	ouge		, Lo	cation: Cooks Cove	Area 4	
Sampler (s): AG	Signature(s):	1	Pr	oject Manager:	L.Jenkins	
BHID: ALG ZON			M	onitoring Date / Time:	10/06/2008	
		<u>-</u>			<del>-</del>	
Well Status						
Well damaged:	YES/NO)		W	ell locked:		(yııs/NO
Cement footing damaged:	YES/MO?		Ca	p on PVC casing:		YES/NO
Standing water, vegetation around monun	nent: YES/NO)		We	ell ID visible:		YES/NO.
Water between PVC and protective casing	: YES/NO)		Mo	onument damaged:		YES/NO.
Comments:			· Od	lours from well		YES/NO
Water was sack. Ambient reading (FID):	ppm	Vacuun	<del>ta</del> n k			
Initial well pressure:	) kPa					
Initial vent:	(Nil)/ Initial pu	ılse / Pulse >	5 s / Continuous			
Gas Flow rate:	% 440 L/hr	or	% 3000L/hr	OR	% 10 000	
Well pressure after initial vent:	O kPa					
Standing Water Level (SWL):	(mBTOC)					

CES Project Code:

CGS050706-8CC

Readings

				Land	fill Gas An	alyser		
Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Flow rate at time of sampling	Comments
Initial	-	-	_	0.3	8.4	14.9		Could not pump -
								Corld not purp - 1120 level too high.
								high.
•								
•								

<sup>\*</sup> where one tank volume = 12 L

Unit conversions

<sup>&</sup>lt;sup>1</sup>Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm



Project:

### SUBSURFACE GAS FIELD DATA SHEET

Sampler (s): AG	Signature(s):	A	Project Manager:	L.Jenkins	
Sampler (s): AG BH ID: AUS 202	Signature(s).		Monitoring Date / Time:	10/06/2008	
Well Status					
Well damaged:	YES(NO)		Well locked:		YESINO
Cement footing damaged:	YES/NO		Cap on PVC casing:		YES/NO
Standing water, vegetation around monument:	YES (NO)		Well ID visible:		YES(NO)
Water between PVC and protective casing:	YES NO		Monument damaged:		YESNO
Comments:			Odours from well		YES
Ambient reading (FID):	ppm			3 1	
Initial well pressure:	kPa			• *	
Initial vent:	Nil/ Initial pulse	/ Pulse > 5 s / Continuous	-		
Gas Flow rate:	% 440 L/hr	or % 3000L/h	r OR	% 10 000	
Well pressure after initial vent:	kPa				
Standing Water Level (SWL):	(mBTOC)				

CES Project Code:

Location: Cooks Cove

CESOSO706 Arca A

				Land	fill Gas An	ılyser		
Cumulative	Cumulative time vented (min)	vacuum on wen		CH <sub>4</sub>	CO <sub>2</sub>	O <sub>2</sub>	Flow rate at time	Comments
volume (L)*	vented (mm)	(psi)	pressure (min)	(%)	(%)	(%)	of sampling	
Initial	-	-	-	0.5	2.6	18.4		
10		-20	a.	0.3	0.4	19.4		
20		-20	a	0.3	0.3	20.7		
30		-20	2	O · g	0.8	20.8		
40		- 20	2	0.3	0.31	20.8		
					,			
				,				
.=/			;					*
							·	

<sup>\*</sup> where one tank volume = 12 L

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

8 4

<sup>&</sup>lt;sup>1</sup> Measured as methane equivalents



Client: Boyals Cook	k Cove		72.00		CES Project Code: CES	050706-1300	5
Project: 1/CC				1- 1		Arca	
Sampler (s): AG		Signature(s):	1	19_	Project Manager:	L.Jenkins	
BHID: AUS 203	4				Monitoring Date / Time:	10/06/2008	
Well Status		-					
Well damaged:		YES/NO			Well locked:		(YES/NO
Cement footing damaged:		YES/NO			Cap on PVC casing:		(YES/NO
Standing water, vegetation around	monument:	YESINO			Well ID visible:		YESNO
Water between PVC and protectiv	e casing:	YES/NO			Monument damaged:		YES/NO
Comments:					Odours from well		YESONO
Ambient medica (EID)							
Ambient reading (FID):		ppm					
Initial well pressure:	0	kPa		8			
Initial vent:		Nil) Initial pi	ılse / Pulse	> 5 s / Continuous			200
Gas Flow rate:	0	% 440 L/hr	or	% 3000L/h	OR	% 10 000	
Well pressure after initial vent:	0	kPa					
Standing Water Level (SWL):		(mBTOC)					
				property and			

Dondings

Readings				Land	Ifill Gas Ana	alyser	(9.5)			
Cumulative	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Flow rate at time of sampling	Comments		
Initial 💍	-	-	<u>*</u>	0.1	0.3	20-0				
10		-20	\	0.2	0.2	20.7			-30	
20		-20		0.2	0.2	20.8			\$ \$	
30		-20	1 '	3.2	0.2	20.8				
40	,	-20	l	0.2	0.2	20.8			W.P. 1999	
	54				10				52070	
SWAEN			_		¥	(2			26	
ti i							ÿ		re Tar	
	CONTROL MANAGEMENT									
		1, 100 000	25						10	

<sup>\*</sup> where one tank volume = 12 L

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

<sup>&</sup>lt;sup>1</sup> Measured as methane equivalents



Client:	Boyds	Cook	Cove		CES Project Code: CESOSO 206 - PCC
Project:	KGC				Location: Cooks Cove Arca A
Sampler (s):	AG		Signature(s):	9)4	Project Manager: L.Jenkins
BH ID:	16204	c			Monitoring Date / Time: 10/06/2008

Well Status							
Well damaged:		YES(NÓ)	<u>-</u>	Well	locked;		YES/NO
Cement footing damaged:		YES/NO		Cap	on PVC casing	:	YES/NO
Standing water, vegetation around	l monument:			Well	ID visible:		YESMO
Water between PVC and protective		YESNO		Mon	ument damage	d;	YES/NO
Comments:					ırs from well		YES/NO
water was	sucked	into the	vacuum	tank. Only	initial a	rould be taken.	_
Ambient reading (FID):	,	ppm					
Initial well pressure:	0	kPa		<u> </u>			
Initial vent:		Nil Initial pu	lse / Pulse > 5 :	s / Continuous			
Gas Flow rate:		% 440 L/hr	or	% 3000L/hr	OR	% 10 000	
Well pressure after initial vent:	0	kPa					İ
Standing Water Level (SWL):		(mBTOC)					

Cumulative	Cumulative time vented (min)	vacuum on well	Recovery Time - to equilibrate to atmospheric	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Flow rate at time of sampling	Comments
volume (L)*		(psi)	pressure (min)	(70)				
Initial	· r to c		· -	0.2	10/2	4.5		Cound puge due
								Cound puge dase to high Macleud
			:					,
				-				
,								
	7							
		<del>                                     </del>		<del>                                     </del>				

Landfill Gas Analyser

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

Readings

where one tank volume = 12 L

<sup>&</sup>lt;sup>1</sup> Measured as methane equivalents



Client:	Boyds Cooks Co	ove	CES Project Code: CESOSO706 - RCC
Project:	KGC		Location: Cooks Cove Area A
Sampler (s):	AG	Signature(s):	Project Manager: L.Jenkins
BH ID: 🔑	(UG 205		Monitoring Date / Time: 10/06/2008

Well Status						
Well damaged:	YES/NO		Well l	ocked:		YES/NO
Cement footing damaged:	YES/NO		Cap or	n PVC casing:		YESINO
Standing water, vegetation around monument:	YES/NO /	0	Well I	D visible:		YESAIO
Water between PVC and protective casing:	YES/NO/		Monu	ment damaged:		YES/NO.
Comments:			Odour	s from well		YES/NO
Ambient reading (FID):	ррш					
Initial well pressure:	kPa	2				
Initial vent:	Nil / Initial puls	se / Pulse > 5 s / Contin	uous			200
Gas Flow rate:	% 440 L/hr	or %	3000L/hr	OR	% 10 000	0 17 - 1000
Well pressure after initial vent:	kPa				95	
Standing Water Level (SWL):	(mBTOC)					
ty proceedings and	75 12 - 75		4 (4)			

Readings

				Land	fill Gas An	alyser		
Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Flow rate at time of sampling	Comments
Initial	-	-	-	0.2		14.3		17 No. 1001
10	(A) (V	-20	1	0.2	3.7	13.6		·
20		-20	)	0.2	3.7	13.6		
30		-20		0-2	3.8	13.6	40 00000 00 0000	300000 300000
40		-20	ì	0.2	3.7	13.6		
	. V.			50				
	100000		\$a		7.			
		71	20 E					3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 -
			211.200				A S A A A A A A A A A A A A A A A A A A	
		0						
200						,		

<sup>\*</sup> where one tank volume = 12 L

Unit conversions
1 kPa = 0.145 psi
1 psi = 6.90 kPa

<sup>&</sup>lt;sup>1</sup>Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm



### SUBSURFACE GAS FIELD DATA SHEET

Client: BOYD COOKS	cone				CES Project Code: CE	5050706	-BCC
Project: COXX Cove A	rea A	subsurane	gaz	KGC	Location: Cooks Cove	Area A	
Sampler (s): AG	·	Signature(s):	0,100		Project Manager:	L.Jenkins	
BHID: ALG 2016		E \./			Monitoring Date / Time:	10/06/2008	
Well Status							
Well damaged:		YES/NO		-	Well locked:		(YES/NO
Cement footing damaged:		YESANO			Cap on PVC casing:		YESANO
Standing water, vegetation around	d monument:	YES NO			Well ID visible:		YES/NO)
		1 /			Monument damaged:		YESANO
Water between PVC and protective	ve casing:	YESMO			Odours from well		YES/NO
Comments:					Odours from wen	•	1153/10
			-				
Ambient reading (FID):	<del></del>	ppm					
Initial well pressure:	0	kPa			_		
Initial vent:		Nily Initial pul	lse / Pulse > 5 s /	Continuous	_		
Gas Flow rate:		% 440 L/hr	or	% 3000L/b	r OR	% 10 000	
Well pressure after initial vent:	0	.kPa				150	
Standing Water Level (SWL):		(mBTOC)					

Readings

Keadings				Land	fill Gas An	alyser	<u> </u>	
Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	. CH₄ (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Flow rate at time of sampling	Comments
Initial	-	-	-	0.1	0.9	18.6.	un -	well called not
,								well could not be purped due to
								high water level -
								- pump was
					,			taking in water
								` )
·-								
						•		

<sup>\*</sup> where one tank volume = 12 L

Unit conversions

<sup>&</sup>lt;sup>1</sup>Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm



Client: Boyds (ork (ove	*****	CES Project Code: CESOSO 706 - BCC
Project: KCC		Location: Coolks Cove Area B
Sampler (s): AG	Signature(s):	Project Manager: L.Jenkins
вн 10: 3660		Monitoring Date / Time: 10/06/2008
Well Status		
Well damaged:	YES/NO\	Well locked: YES/NO
Cement footing damaged:	YES NO	Cap on PVC casing: YES/NO
Standing water, vegetation around monument:	YES/NO	Well ID visible: YEMAQ
Water between PVC and protective casing:	YE\$/NO	Monument damaged: YES
Comments:	\ /	Odours from well YES/NO
		0.
·		
Ambient reading (FID):	ppm	
Initial well pressure:	kPa	
Initial vent:	Nil / Initial pulse / Pi	se > 5 s / Continuous
Gas Flow rate:	% 440 L/hr or	% 3000L/hr OR % 10 000
Well pressure after initial vent:	(FP)2	
Standing Water Level (SWL):	(mBTOC)	_

		<u></u>		Lanc	fill Gas An	alyser		
Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	CH₄ (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Flow rate at time of sampling	Comments
Initial	-	-	•	0.1	27	18.6		
10		-20	(	0.1	11.6	6.6		
20		-20	1	0.1	12 · 1	6.2		; ; 8;-
30		-20	-	0.2	11.9	6.0		
40		-20	1	0.1	11.9	6.1		
50		-70	(	0.1	11.9	6.1		
			•					
						:		
								Market St. St. St.

<sup>\*</sup> where one tank volume = 12 L

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions
1 kPa = 0.145 psi
1 psi = 6.90 kPa

355

<sup>&</sup>lt;sup>1</sup> Measured as methane equivalents



Client: Bosols Con (2)	Cove				CES Project Code:	=5030706- BCC	
Project: KCC				*	Location: Cooks Cove	Arca B	
Sampler (s): AG		Signature(s):	N		Project Manager:	L.Jenkins	
BHID: BLG 402					Monitoring Date / Time:	10/06/2008	
Well Status							
Well damaged:		YES/NO	•		Well locked:		YEMNO
Cement footing damaged:		YES/NO			Cap on PVC casing:		YESANO
Standing water, vegetation around n	nonument:	YES/NO			Well ID visible:		YES
Water between PVC and protective	casing:	YES NO			Monument damaged:		YESAIO
Comments:			•		Odours from well	-	YESNO
Ambient reading (FID):		ppm					
Initial well pressure:	0	kPa					
Initial vent:		Nil/ Initial po	alse / Pulse >	> 5 s / Continuous	•		
Gas Flow rate:	0	% 440 L/hr	or	% 3000L/h:	r OR	% 10 000	_
Well pressure after initial vent:	0	kPa			-		
Standing Water Level (SWL):		(mBTOC)					
				1.			

Readings

Keadings								
				Lanc	fill Gas An	alyser		
Cumulative volume (L)*	Cumulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	CH₄ (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Flow rate at time of sampling	Comments
Initial	-	-		02	7.2	19.3		
lo		-20	(	0.7	0.4	20.5	12.0	
20		-20	l	0.2	0.3	20.8		
30		120	(	0.2	0.2	20.8		
40		-20	1	0.2	0.2	20.9		
50		-20	1	0.2	0.2	20.8		
-								
			*	, <del>-</del>				
								,

<sup>\*</sup> where one tank volume = 12 L

<sup>&</sup>lt;sup>1</sup> Measured as methane equivalents

Volume of Gas: 4.2 L/m air in 50mm Unit conversions



Client: Koyclo Coo.	rs a	re				CES Project Code:	-5050>06- BCC_	
Project: KCC				11		Location: Cooks Cove	Area B	
Sampler (s): AG		Signature(s):	/			Project Manager:	L.Jenkins	
BHID: BLG 40)	3					Monitoring Date / Time:	10/06/2008	
Well Status		~~~				<u></u>		_@
Well damaged:		YES(NQ)				Well locked:		(YE\$/NO
Cement footing damaged:		YES/NO				Cap on PVC casing:		YE\$/NQ
Standing water, vegetation around n	nonument:	YES/NO)				Well ID visible:		YES/NO
Water between PVC and protective	casing:	YES NO				Monument damaged:		YES NO.
Comments:						Odours from well		YESANÓ \
Ambient reading (FID):		ppm		_				
Initial well pressure:	0	kPa						
Initial vent:		Nily/ Initial pr	ulse / Puls	e > 5 s / C	ontinuous			
Gas Flow rate:	0	% 440 L/hr	or		% 3000L/h	OR	% 10 000	
Well pressure after initial vent:	0	kPa		( ,				
Standing Water Level (SWL):		(mBTOC)		¥ / ·				

Readings

Readings				Land	fill Gas An	alvser		
Cumulative volume (L)*	Comulative time vented (min)	Maximum Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Flow rate at time of sampling	Comments
Initial	-	-	1	0.2	1.5	19.7		
10		-20		0.2	الم -	19.4		
20		-20	1	0.1	1.5	19.3		
30		120		0.1	1.7	19.4		""
60		-20	(	0-1	1.4	19.4		F
					·		<del></del>	
							, v <sup>i</sup> , , ,	•.
							4	
		•		-				
						·		

<sup>\*</sup> where one tank volume = 12 L

Volume of Gas: 4.2 L/m air in 50mm Unit conversions

<sup>&</sup>lt;sup>1</sup> Measured as methane equivalents



Client: 180406 Cooks	corc					CES Project Code: CED	00000 200	
Project: RGC						Location: Cooks Cove	Arca B	
Sampler (s): AG		Signature(s):				Project Manager:	L.Jenkins	
BH ID: 1566 404			-			Monitoring Date / Time:	10/06/2008	
							· · <del>-</del>	
Well Status		6						
Well damaged:		YES/NO \				Well locked:		(YES)NO
Cement footing damaged:		YES/NO				Cap on PVC casing:		YESINO
Standing water, vegetation around a	nonument:	YES/NO /				Well ID visible:		YES/NO
Water between PVC and protective	casing:	YES NO				Monument damaged:		YESANO YESANO
Comments:		$\circ$				Odours from well		YESANO)
Ambient reading (FID):		ppm		_				
Initial well pressure:	0	kPa						
Initial vent:		(Nil / Initial pr	ilse / Puls	e > 5 s / Co	ontinuous	* .		
Gas Flow rate:	0	% 440 L/hr	or		% 3000L/h	OR	% 10 000	
Well pressure after initial vent:	0	kPa		_				
Standing Water Level (SWL):		(mBTOC)						
· · · · · · · · · · · · · · · · · · ·								

Readings

Readings				Land	fill Gas An:	ılyser		
Cumulative volume (L)*	Cumulative time vented (min)	Maximum 'Vacuum on Well (psi)	Recovery Time - to equilibrate to atmospheric pressure (min)	CH₄ (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Flow rate at time of sampling	Comments
Initial	-	. <u>-</u>	-	0.1	1.2	19.4		
(0)		_20		0.2	1.3	19.7.		
20		_20	(	0.1	1.7	(9.5.		
30		-20	(	9.5	1.2	۱9-5.		
(60		-20	1 -	0.1	1.2	19-5.		
								·
						İ		_ , ,,, ,, ,,
						}		

<sup>\*</sup> where one tank volume = 12 L

Volume of Gas: 4.2 L/m air in 50mm

Unit conversions

<sup>&</sup>lt;sup>1</sup> Measured as methane equivalents



# MONITORING WELL DEVELOPMENT FIELD DATA SHEET

Sampler (s): Jenhuir Signature(s):	Project: "icograph Golf Course	Client: Boxels Cooks Cove	
		-	
Project Manager: Petrozei		CES Project Code: CES 05 0706 - BCC	

### Well Development Record

	1	Note 1:  B = Baller, SB = Surge Block; AIR = Air sparging/air lift; NLIFT = Nitrogen gas sparging/lift; PUMP = Pumping/over pumping	FT = Nitrogen gas sparging/lif	sparging/air lift; NLI	rge Block; AIR = Air	Note 1: B = Bailer; SB = Su
Brown V. terbol will be order	60	3.96/3.96	1.42/1.50	FU	P8 H 2185	21.5.08
4 4	*40	3.25 3.55	1.31/3.90	77	ABHZOZ	21.5.68
persel to day every 2 L.	01)	2.43/2.43	0.90/2.30	EV.	AMW 24	21.5.06
book pale brown turbed adoutes	28	2.40/2.41	0.40/6.50	Ev	AMWZO!	30.5.12
Brown pade brown V. studed / tubord	4700 75	2.52/252	068/0.67	7.7	AMW 202	21/5/68
Bour turbel selowless	<sub>0</sub> \$0,	2.49/2.42	0.67/0.07	73	AMVZOG	\$0.5.12
Prous behal colorless Rugel to chy every 1 L. Very stow recovery.	7	2.51/2.5	13.2/24:1	73	AMW 207	21.5.08
Proceed the every SL.	36	2.04/2004	0.49/204	NA	AMWROE	21/5/08
Good recovers.	100	2.45/2.45	1.54/1.55	Footrehe	ANW 203	21/5/08
Description and comments (eg. Turbidity, odours, free-phase product, changes through development process)	Water Volume Removed (L)	Depth to Bottom of Well (before/after)	Standing Water Level (before/after)	Development Method (s)	Well ID	Date
					TIL TEPOTO	then percupiation recent

1. 1.



# MONITORING WELL DEVELOPMENT FIELD DATA SHEET

	(s): "Ten Jun's" Signature(s): III Project Manager: P2+0221	Project: "Kostal Golf Courte A) Location: Area A	Client: Hoyels Cooks Core , CES 050708. Rec	
--	---	--	---	--

Well Development Record

Date	Well ID	Development Method (s)	Standing Water Level (before/after)	Depth to Bottom of Well (before/after)	Depth to Bottom of Well Water Volume Removed (before/after)	Description and comments (eg. Turbidity, odours, free-phase product, changes through development process)
23/5/08	ADHZioo	73	1.54/6.25	1.54/6.25 6.50/6.50	Jo	Park bour turbed odowless
23/5/08	A8H2mo	73	1.69/	1.86/-		Not enough water to duelop.
-						
					-	
3						
Note 1: B = Bailer; SB = Su	rge Block; AIR = Air	sparging/air lift; NLI	FT ≒ Nitrogen gas sparging/lift	Note 1:  B = Bailer: SB = Surge Block; AIR = Air sparging/air lift; NLIFT = Nitrogen gas sparging/lift; PUMP = Pumping/over pumping	ing .	
,						



Calibration Record Sheet
Meter: TPS 90-FLMV Multiparameter Instrument
Serial no: S3676 (old unit) and T0001 (new unit)

					-			•									7000	をであった。	75668	16.6.08	0.6.08	20.0-1	2 6 0 0	2/6/08	30-5-08	65/63	87	72/05/08	105/08		16/05/08	Date	CALI	של
																	20.64	Z (C)	08.91	17:00		K:30	W0 C0	07-30	100° LU	52.51	05.CD	20.20			O9:00	Time C:	CALIBRATION	E I CI I NI
					-	, 								,				\$	SZ	13	J.	<u>ک</u>	5	SA	S	25	77	X	女	S S	S)	Calibrated by		co.
																		2	<u>``</u>	7	*	\	1	<u>く</u> フ	\	7	<	<u> </u>	?	7	< < < < < < < < < < < < < < < < < < < <	(tick appropr pH 4   pH 6.86	Standard used (pH)	erial no: S:
	-														-	-		1	<u>\</u>	1	1	1	1	1	1	1	1	1	1	1	1	ropriate) 5.86 pH 10	used (pH)	3676 (old u
			·	<del></del>													,	2.60	1.54	2:26	2000	2.76	ずにた	2.76	2.76	2.74m	2.76m	91.0	2.95mS	2768	2760	EC uS/cm	Standard	Serial no: S3676 (old unit) and T0001 (new unit)
	+			•								•					1	7	\	1	<	(	~	<	1	1	(	<	<	<	<	Air O	15	(new unit)
220	720	990	220	220	220	220	220	220	220	220		220	220	220	220	220		. 000	220	220	220	220	220	220	<u> </u>	220	220	220			220	Eh check mV	타	
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Calibration Record Sheet
Meter: TPS 90-FLMV Multiparameter Instrument
Serial no: S3676 (old unit) and T0001 (new unit)

220 220 220 220 220 220 220 220																-	19.30 JA / / _	17:00	6.08 17:05 DM V	15:30 KS V V V	DI MOLO	0.30 3A V 7 - 2.1	305-00 17:00 45 1	30/65/08/5/15 No VIV - 2.4/2m C	ブインンー	S 100 05.00 DR VV	3 3	29/2	09:00 S) V V V V 20:00	Pi 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
244 20100 6045 JA 3.86 6.75 - 3.25 2.36 FM 2  251 281200 500 5A 4-16 700 - 281 227 FM 2  235 2815 8 5.00 JA 4-16 74 - 2.88 223 FM 2  236 246 8 700 JA 4-8 70 - 2.62 225 FM 2  246 8 6 8 500 JA 4-8 70 70 - 2.62 225 FM 2  246 8 6 8 500 JA 4-00 7.01 - 3760 225 FM 2  246 8 6 8 60 JM 15.00 JA 4-00 7.01 - 3760 225 FM 2  246 8 6 8 60 JM 15.00 JA 4-00 7.01 - 3760 225 FM 2  246 8 6 8 60 JM 15.00 JA 4-00 7.01 - 2.55 246 FM 2  246 8 6 8 60 JM 15.00 JA 4-00 7.01 - 2.55 246 FM 2  247 26 0 JM 15.00 JM 10.00 7.01 - 2.55 246 FM 2  248 JM 10.00 JM 10.00 JM 20	2		٥	No.	2:	22	22	22	22	22	22	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	+	1	
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3.86 6.93 - 3.25.236 FM = 3.698 7.10 - 2.84m/3.227 FM = 2.88m/3.247 FM = 2.75m/3.245 FM = 2.75m/3.245 FM = 2.75m/3.245 FM = 2.75m/3.245 FM = 2.762.225 FM = 2.75m/3.246 FM = 2.7						-			-									A Sam	76	}			-	7	П	Oppor Lt	9	(		_
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							,											SM 2	TM2	FM1	40	PAG.	FM 2	17.		FM2	AN2	737	1431	

220



Appendix 5
Boreholes Logs

Project ID: CES050706-BCC

Easting:

329867.686

CONSULTING SCIENTIS TS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Project: ESA** 

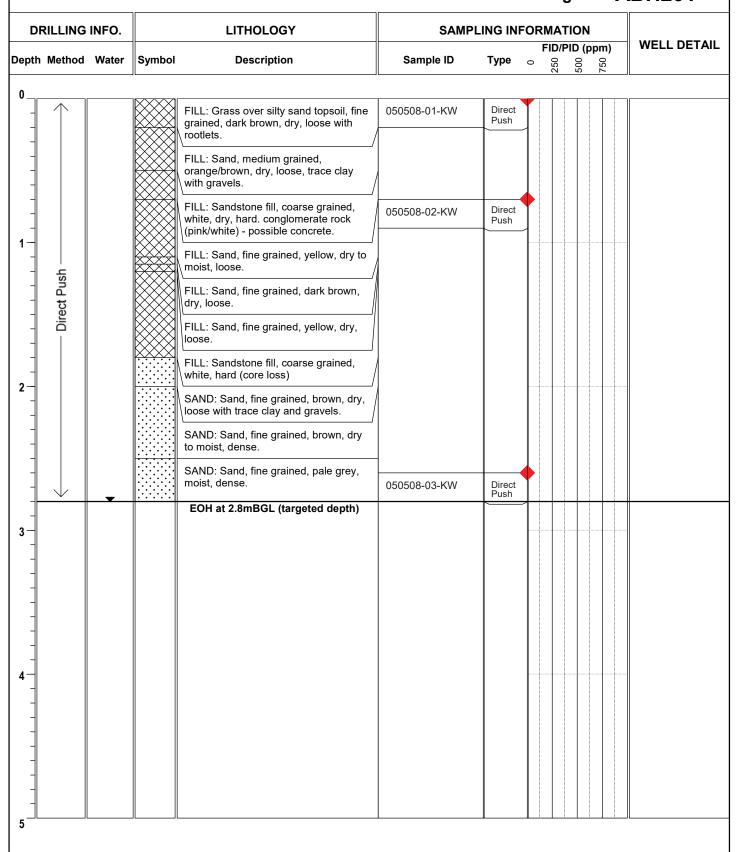
Client:

**Boyd Cooks Cove** 

Elevation: 2.97

Northing: 6243591.190

**ABH201** Location: Cooks Cove - Area A **Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 05/05/2008

**Date Completed:** 05/05/2008

Logged/checked by: K.Weir/L.Jenkins

Sheet: 1 of 1

**ESA** 

**Project:** 

**Drill Model:** 

Hole Diameter (mm): 150

Mac200

-S050706-BCC

**Easting:** 329924.428

Elevation: 1.74

Northing: 6243586.055

Client: Boyd Cooks Cove

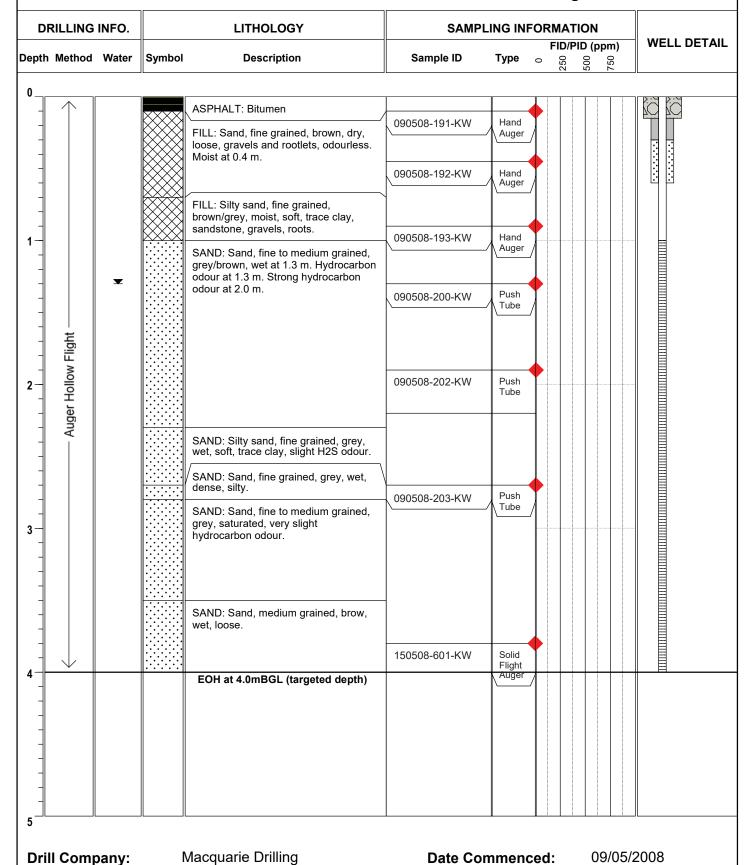
6.055 SCIENTISTS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

Location: Cooks Cove - Area A

Environmental Log: ABH202



**Date Completed:** 

Logged/checked by:

15/05/2008

K.Weir/L.Jenkins

Project: ESA

**Easting:** 329763.306

Northing: 6243541.165

Client: Boyd Cooks Cove

101 tilling: 02+00+1.1

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

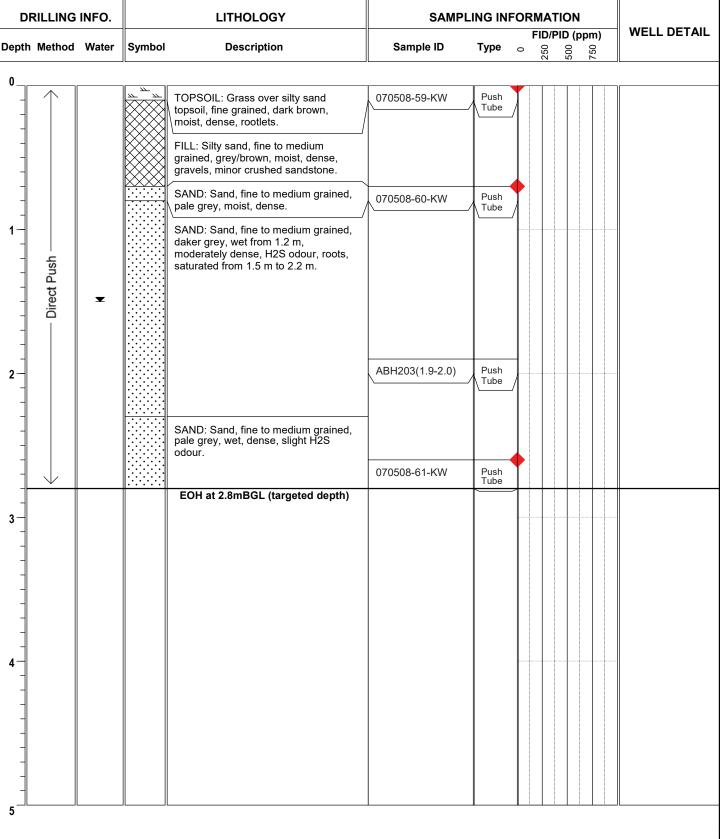
CONSULTING

SCIENTIS TS

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Elevation: 1.23

Location: Cooks Cove - Area A Environmental Log: ABH203



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 07/05/2008

**Date Completed:** 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Project: ESA**  Easting: 329799.291

Northing: 6243532.840

Elevation: 1.06

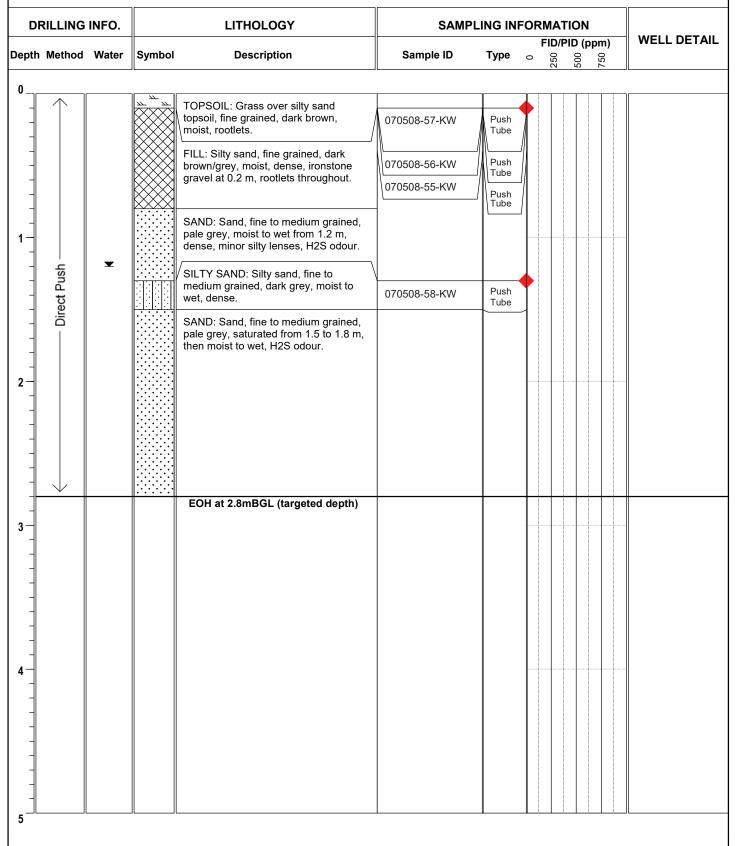
**Boyd Cooks Cove** Client:

SCIENTISTS Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

Location: Cooks Cove - Area A

**ABH204 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 07/05/2008

**Date Completed:** 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

**ESA** 

Project:

Easting:

329831.695

CONSULTING EARTH SCIENTISTS

Northing: 6243544.297

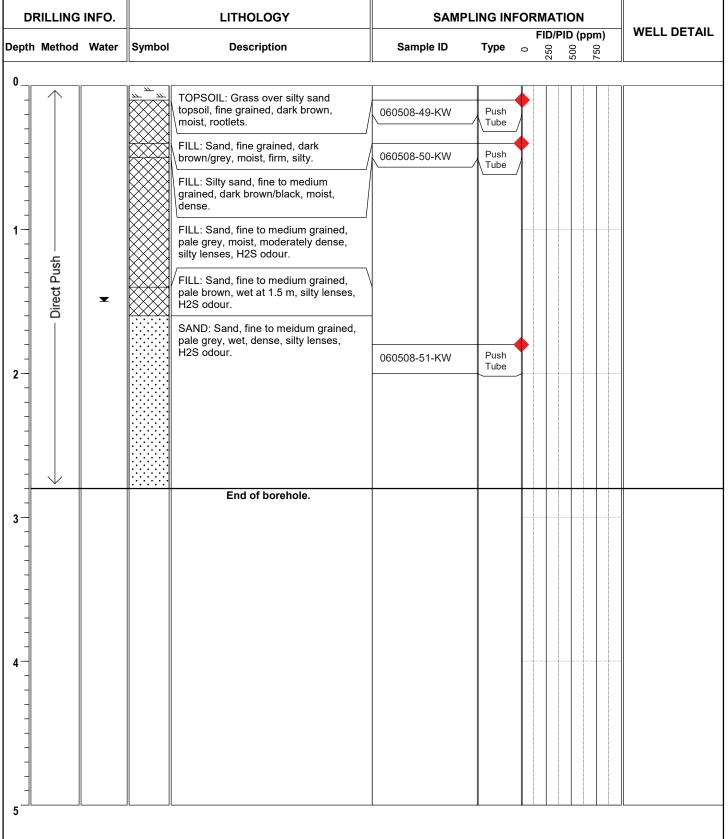
Client: Boyd Cooks Cove

Elevation: 1.19

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove - Area A

Environmental Log: ABH205



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329880.449

Project: **ESA**  Northing: 6243542.211

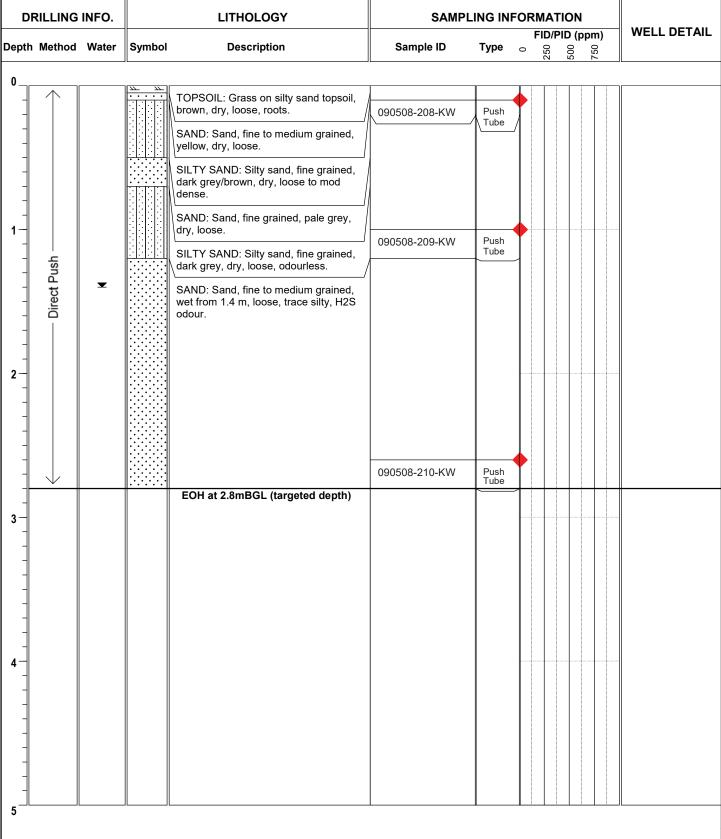
**Boyd Cooks Cove** Client:

Elevation: 2.68



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH206** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 09/05/2008

**Date Completed:** 09/05/2008

Logged/checked by: K.Weir/L.Jenkins

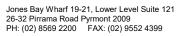
**ESA** 

Project:

Location:

Easting: 329925.011

**Northing:** 6243539.904



CONSULTING

SCIENTISTS

**Boyd Cooks Cove** Client:

Cooks Cove - Area A

Elevation: 3.72

**Environmental Log: ABH207** 

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION					WELL DETAIL	
				FID/PID (ppm)							
pth	Method	Water	Symbol	Description	Sample ID	Туре	0		750		
			1						1 :		1
+	Pus			ASPHALT: Bitumen							
1	Direct Pus			FILL: Roadbase and gravel with \ crushed sandstone, dry, odourless.	090508-207-KW	Push Tube					
-				SANDSTONE: Sandstone, white/orange, dry, hard. EOH at 0.4mBGL (Refusal on sandstone bedrock)							
1											
-											
-  - - -											
-											
- - - -											
1											
-											

Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 09/05/2008

**Date Completed:** 09/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329676.926

**Project:** 

Northing: 6243500.164

**ESA** 

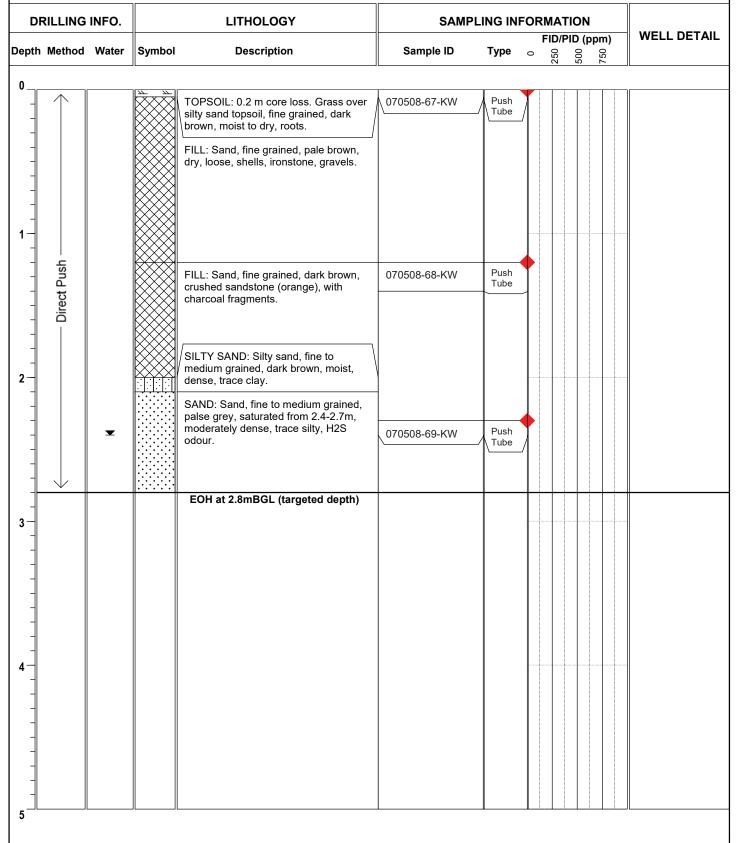
**Boyd Cooks Cove** Client:

Elevation: 2.12



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH208** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 07/05/2008

**Date Completed:** 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329738.333

Elevation: 1.13

Project: **ESA** 

Client:

Northing: 6243496.302

SCIENTISTS Jones Bay Wharf 19-21, Lower Level Suite 121

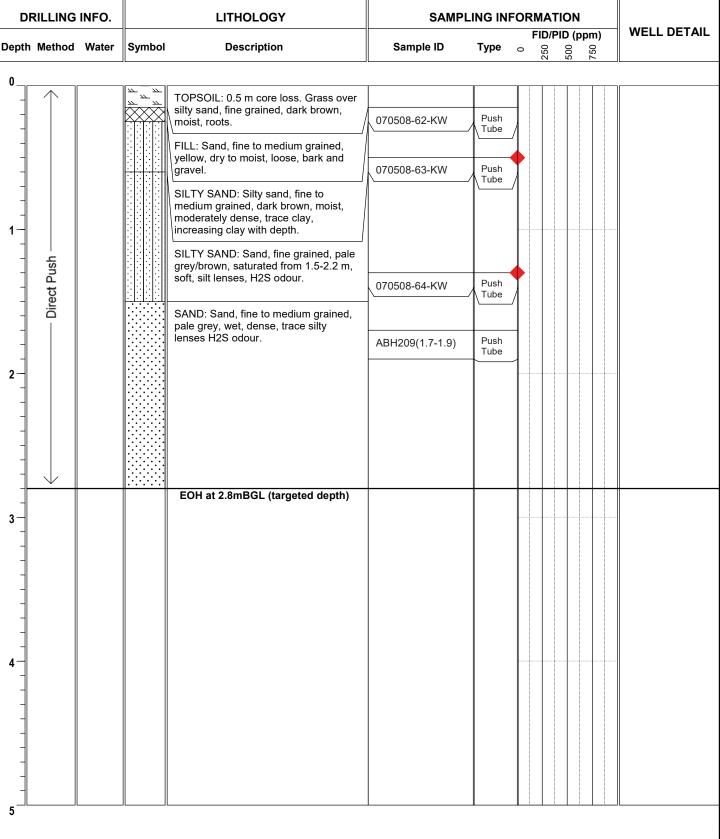
CONSULTING

26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**Boyd Cooks Cove** 

**Environmental Log: ABH209** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 07/05/2008

**Date Completed:** 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329798.581

**Project:** 

Northing: 6243492.370

**ESA** 

Client:



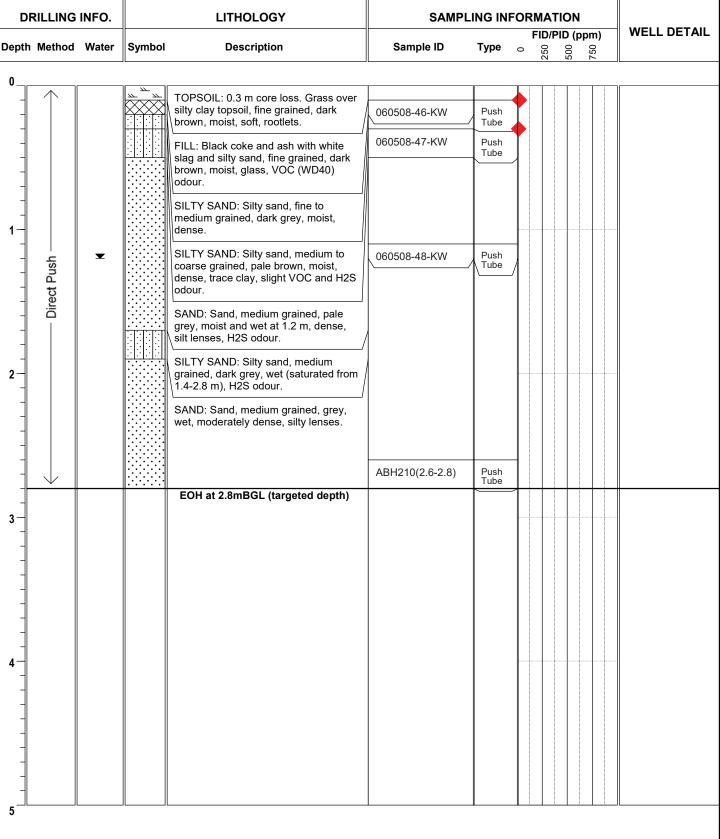
CONSULTING SCIENTIS TS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cooks Cove** 

Elevation: 0.86

**ABH210** Location: Cooks Cove - Area A **Environmental Log:** 



**Drill Company:** Macquarie Drilling

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project: ESA

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

**Easting:** 329832.382

**Northing:** 6243498.085

Client: Boyd Cooks Cove

**voitining.** 0243490.00

Elevation: 1.18

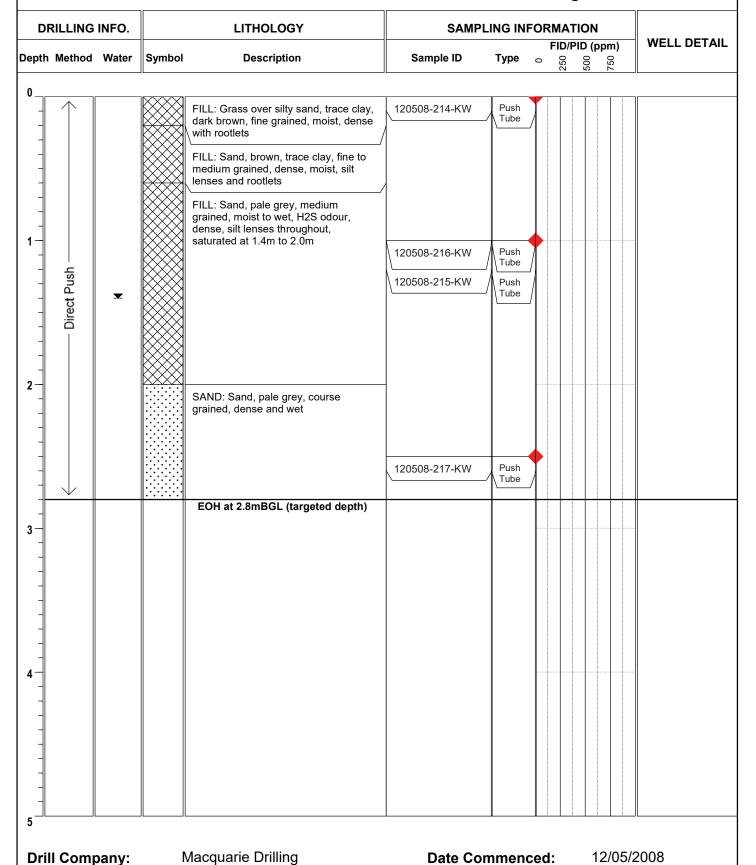
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

SCIENTISTS

**Location:** Cooks Cove - Area A

Environmental Log: ABH211



**Date Completed:** 

Logged/checked by:

12/05/2008

K.Weir/L.Jenkins

Easting: 329878.222

**Northing:** 6243497.379

Project: **ESA** 

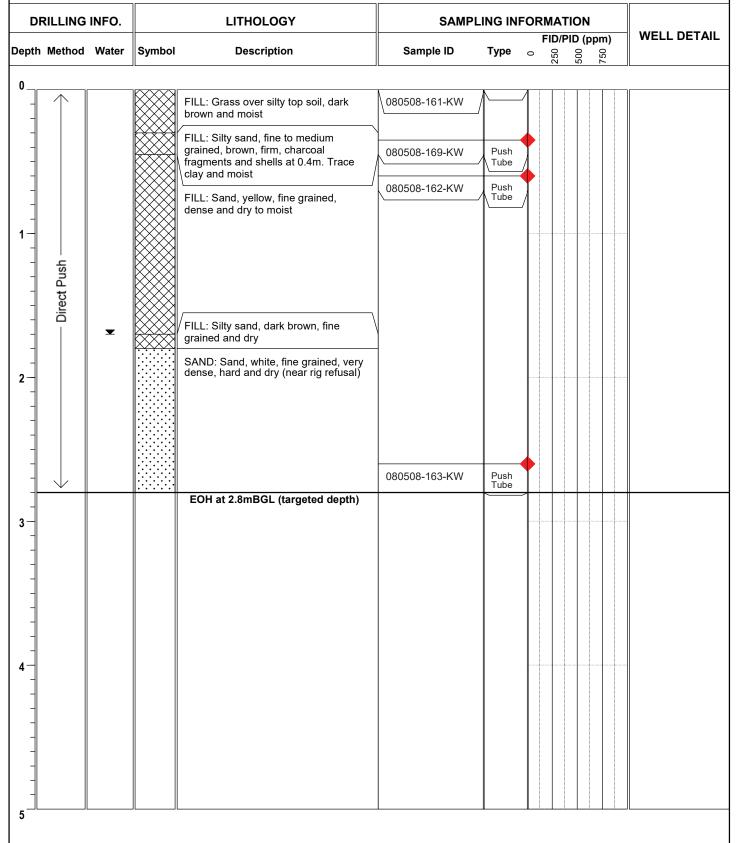
**Boyd Cooks Cove** Client:

Elevation: 5.73



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH212** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Boyd Cooks Cove** 

Easting: 329919.200

Project: **ESA**  Northing: 6243488.726

Client:

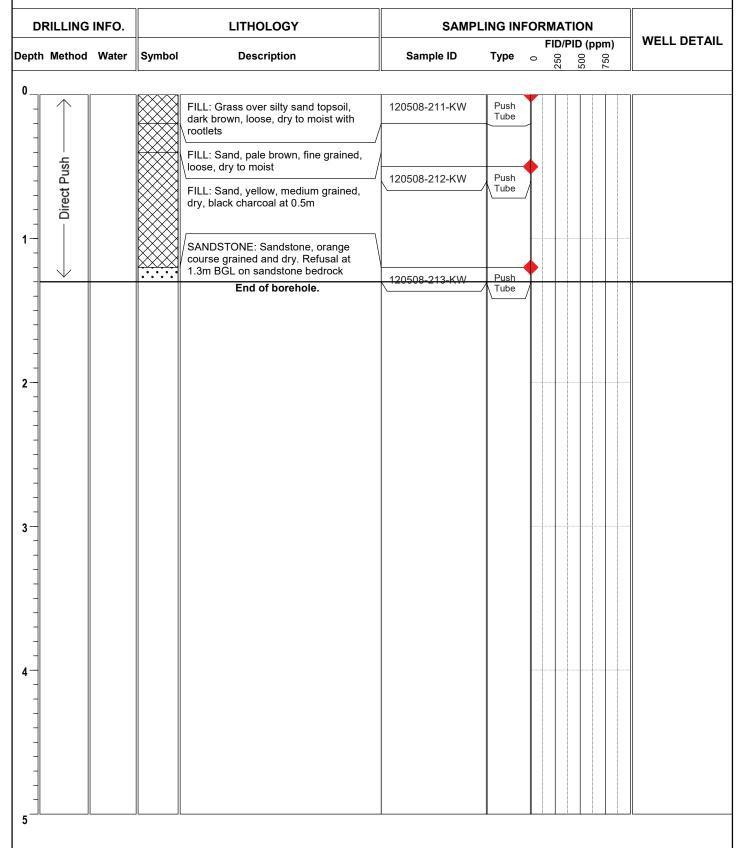
Elevation: 5.00

SCIENTISTS Jones Bay Wharf 19-21, Lower Level Suite 121

26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

Location: Cooks Cove - Area A **Environmental Log: ABH213** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

**ESA** 

Project:

Client:

Easting: 329655.819

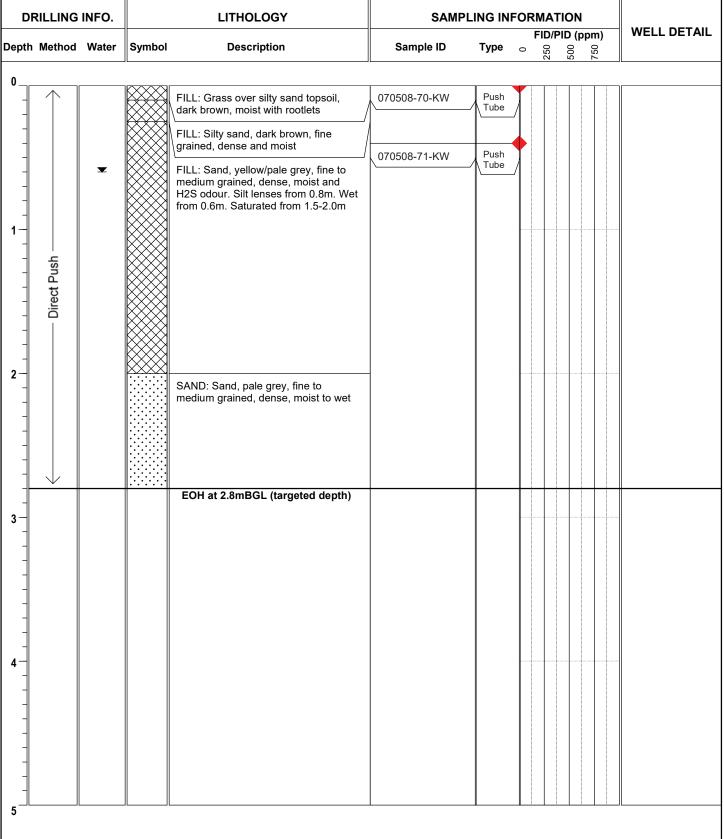
Northing: 6243449.734

**Boyd Cooks Cove** Elevation: 0.97



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH214** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 07/05/2008

**Date Completed:** 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Boyd Cooks Cove** 

Easting: 329724.248

**Project: ESA** 

Client:

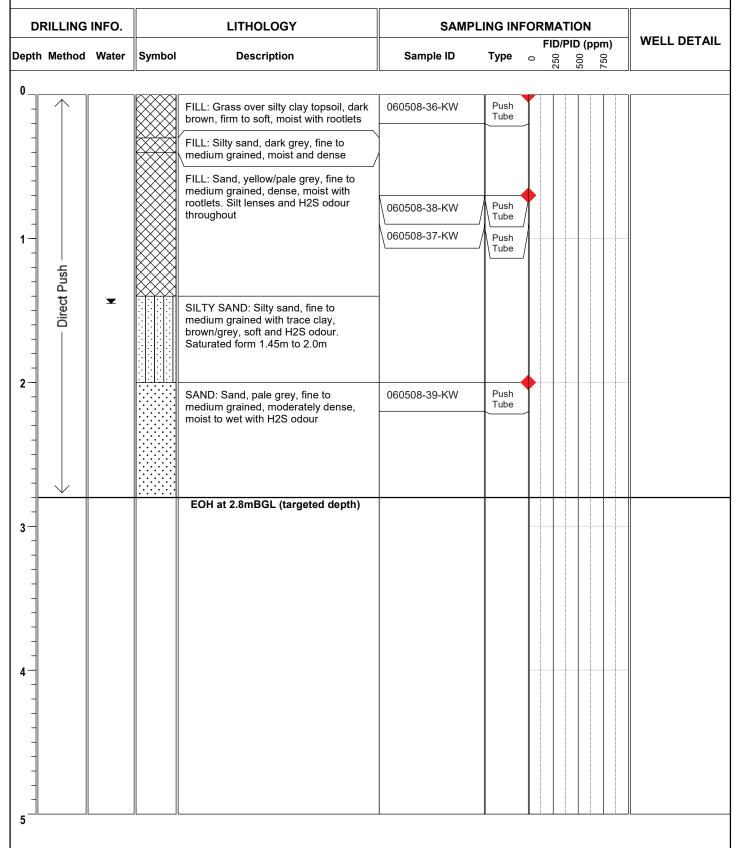
Northing: 6243447.953

Elevation: 1.04



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH215** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329754.370

**Project: ESA** 

Northing: 6243446.681

**Boyd Cooks Cove** Client:

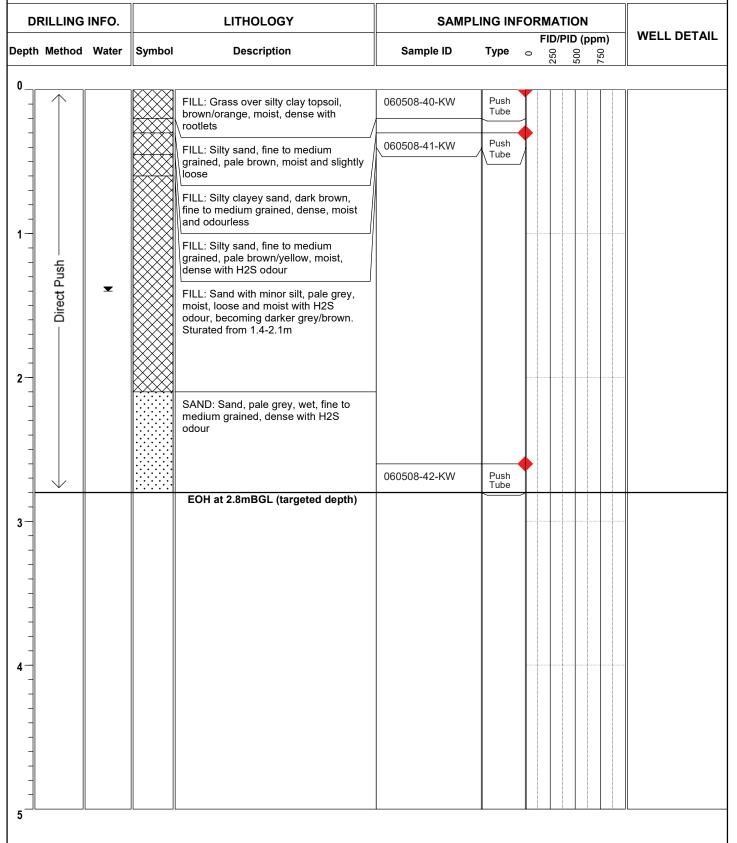
Elevation: 0.97



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH216 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329814.547

**Project: ESA**  Northing: 6243438.850

**Boyd Cooks Cove** Client:

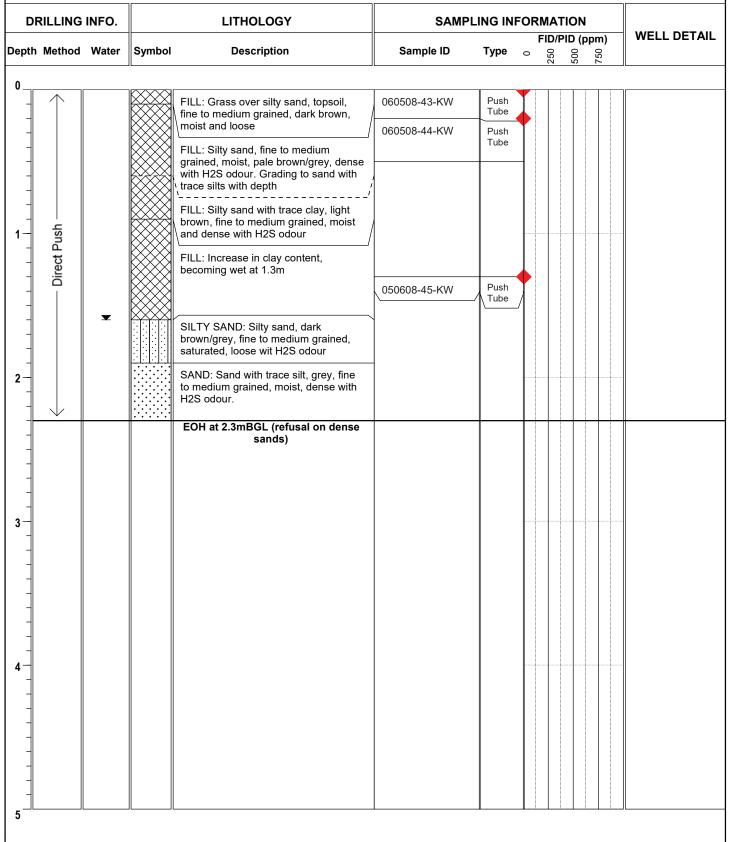
Elevation: 0.93



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH217 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

**ESA** 

Project:

Easting:

329845.698

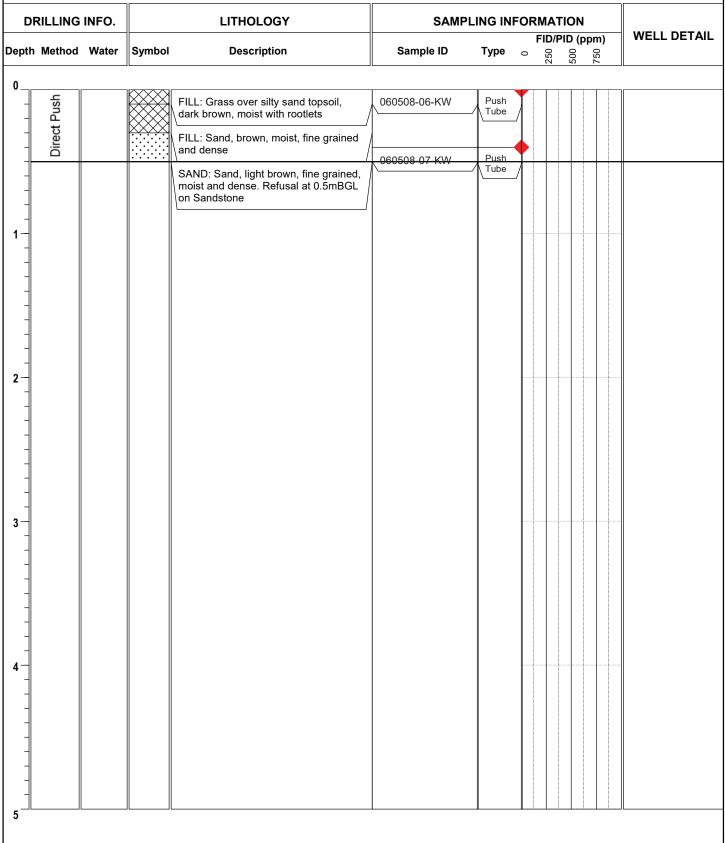
Northing: 6243452.655

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**Boyd Cooks Cove** Client: Elevation: 1.39

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH218** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

06/05/2008 **Date Commenced:** 

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329884.676

Project: **ESA**  **Northing:** 6243447.707

Client:

Elevation: 2.50



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**Boyd Cooks Cove** 

**ABH219 Environmental Log:** 

DRILLING INF	O.	LITHOLOGY	SAMP				
epth Method Wa	ter Symbol	Description	Sample ID	Туре	0 S20	/PID (ppm)	WELL DETAIL
0						2 2	<u>I</u> L
		FILL: Grass over silty sand topsoil, dark brown, loose, moist, with rootlets	060508-08-KW	Push Tube			
- Push -		FILL: Sand, brown, fine grained, loose, dry to moist. Sandstone at 0.4-0.5m					
Direct Push		SAND: Sand, dark grey, fine to medium grained and moist. Refusal on sandstone at 1.0mBGL					
1			060508-09-KW	Push Tube			
3		EOH at 1.0mBGL (refusal on sandstone bedrock)					

Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329924.044

Northing: 6243450.645

Project: **ESA** 

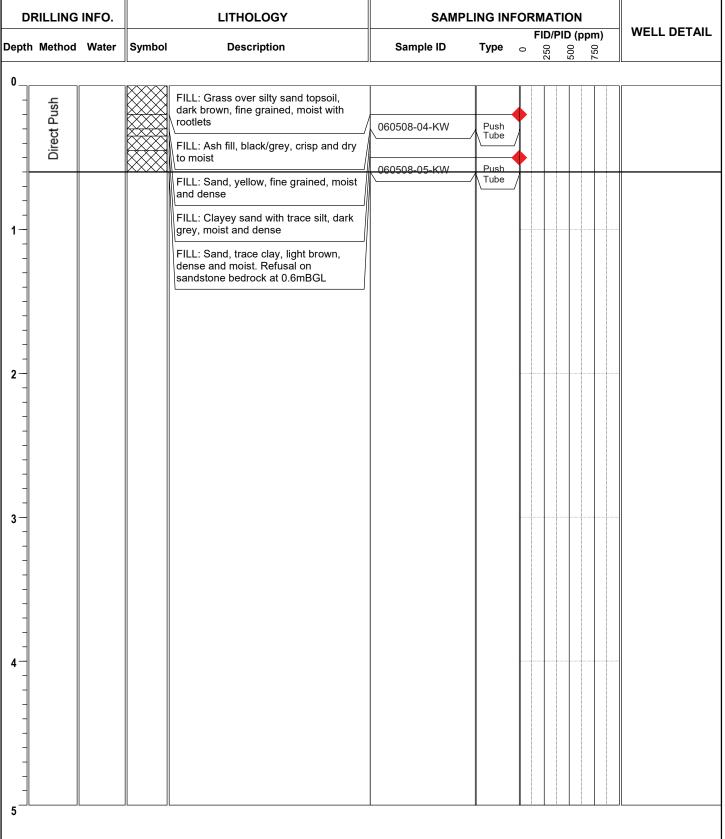
**Boyd Cooks Cove** Client:

Elevation: 2.25



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH220** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Cooks Cove - Area A

Easting: 329994.603

Project: **ESA** 

Location:

Northing: 6243450.997

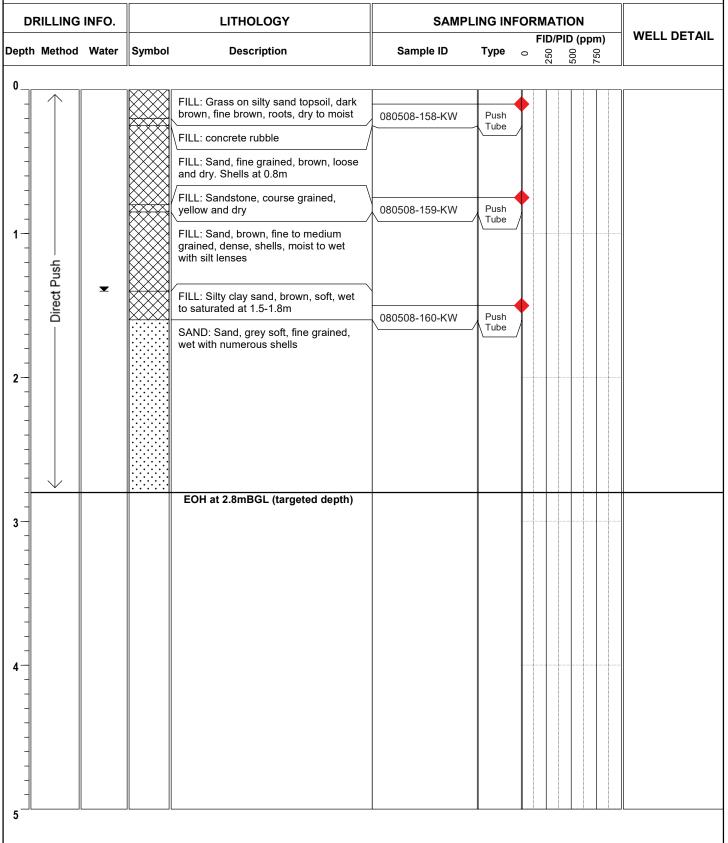
SCIENTIS TS Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

**Boyd Cooks Cove** Client:

Elevation: 1.31

**ABH221 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Boyd Cooks Cove** 

Easting: 329565.810

Project: **ESA**  **Northing:** 6243401.446

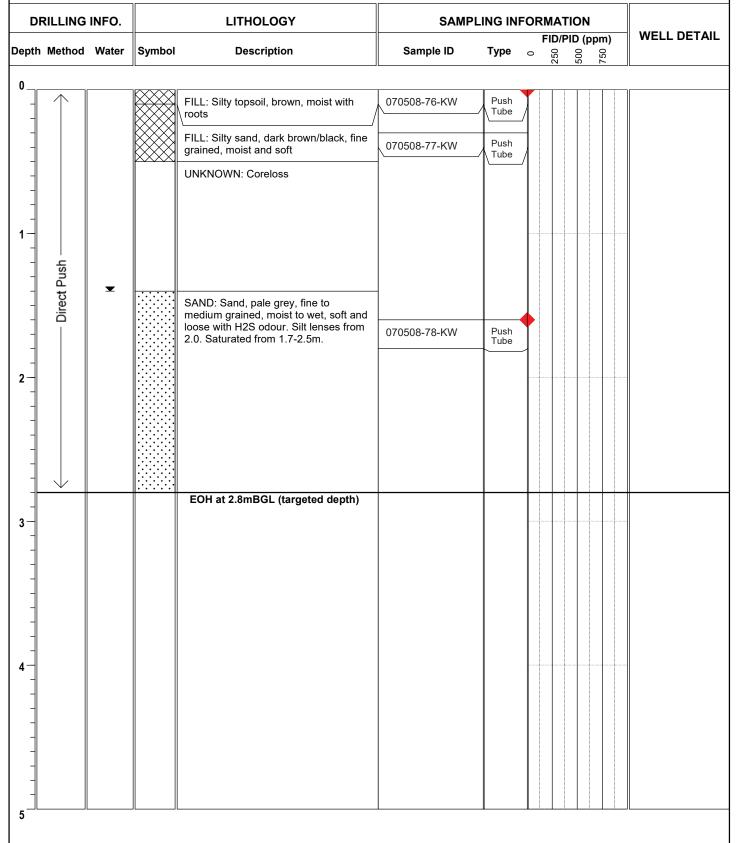
Client:

Elevation: 0.94



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH222** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329606.336

**Project: ESA** 

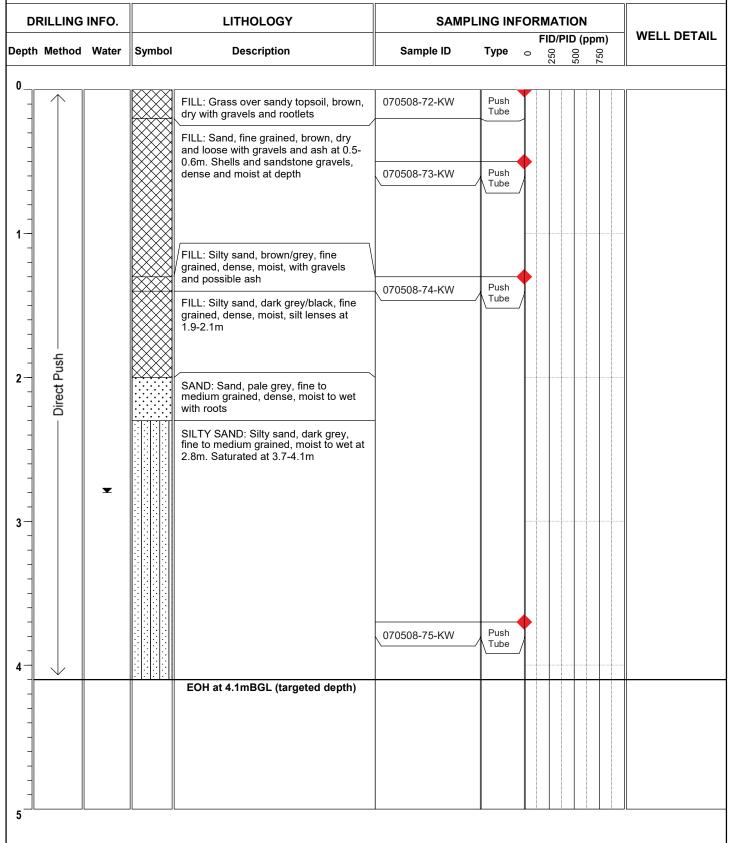
Northing: 6243406.270

**Boyd Cooks Cove** Elevation: 2.09 Client:



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**ABH223** Location: Cooks Cove - Area A **Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329657.034

**Project: ESA**  Northing: 6243404.105

Client:

Elevation: 1.16

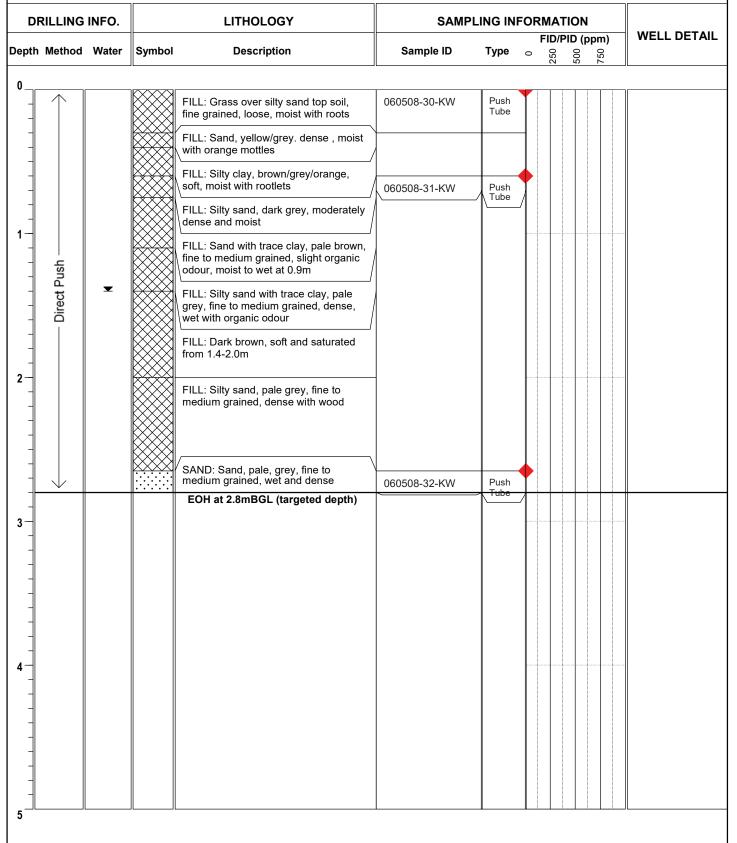


Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**Boyd Cooks Cove** 

**ABH224 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting:

329694.665

Elevation: 1.32

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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Project: ESA** 

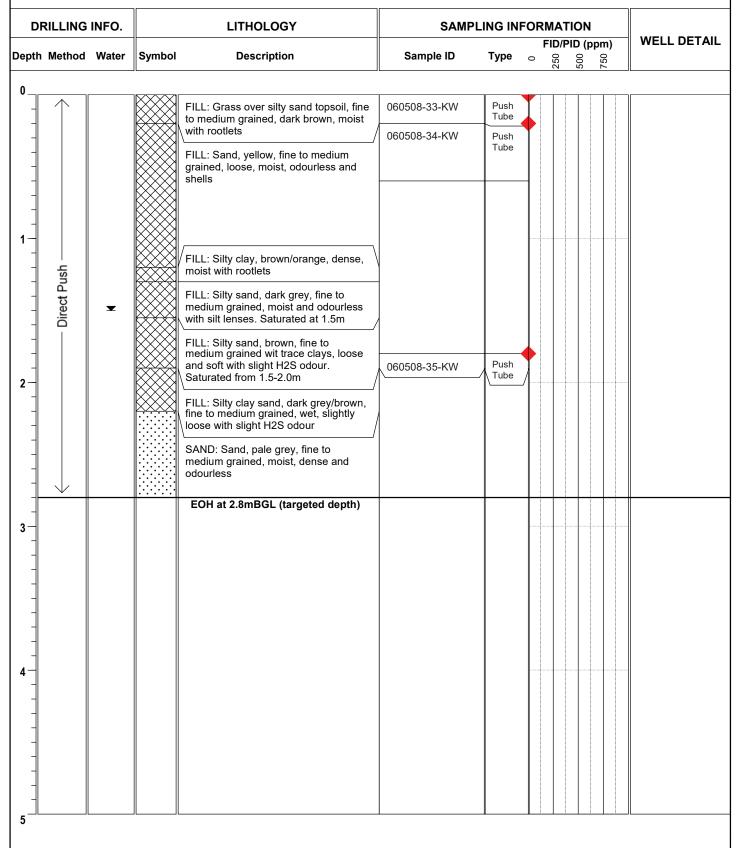
Client:

**Northing:** 6243404.713

Location: Cooks Cove - Area A

**Boyd Cooks Cove** 

**ABH225 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329755.651

**Project:** 

**Northing:** 6243402.717

**ESA** 

**Boyd Cooks Cove** Client:

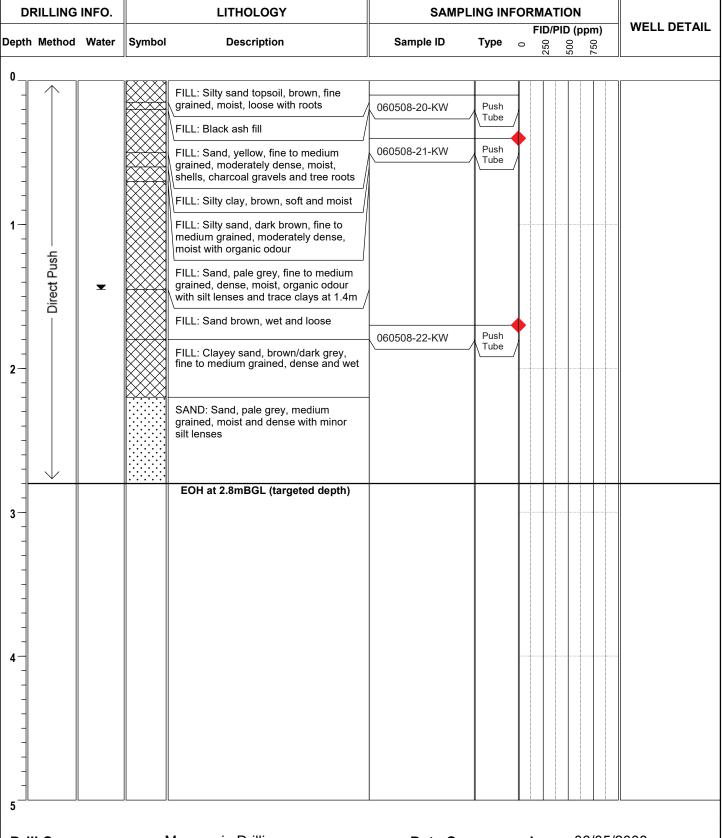
Elevation: 1.32



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH226 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project: ESA

**Easting:** 329798.506

A Nort

**Northing:** 6243404.901

Client: Boyd Cooks Cove

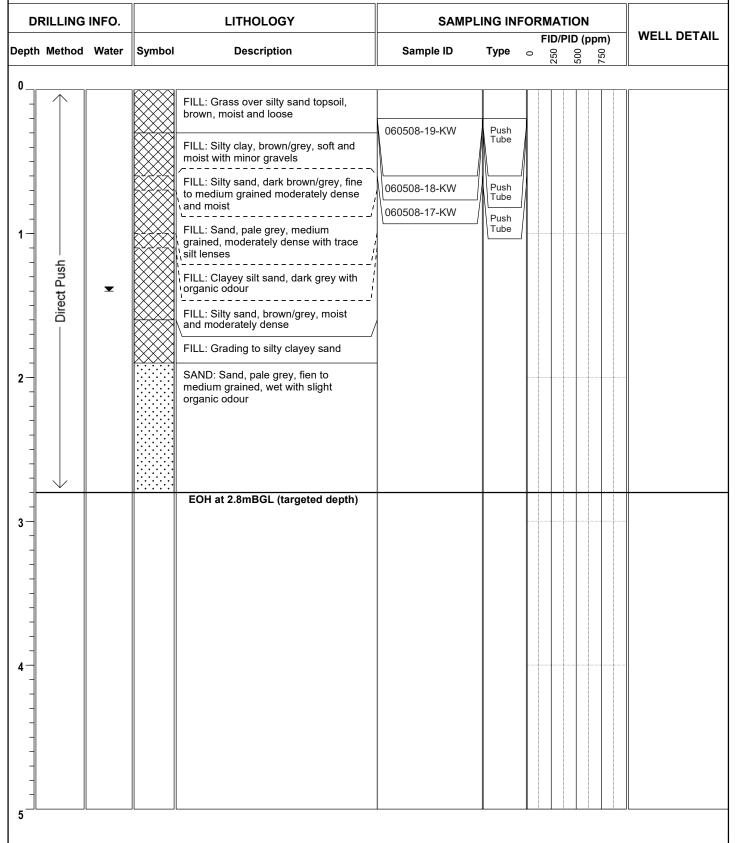
Elevation: 1.03



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove - Area A

Environmental Log: ABH227



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project: ESA

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

**Easting:** 329849.080

Northing: 6243400.702

Elevation: 1.10

Client: Boyd Cooks Cove

1111**9.** 0240400.7

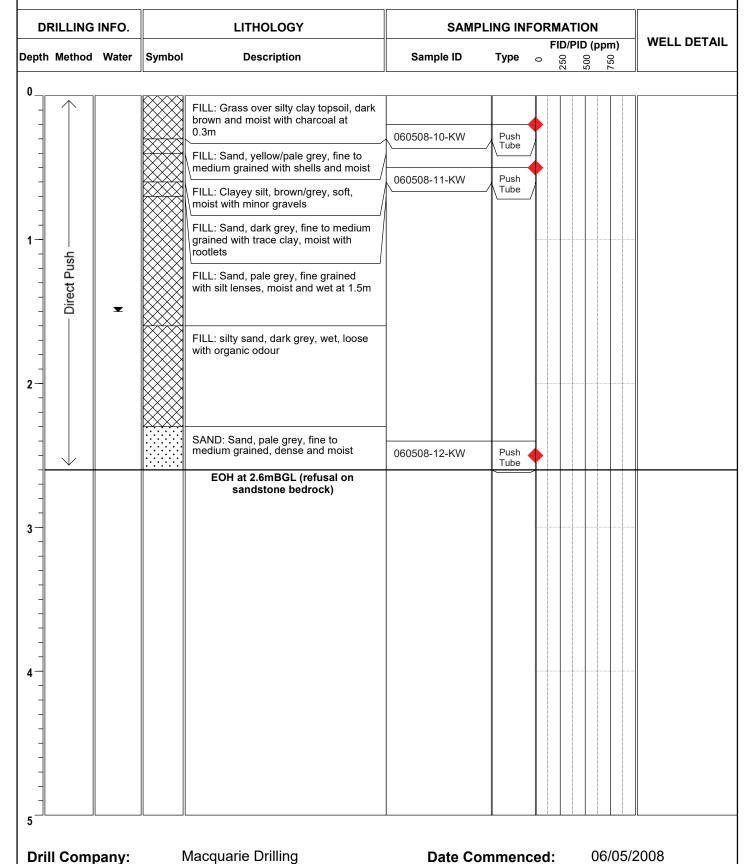


26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

**Location:** Cooks Cove - Area A

Environmental Log: ABH228



**Date Completed:** 

Logged/checked by:

06/05/2008

K.Weir/L.Jenkins

Project: ESA

**Easting:** 329888.140

N 41.1 00.4

Elevation: 0.76

Client: Boyd Cooks Cove

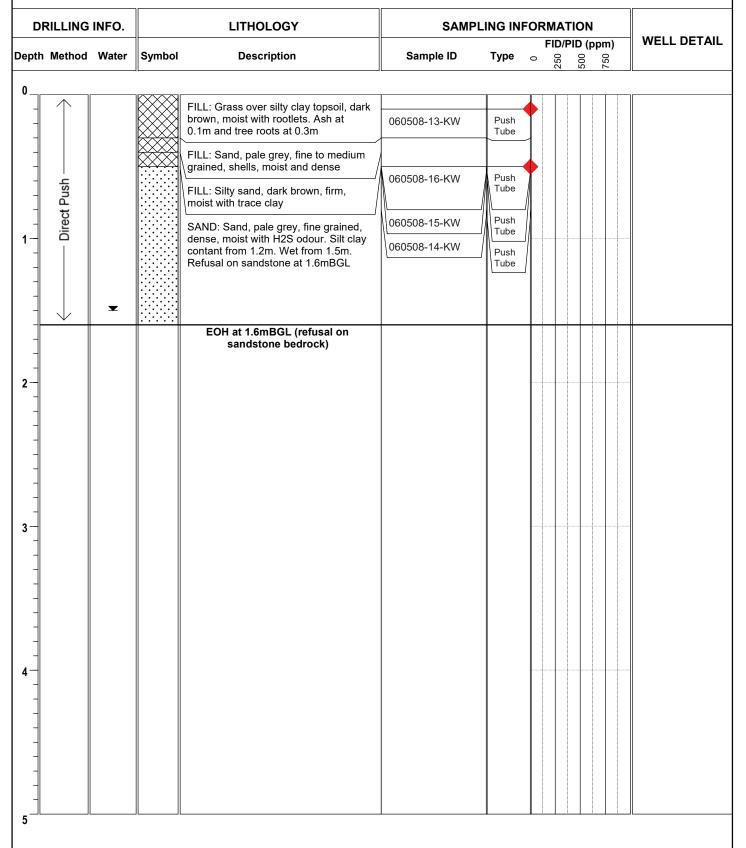
**Northing:** 6243401.205



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove - Area A

Environmental Log: ABH229



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329918.449

Project: **ESA**  Northing: 6243403.763

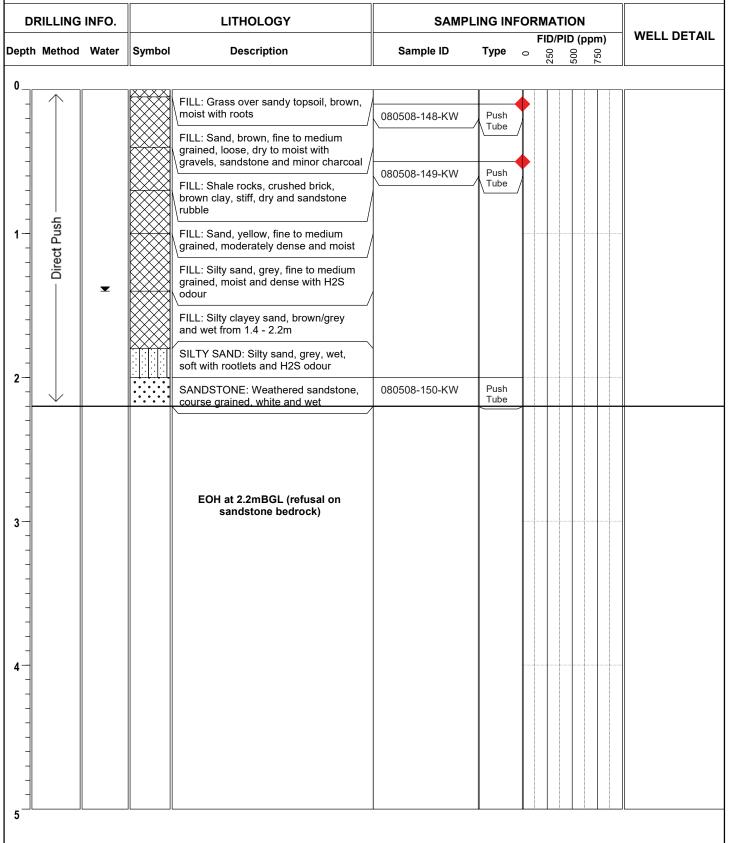
**Boyd Cooks Cove** Client:

Elevation: 1.23



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH230** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

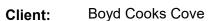
**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329973.047

Elevation: 0.97

**Project: ESA**  Northing: 6243405.760



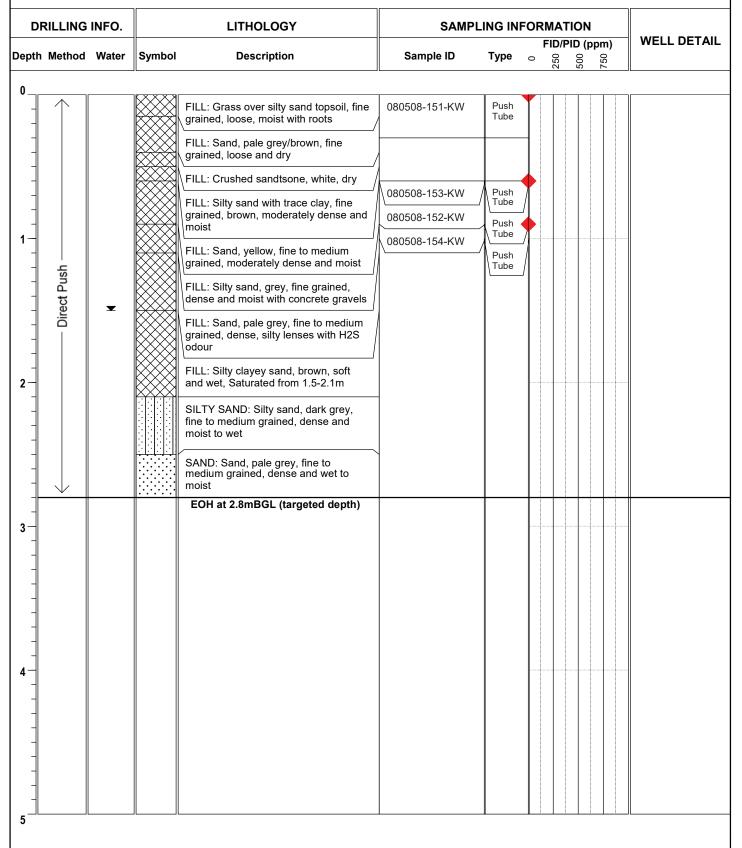
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

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Location: Cooks Cove - Area A

**ABH231 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting:

329835.915

CONSULTING

Project: **ESA** 

Client:

Northing: 6243574.015

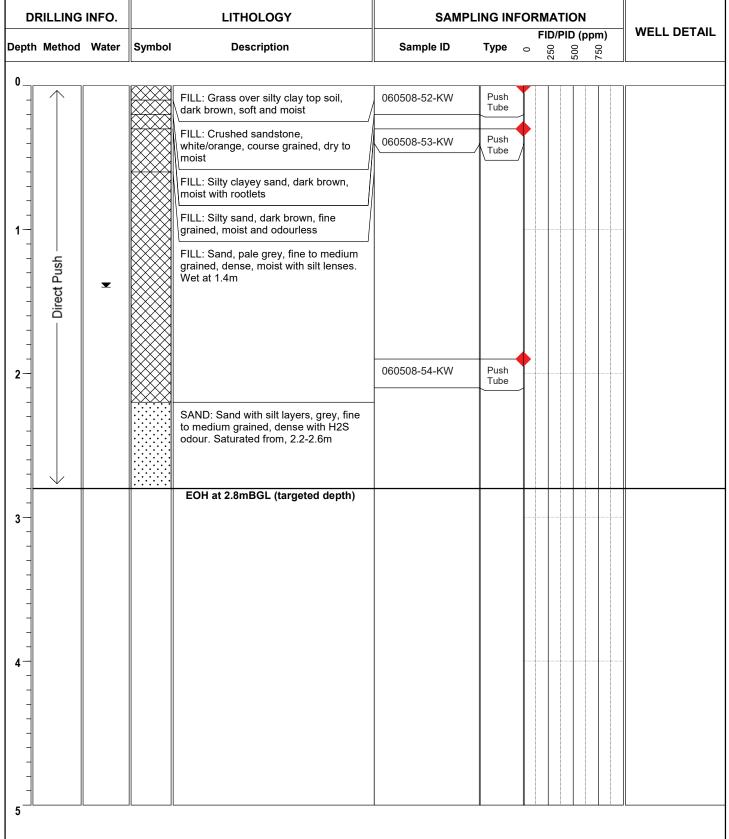
**Boyd Cooks Cove** Elevation: 1.30

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

SCIENTIS TS

Location: Cooks Cove - Area A

**ABH232 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project: ESA

Location:

**Easting:** 329498.372

Northing: 6243360.060

Client: Boyd Cooks Cove

Cooks Cove - Area A

**1011111119.** 0243300.0

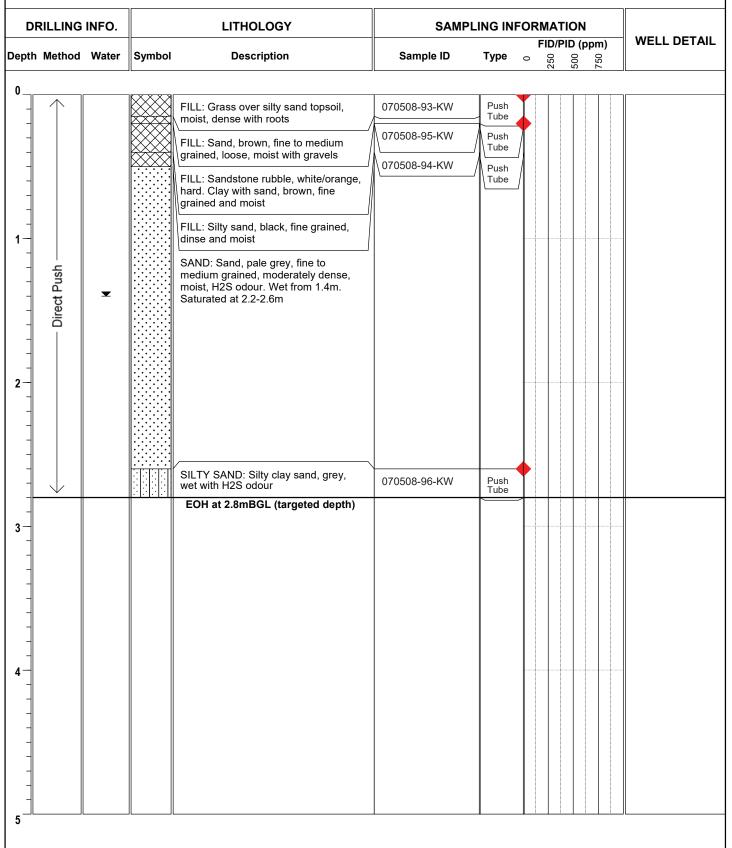
SCIENTISTS

Jones Bay Wharf 19-21, Lower Level Suite 121
26-32 Pirrama Road Pyrmont 2009
PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

Elevation: 1.27

Environmental Log: ABH233



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 07/05/2008

**Date Completed:** 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

**ESA** 

**Project:** 

Easting: 329568.152

Northing: 6243360.562

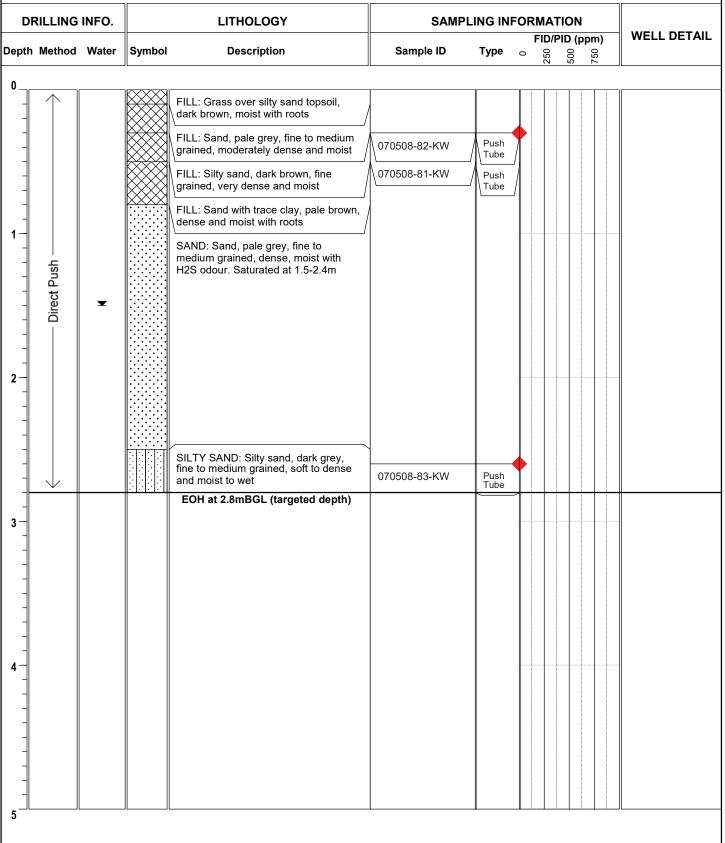
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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cooks Cove** Client:

Elevation: 0.85

**ABH234** Location: Cooks Cove - Area A **Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 07/05/2008

**Date Completed:** 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Project: ESA** 

Location:

Easting: 329611.110

Northing: 6243354.212

**Boyd Cooks Cove** Client:

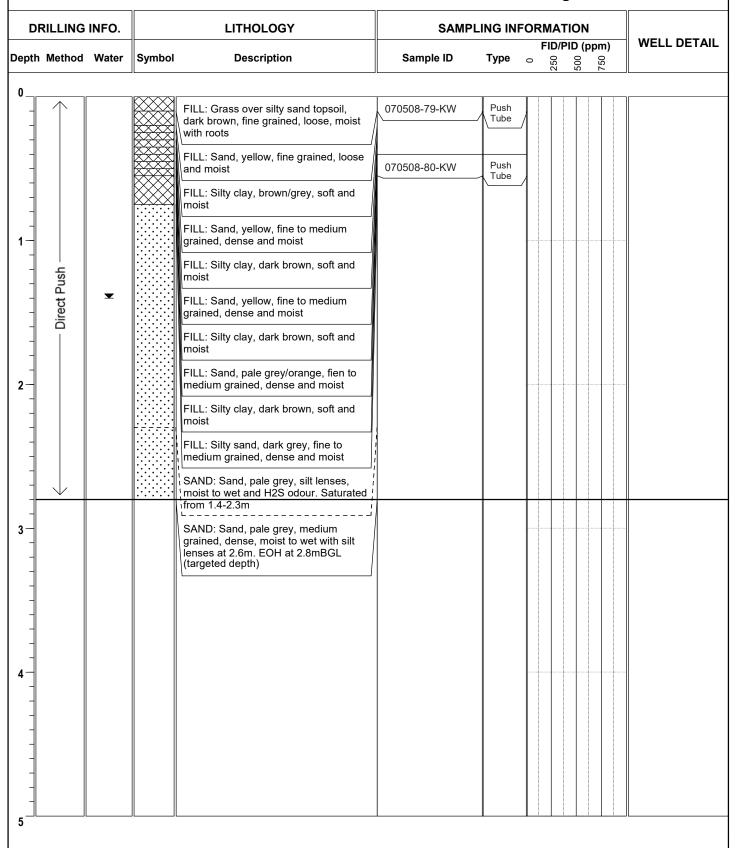
SCIENTIS TS Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

Cooks Cove - Area A

Elevation: 1.14

**ABH235 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 07/05/2008

**Date Completed:** 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

**ESA** 

. CL3030700-

**Easting:** 329665.268

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Northing: 6243343.476

CONSULTING EARTH SCIENTISTS

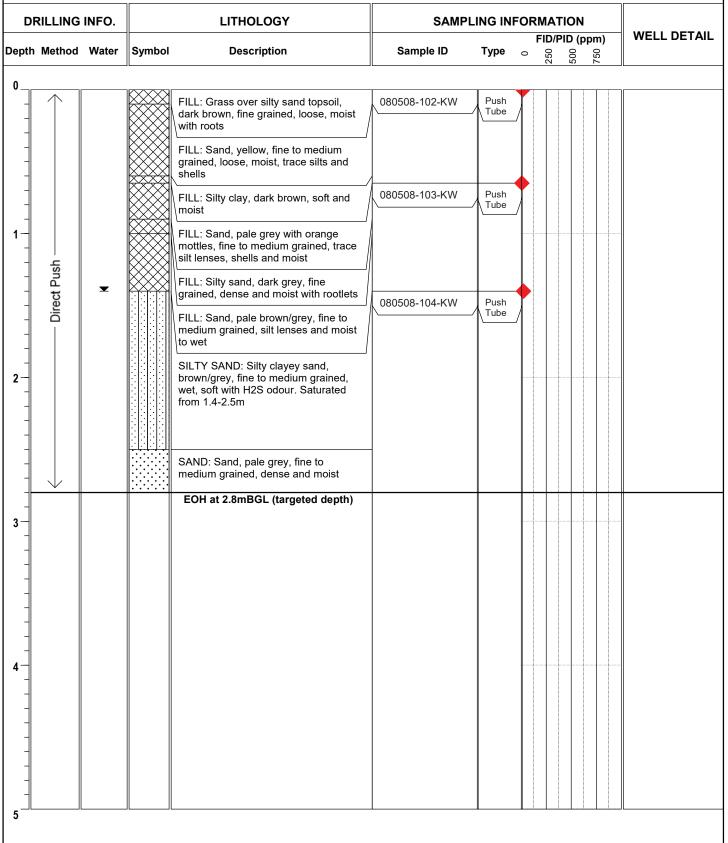
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Project:** 

Client:

Boyd Cooks Cove Elevation: 1.25

Location: Cooks Cove - Area A Environmental Log: ABH236



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329703.000

**Project: ESA**  Northing: 6243361.425

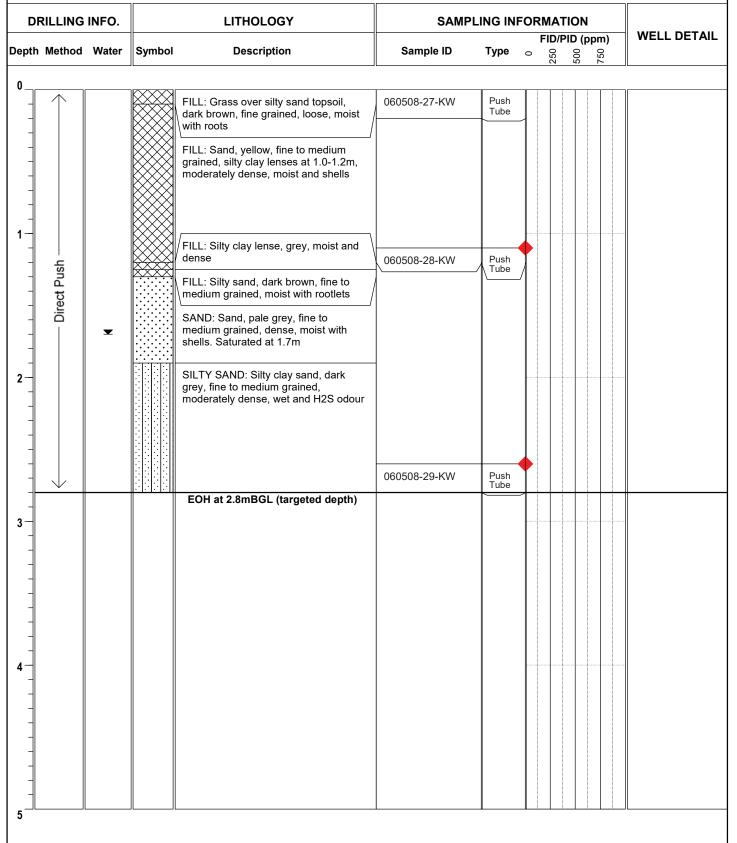
**Boyd Cooks Cove** Client:

Elevation: 1.40



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH237** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329743.172

**Project: ESA**  Northing: 6243375.462

**Boyd Cooks Cove** Client:

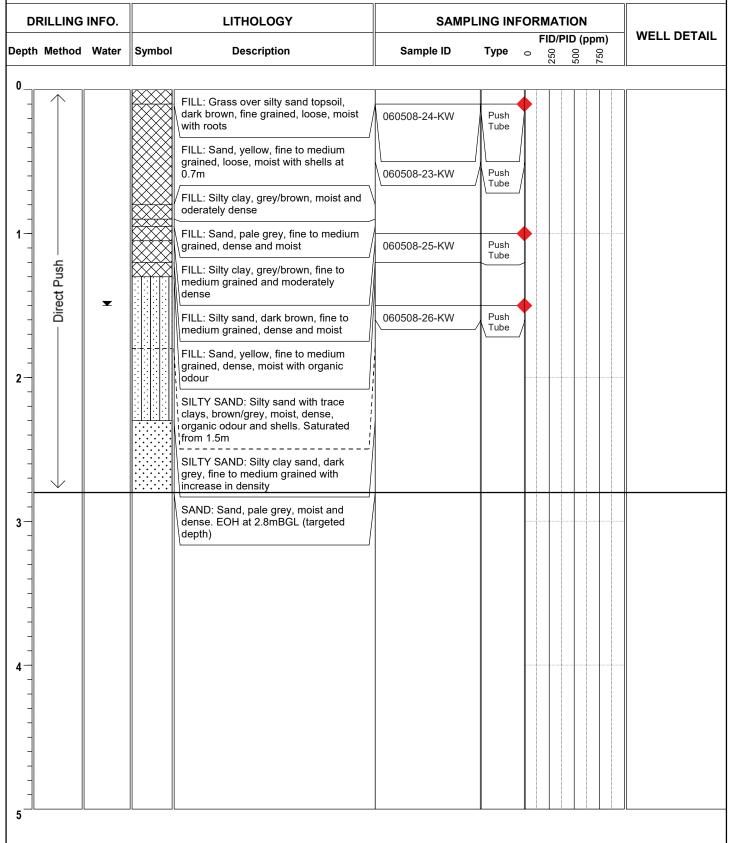
Elevation: 1.22



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH238 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 06/05/2008

**Date Completed:** 06/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329791.277

**Project: ESA**  **Northing:** 6243361.707

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

**Boyd Cooks Cove** Client:

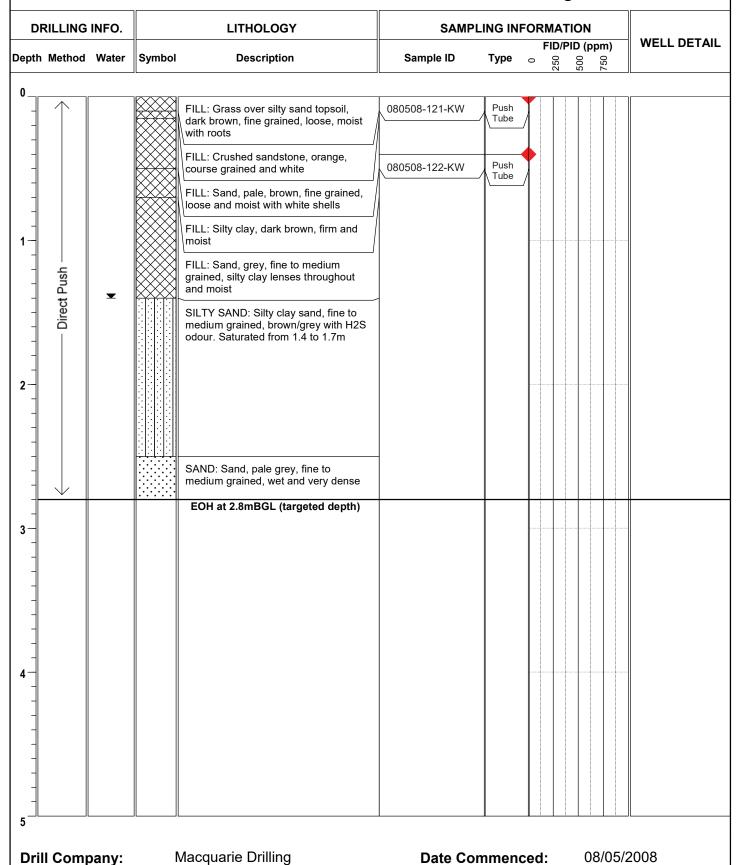
Elevation: 1.04



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH239 Environmental Log:** 



**Date Completed:** 

Logged/checked by:

08/05/2008

K.Weir/L.Jenkins

Easting: 329850.039

**Project: ESA**  Northing: 6243371.561

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

Elevation: 1.04

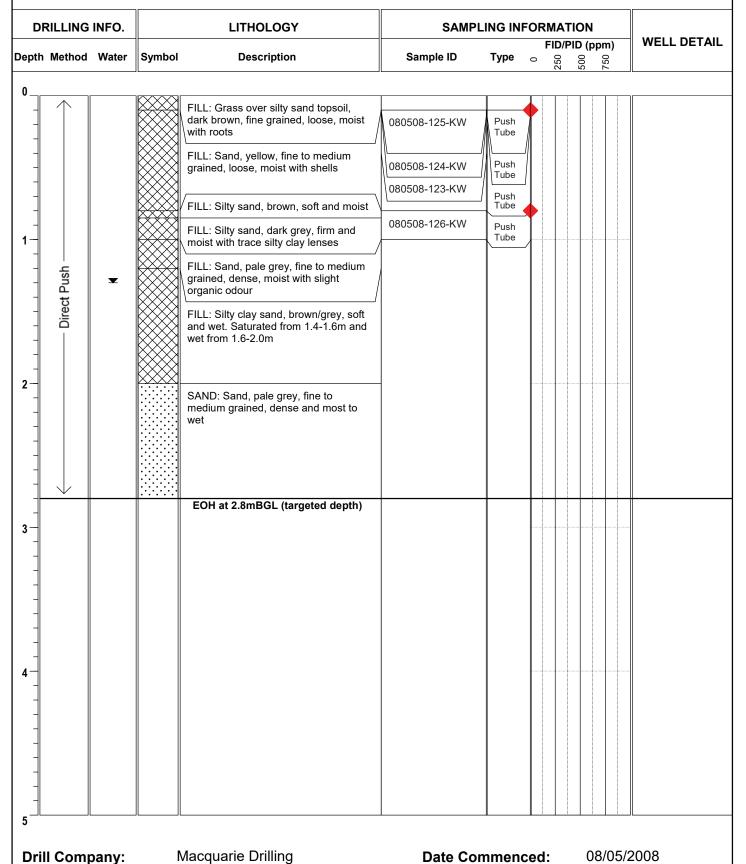
**Boyd Cooks Cove** Client:



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH240 Environmental Log:** 



**Date Completed:** 

Logged/checked by:

08/05/2008

K.Weir/L.Jenkins

C Easti

**Easting:** 329885.967

Northing: 6243340.325

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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Project: ESA

Client:

**Drill Model:** 

Hole Diameter (mm): 50

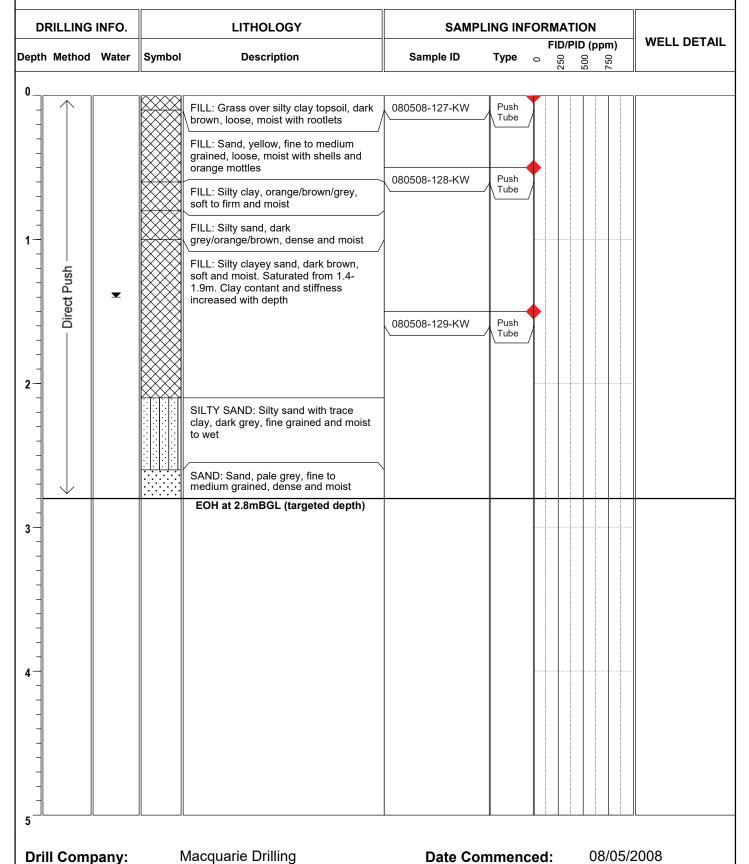
Mac200

Boyd Cooks Cove

Elevation: 0.79

Location: Cooks Cove - Area A

Environmental Log: ABH241



**Date Completed:** 

Logged/checked by:

08/05/2008

K.Weir/L.Jenkins

Easting: 329921.058

**Project:** 

Northing: 6243367.814

**ESA** 

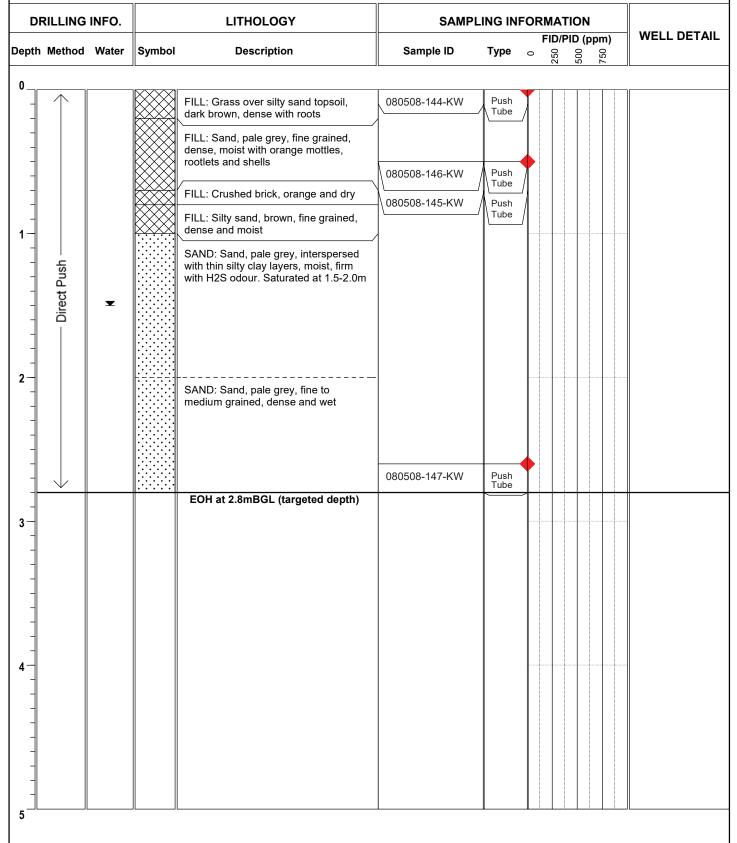
**Boyd Cooks Cove** Client:

Elevation: 0.68



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH242** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329975.701

**Project: ESA**  Northing: 6243350.352

Client:

**Drill Model:** 

Hole Diameter (mm): 50

Mac200



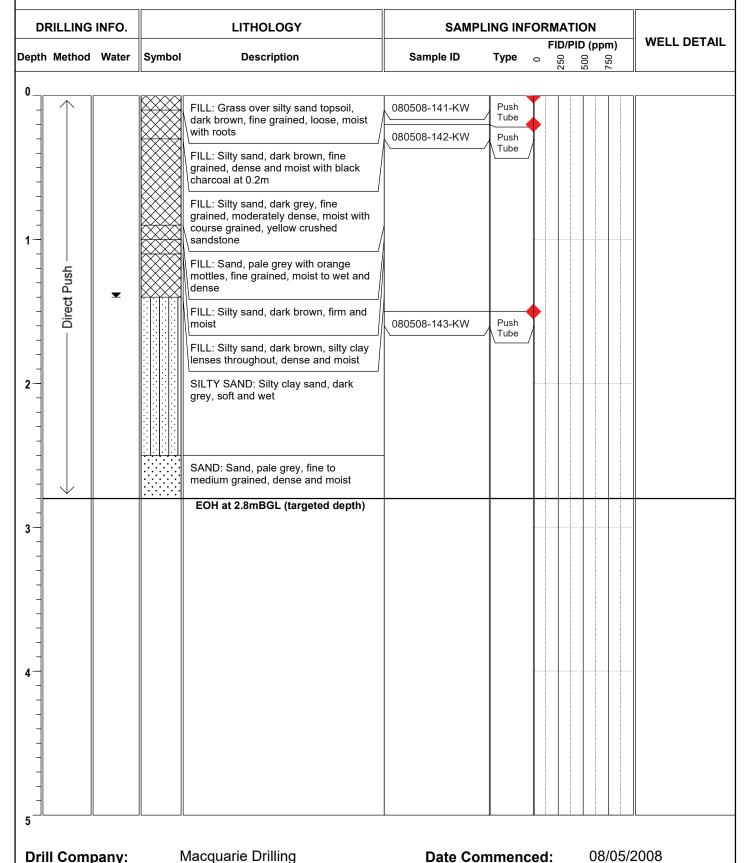


Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**Boyd Cooks Cove** 

**ABH243 Environmental Log:** 



**Date Completed:** 

Logged/checked by:

08/05/2008

K.Weir/L.Jenkins

**Boyd Cooks Cove** 

Easting: 329477.016

Elevation: 1.37

**Project: ESA** 

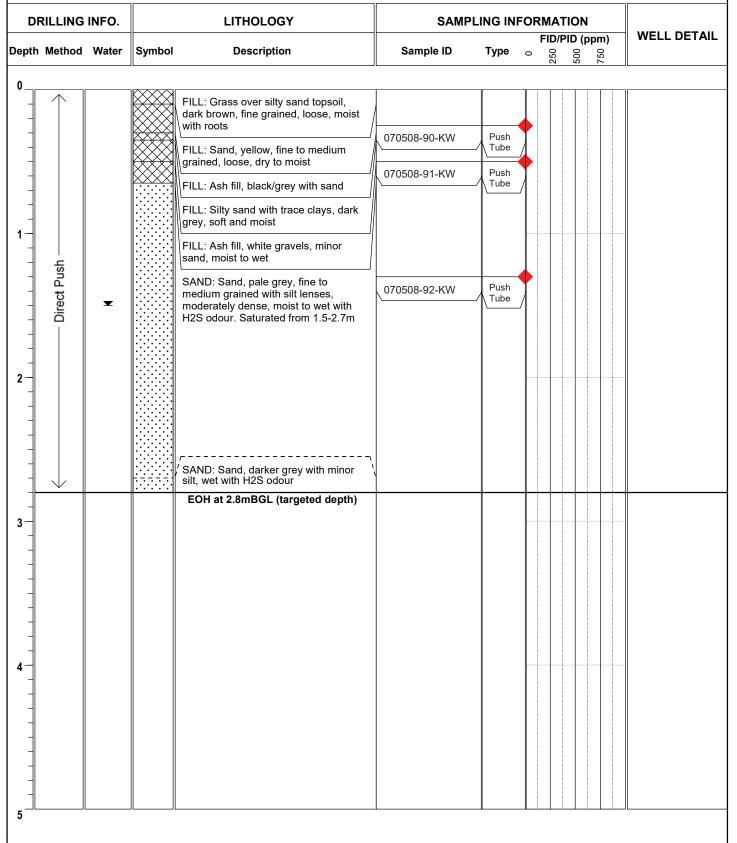
Client:

Northing: 6243318.888



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH244** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project: **ESA** 

Location:

Easting: 329519.186

Northing: 6243321.583

Client:

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

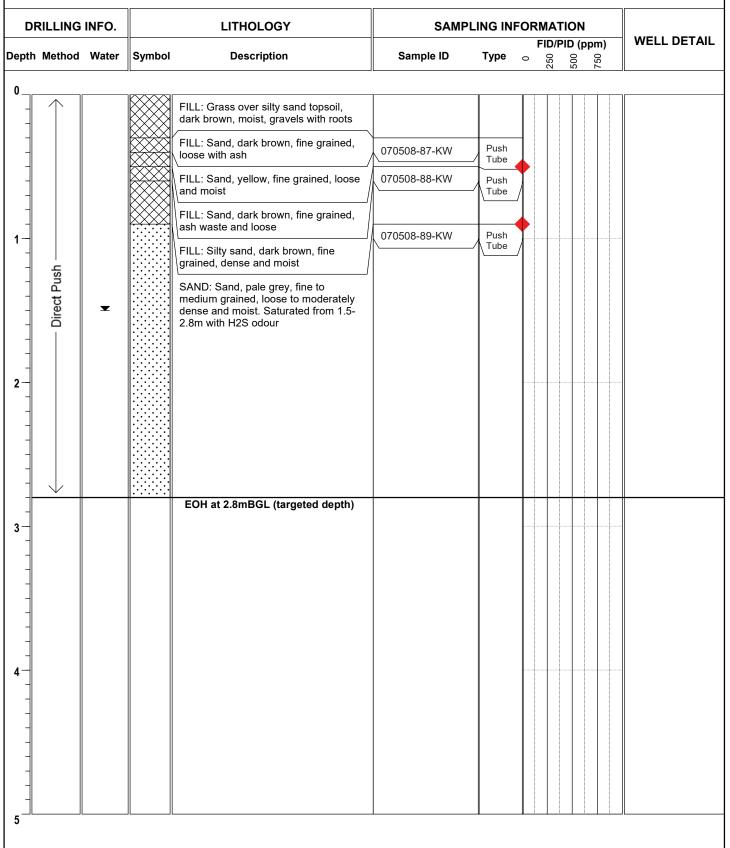
SCIENTIS TS

**Boyd Cooks Cove** 

Cooks Cove - Area A

Elevation: 1.19

**ABH245 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 07/05/2008

**Date Completed:** 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting:

329557.512

CONSULTING EARTH SCIENTISTS

Project: ESA Northing: 6243322.832

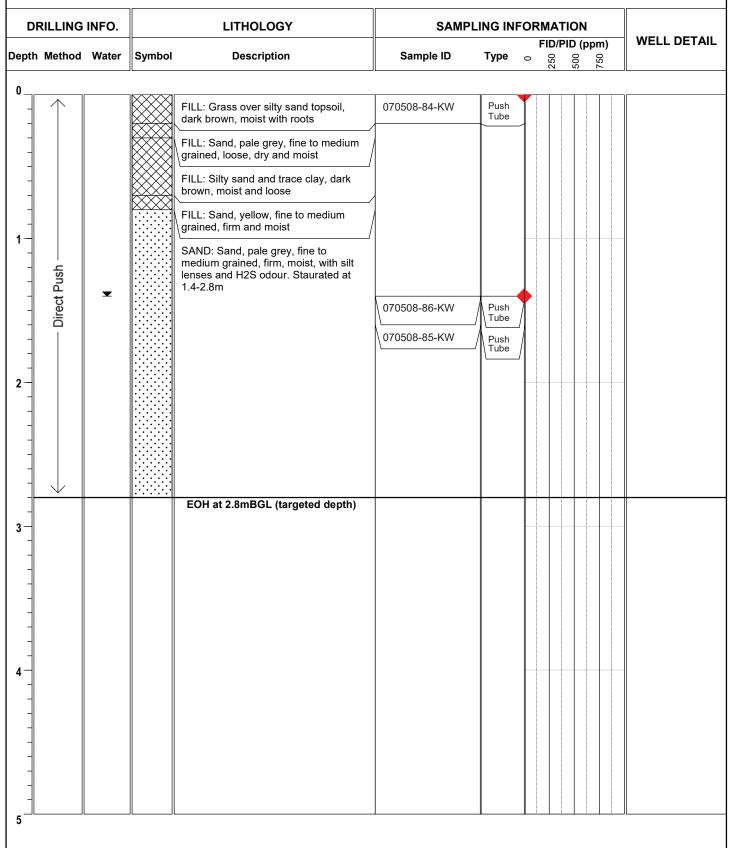
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Client: Boyd Cooks Cove

Location:

Elevation: 0.94

Cooks Cove - Area A Environmental Log: ABH246



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 07/05/2008

**Date Completed:** 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329615.280

**Project: ESA**  Northing: 6243323.531

**Boyd Cooks Cove** Client:

Elevation: 1.60

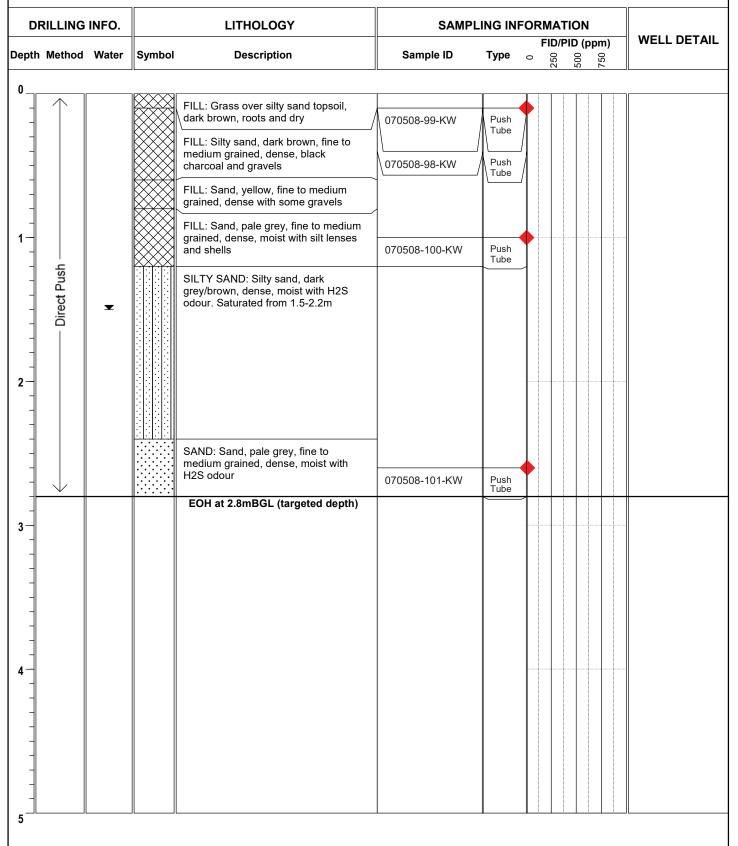


Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

Location: Cooks Cove - Area A

**ABH247 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 07/05/2008

**Date Completed:** 07/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Easting:** 329653.717

Project: ESA

Northing: 6243309.430

2200 420

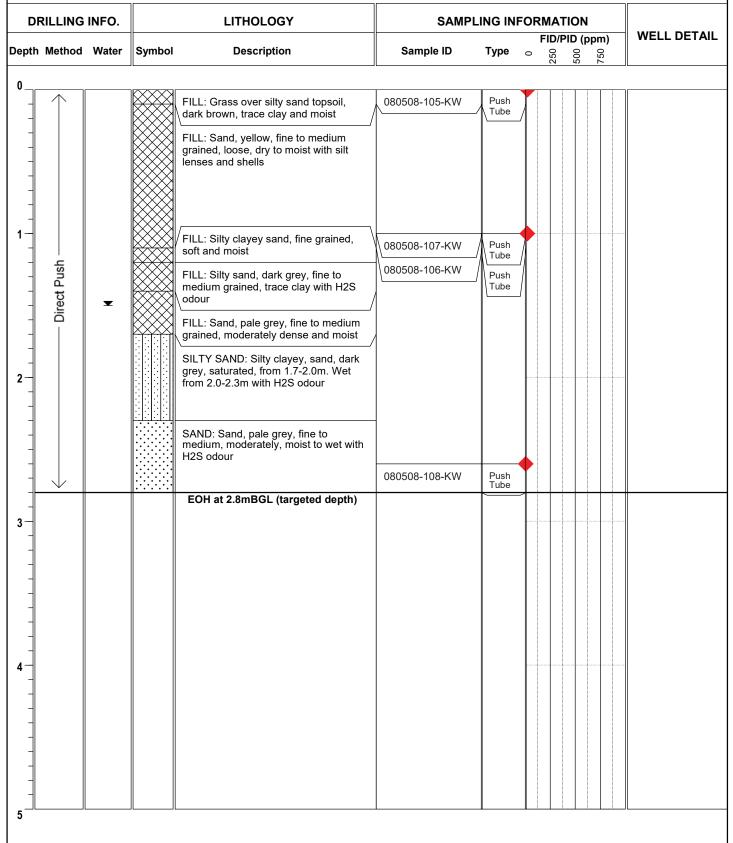
CONSULTING EARTH SCIENTISTS

Client: Boyd Cooks Cove Elevation: 1.26

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove - Area A

Environmental Log: ABH248



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329700.709

**Project: ESA** 

Northing: 6243313.382

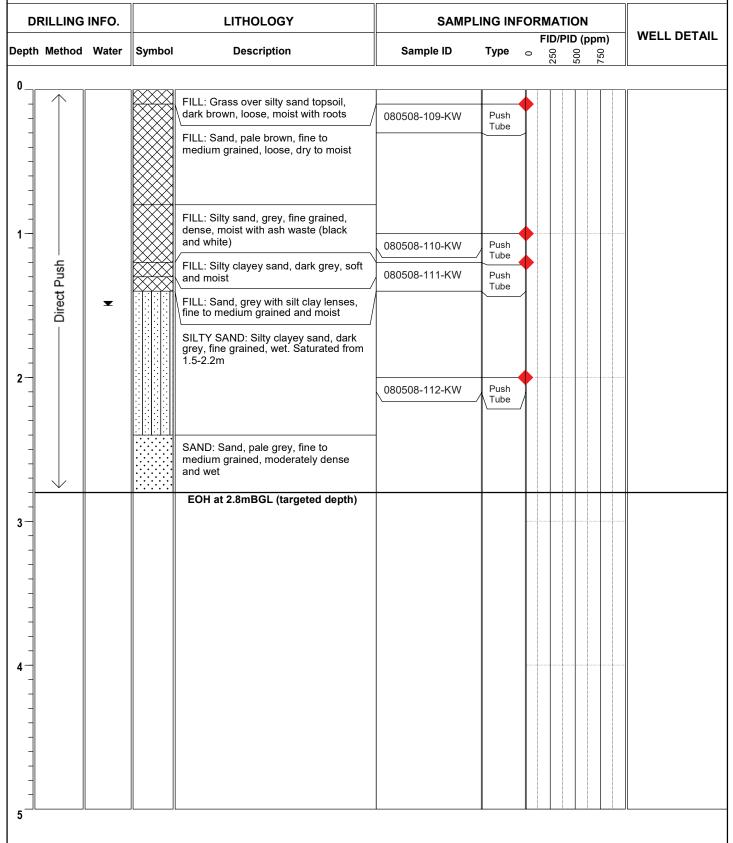
**Boyd Cooks Cove** Client: Elevation: 1.25



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH249 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Client:

**Boyd Cooks Cove** 

Easting:

Elevation: 1.28

329744.618

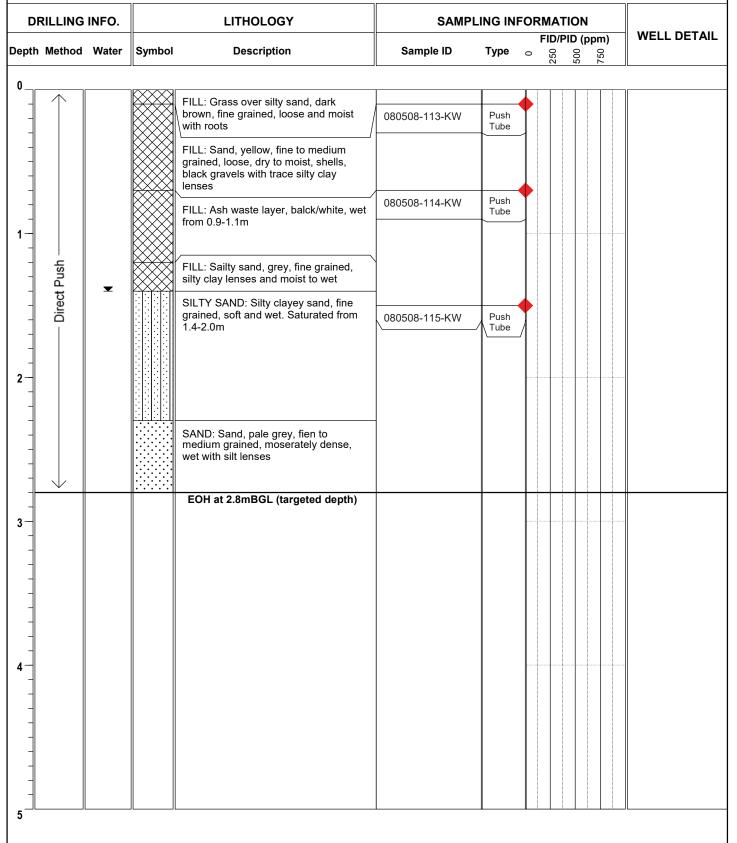
CONSULTING SCIENTIS TS

**Project:** Northing: 6243326.767 **ESA** 

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH250 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329785.264

**Project: ESA** 

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

Northing: 6243325.035

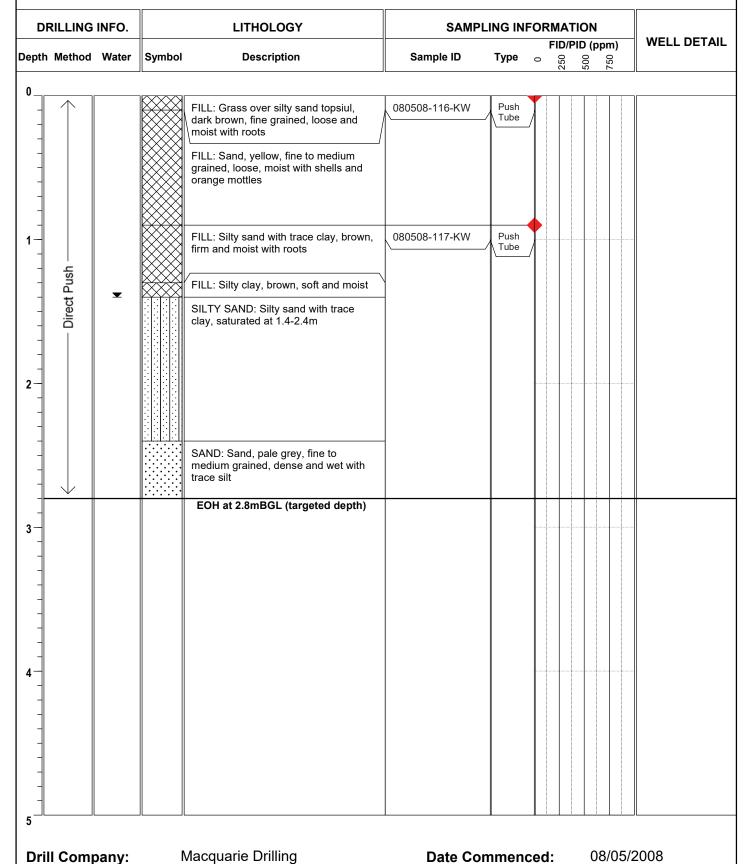
**Boyd Cooks Cove** Client:

Elevation: 1.28



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH251** 



**Date Completed:** 

Logged/checked by:

08/05/2008

K.Weir/L.Jenkins

Easting: 329839.757

**Project: ESA** 

Northing: 6243324.867

**Boyd Cooks Cove** Client:

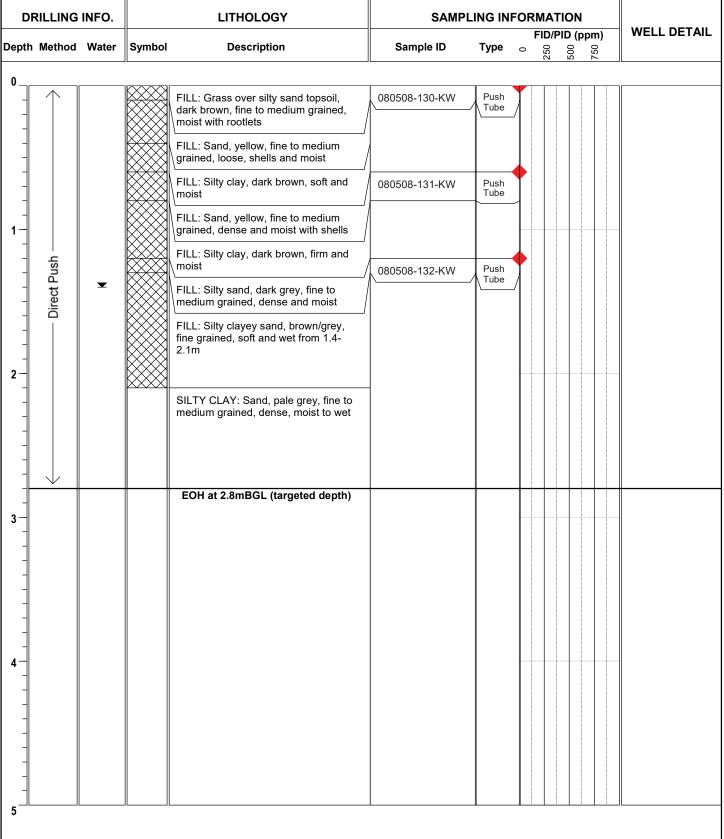
Elevation: 0.93



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH252 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329882.049

**Project: ESA**  **Northing:** 6243319.073

**Boyd Cooks Cove** Client:

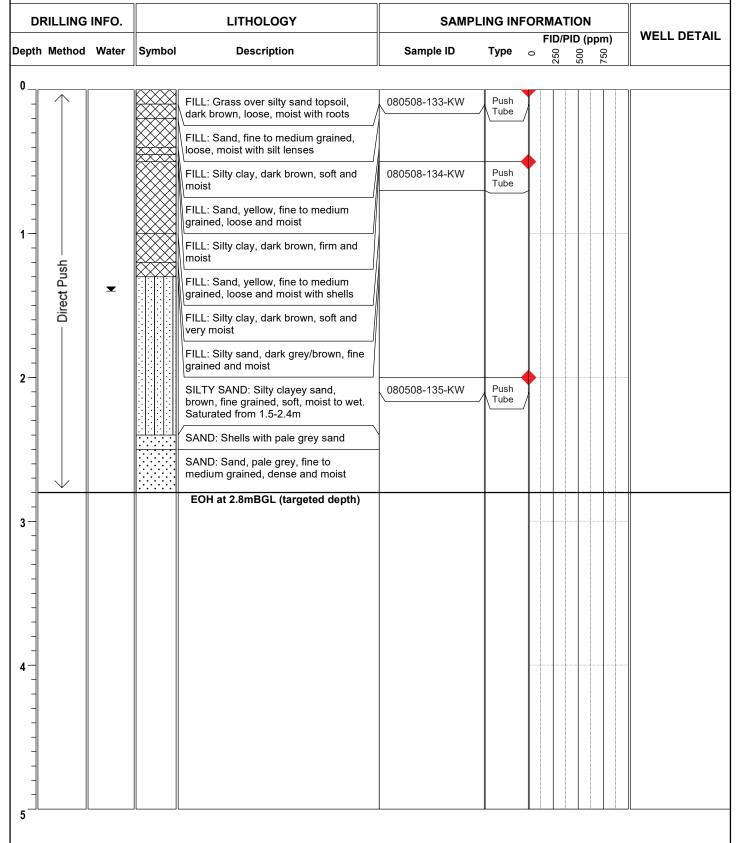
Elevation: 0.83



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH253 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329933.287

**Project: ESA** 

**Northing:** 6243310.216

**Boyd Cooks Cove** Client:

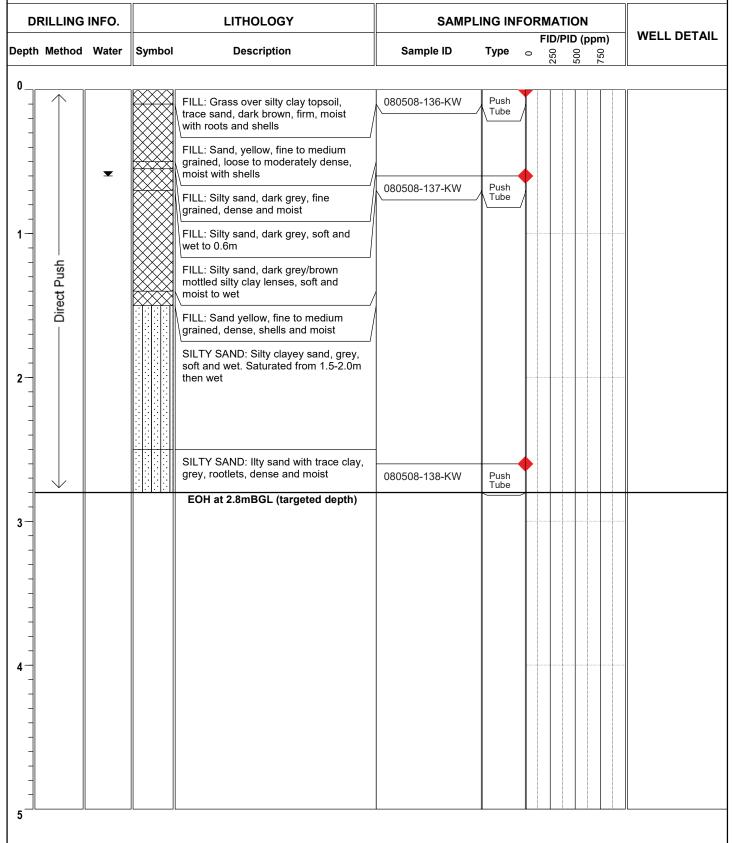
Elevation: 0.82



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH254 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting:

**Project: ESA**  Northing: 6243308.488

329978.015

Elevation: 0.77

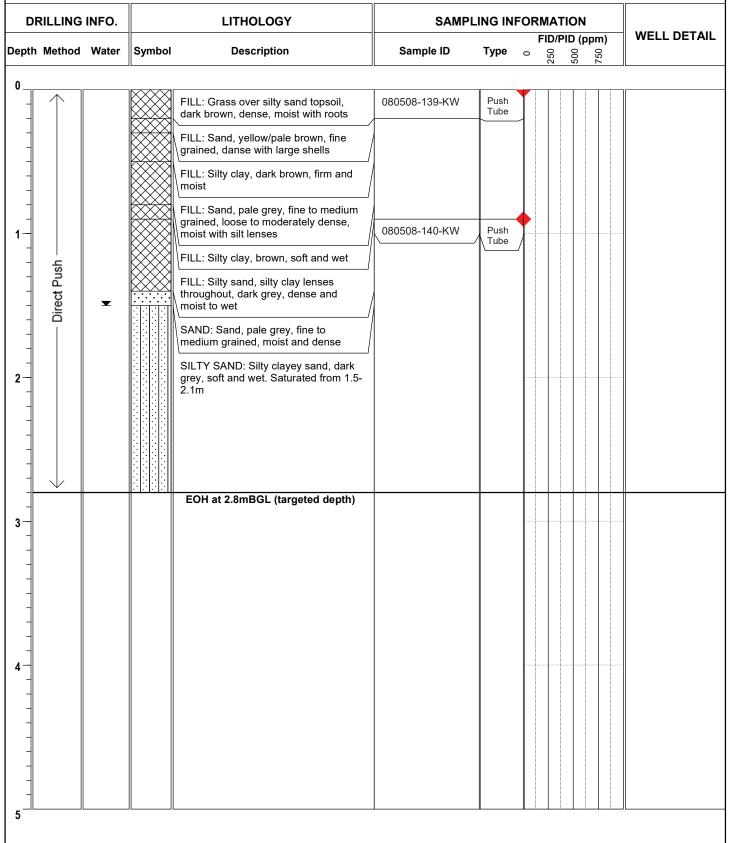
**Boyd Cooks Cove** Client:



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH255 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 08/05/2008

**Date Completed:** 08/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project: **ESA**  Easting: 329467.368

Northing: 6243267.568

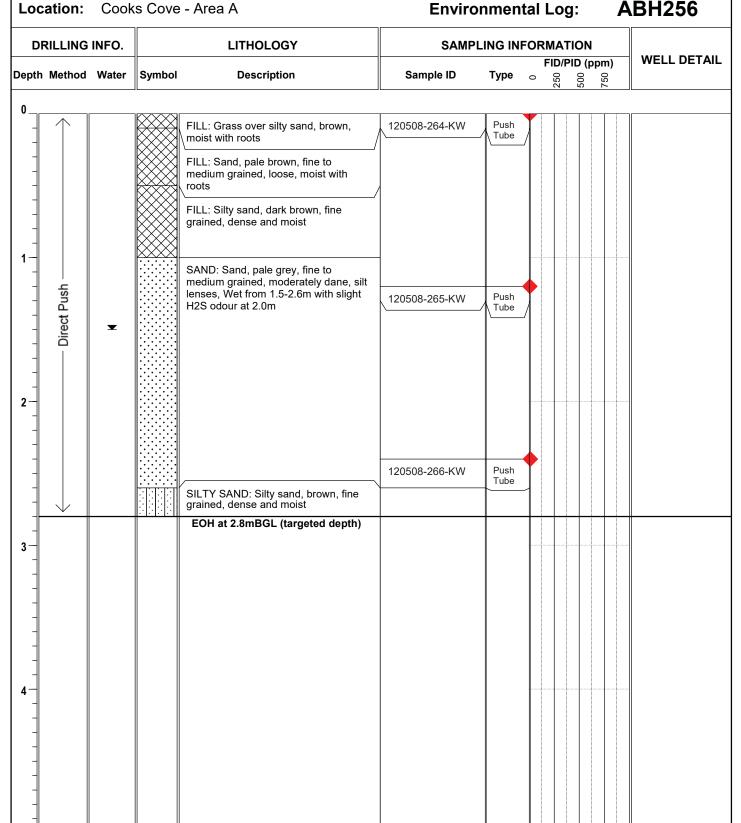
**Boyd Cooks Cove** Client:

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

SCIENTIS TS

Elevation: 1.04



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329513.168

Project: **ESA** 

Client:

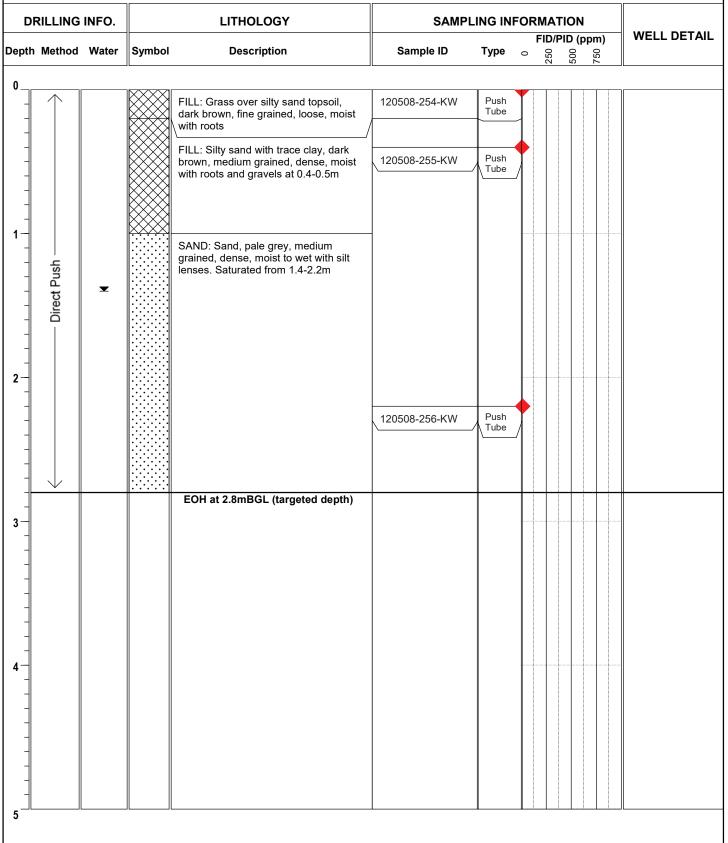
Northing: 6243272.842

**Boyd Cooks Cove** Elevation: 1.65



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH257** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

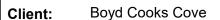
Logged/checked by: K.Weir/L.Jenkins

Easting: 329554.256

**Project:** 

**ESA** 

Northing: 6243257.574



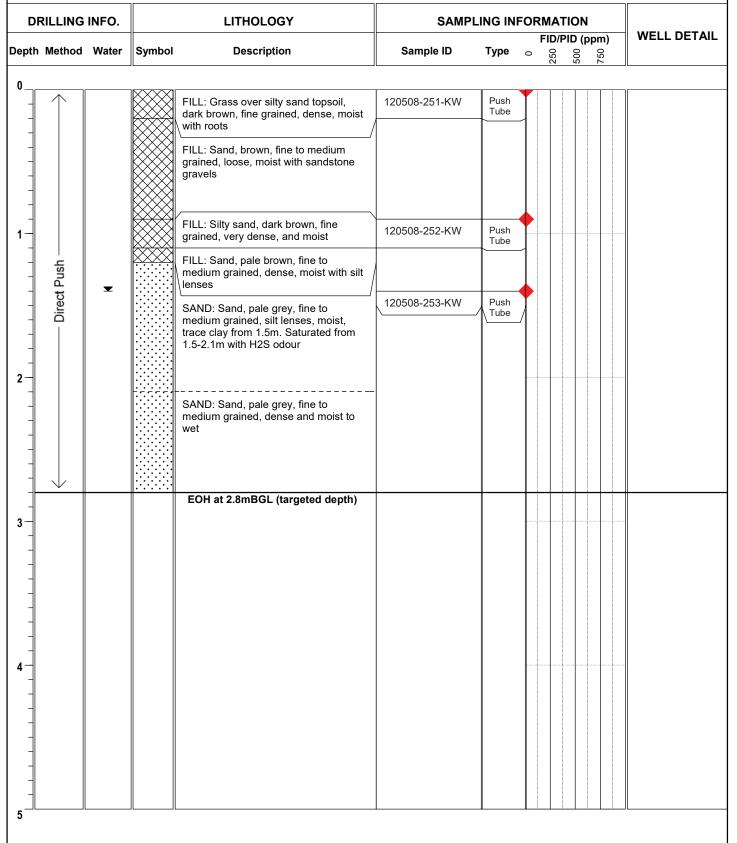
Elevation: 1.21



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH258 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329604.740

Project: **ESA** 

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

Northing: 6243280.712

Elevation: 1.21

**Boyd Cooks Cove** Client:

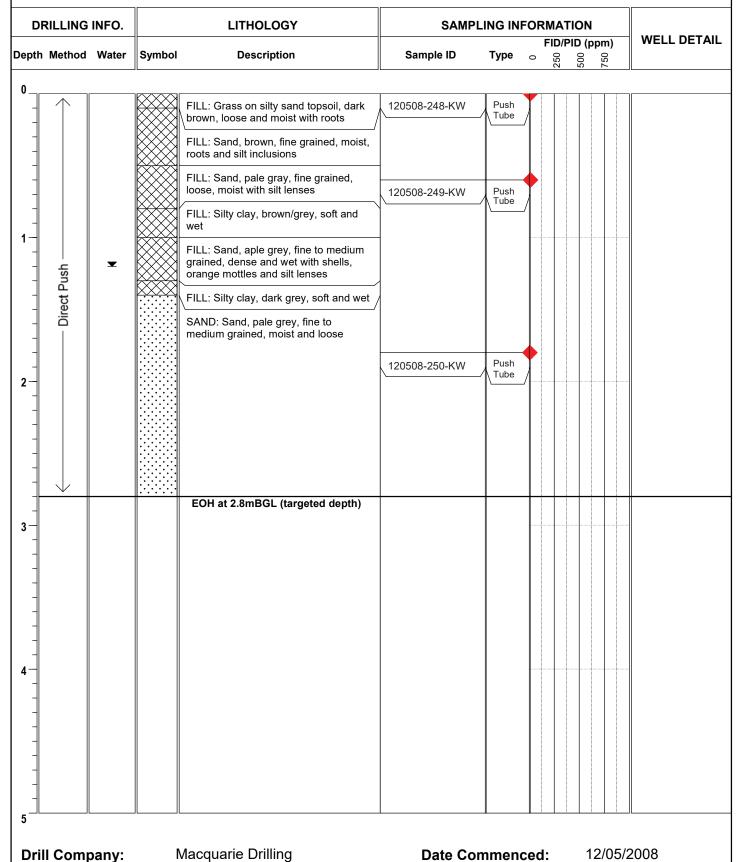
SCIENTIS TS Jones Bay Wharf 19-21, Lower Level Suite 121

CONSULTING

26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH259 Environmental Log:** 



**Date Completed:** 

Logged/checked by:

12/05/2008

K.Weir/L.Jenkins

**Project: ESA**  Easting: 329656.650

Northing: 6243268.514

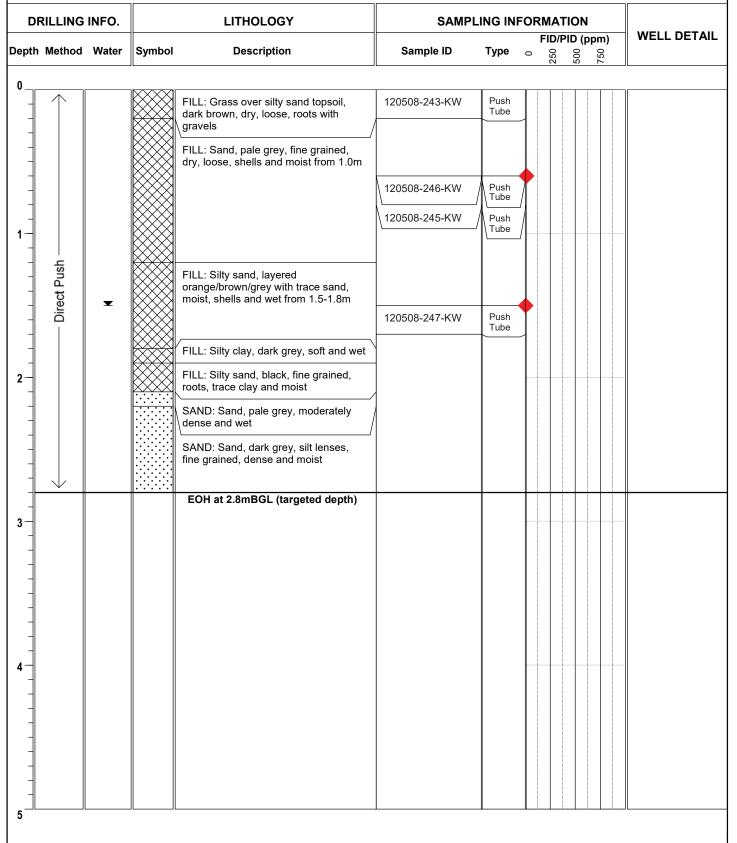
SCIENTIS TS Jones Bay Wharf 19-21, Lower Level Suite 121

CONSULTING

**Boyd Cooks Cove** Elevation: 1.74 Client:

26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**ABH260** Location: Cooks Cove - Area A **Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting:

329700.965

Project: ESA

Location:

Northing: 6243271.449

149

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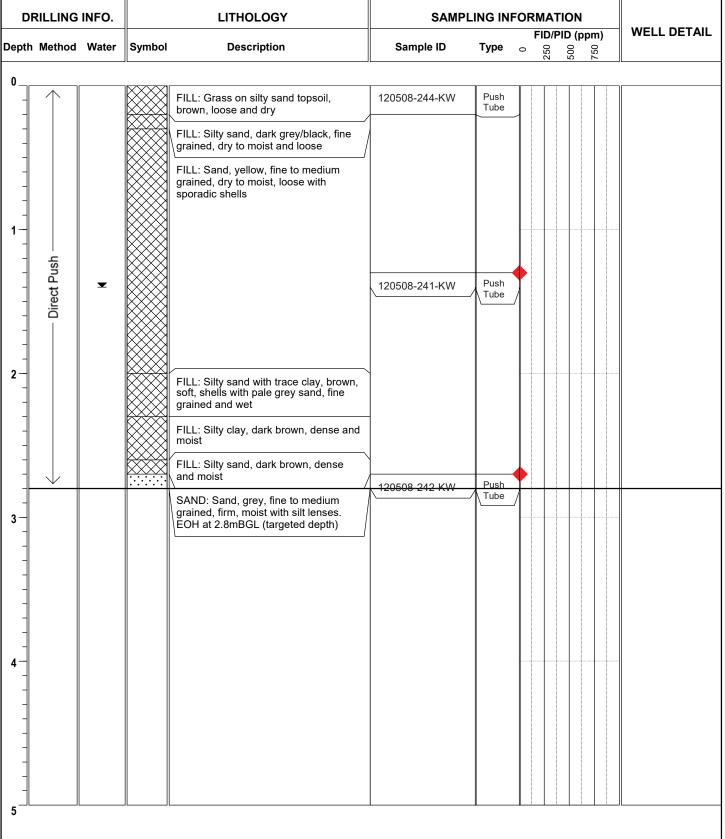
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Client: Boyd Cooks Cove

Cooks Cove - Area A

Elevation: 3.04

Environmental Log: ABH261



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project: **ESA** 

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

Easting: 329744.916

Northing: 6243270.357

Elevation: 1.53

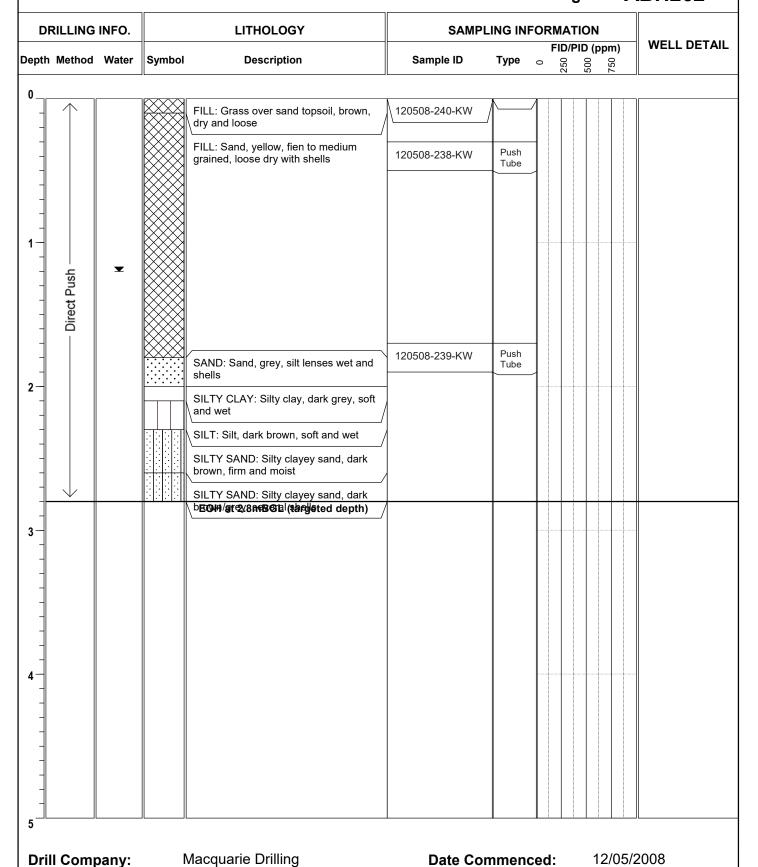
**Boyd Cooks Cove** Client:



CONSULTING

Location: Cooks Cove - Area A

**ABH262 Environmental Log:** 



**Date Completed:** 

Logged/checked by:

12/05/2008

K.Weir/L.Jenkins

050706-BCC

Easting:

329790.581

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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Project: ESA

Client:

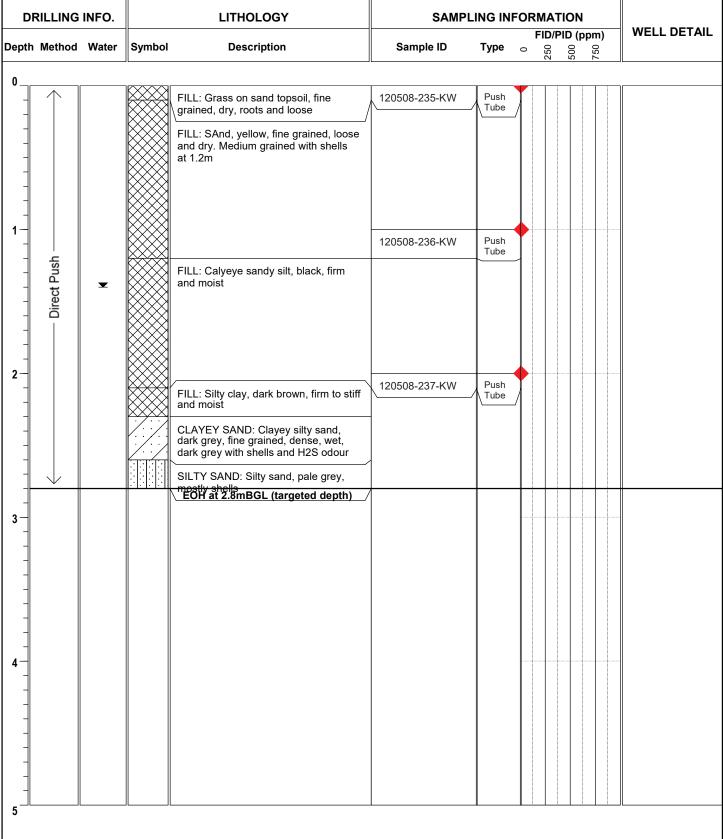
Northing: 6243269.523

Elevation: 0.56

Location: Cooks Cove - Area A

**Boyd Cooks Cove** 

Environmental Log: ABH263



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329834.351

Elevation: 1.15

Project: **ESA**  Northing: 6243275.328

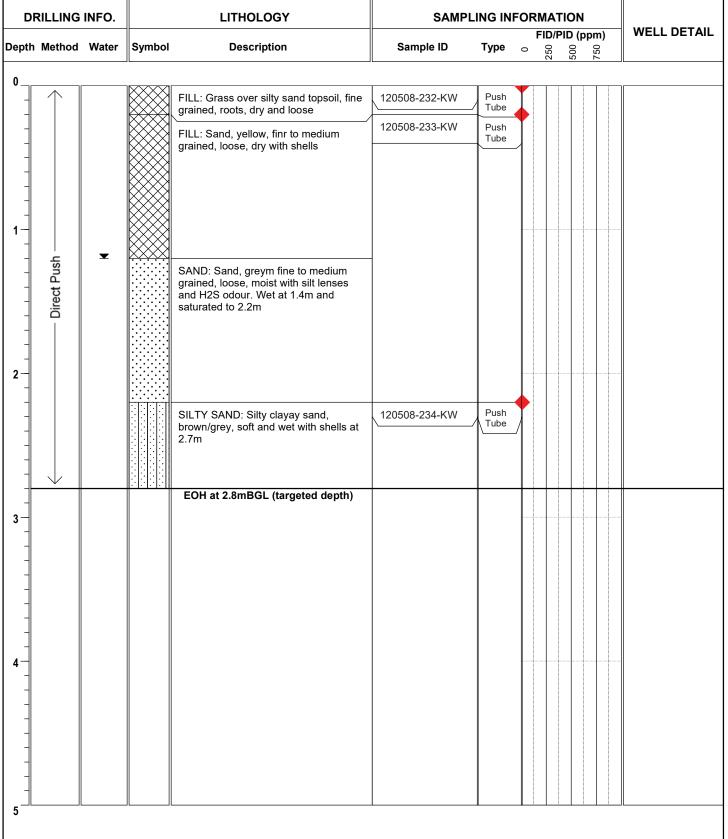


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**Boyd Cooks Cove** Client:

26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH264** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Boyd Cooks Cove** 

Easting: 329879.674

Project: **ESA**  Northing: 6243269.251

Client:

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

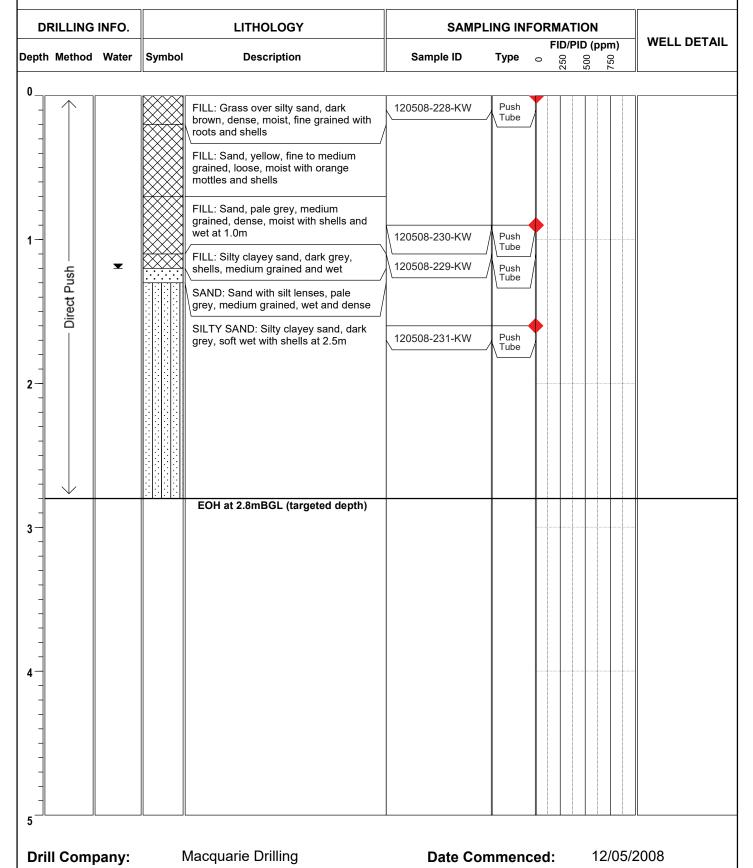
Elevation: 0.98



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Location: Cooks Cove - Area A

**ABH265 Environmental Log:** 



**Date Completed:** 

Logged/checked by:

12/05/2008

K.Weir/L.Jenkins

**Boyd Cooks Cove** 

Easting: 329923.654

**Project: ESA**  Northing: 6243270.129

Client:

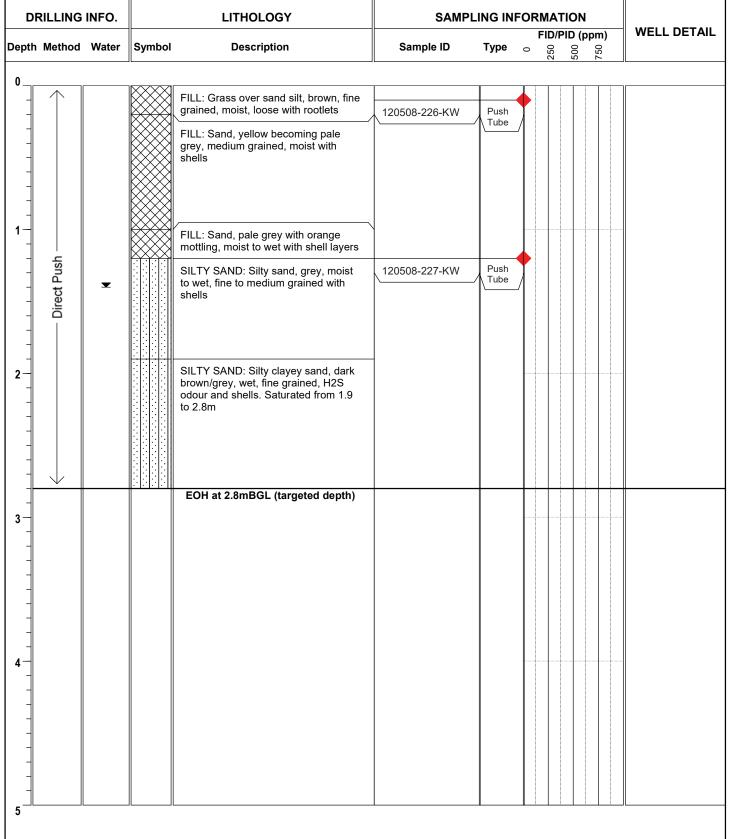
Elevation: 0.89



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH266 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Easting:** 329967.925

Project: ESA

**Northing:** 6243267.861

•

Client: Boyd Cooks Cove

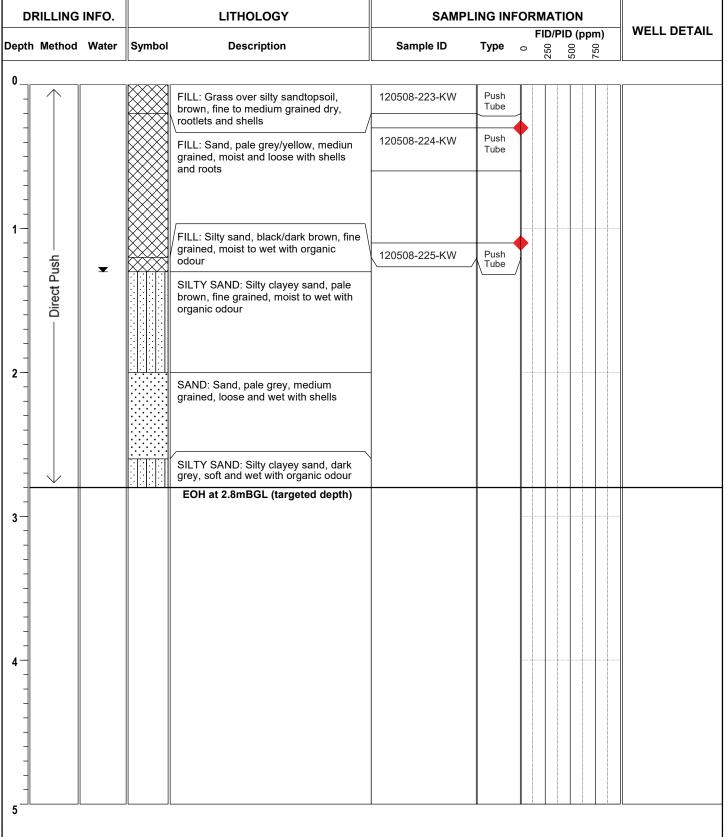
Elevation: 0.84



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**Location:** Cooks Cove - Area A

Environmental Log: ABH267



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Boyd Cooks Cove** 

Easting:

329593.088

Project: ES/

Client:

Northing: 6243240.023

Elevation: 1.23

ESA **Northing:** 62



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**ABH268** 

Location: Cooks Cove - Area A Environmental Log:

**DRILLING INFO. LITHOLOGY** SAMPLING INFORMATION **WELL DETAIL** FID/PID (ppm) Depth Method Water Symbol Description Sample ID Type FILL: Grass over silty sand topsoil, 120508-275-KW Push dark brown, firm and moist with roots Tube FILL: Silty sand, brown, fine grained, moist and loose Push FILL: Silty sand with trace clay, 120508-273-KW Tube brown/grey, fine grained, moist, gravels and shells FILL: Sandstone, orange/grey, hard and moist FILL: Clay, orange/brown/grey/red Direct Push mottles, stiff with roots SILTY SAND: Silty clayey sand, dark grey, fine grained, firm, moist to wet Push 120508-274-KW Tube SAND: Sand, pale grey, fine to medium grained, moderately dense and moist EOH at 2.8mBGL (targeted depth)

**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Boyd Cooks Cove** 

Easting: 329604.835

**Project: ESA** 

Client:

Northing: 6243226.073

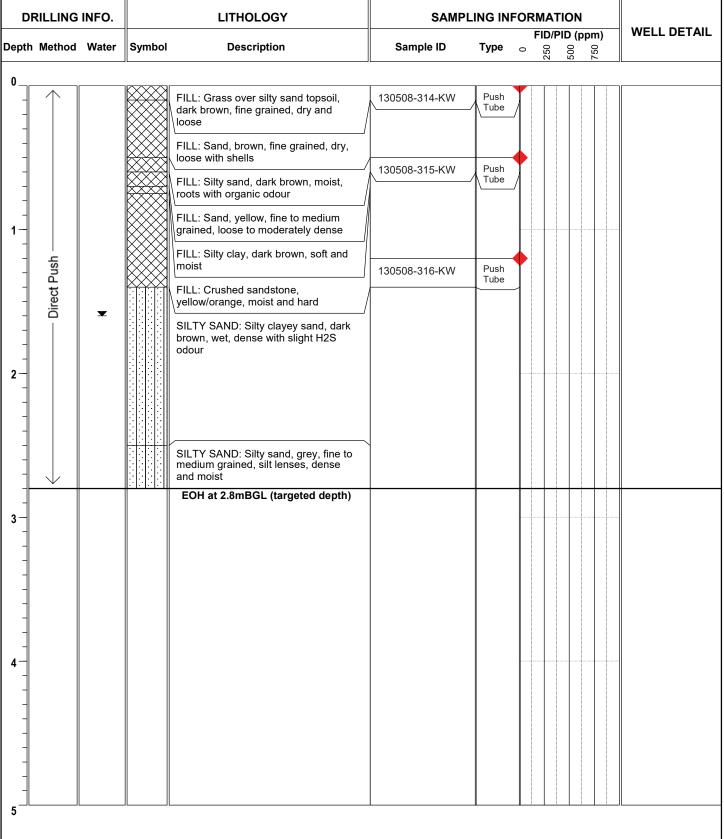
Elevation: 1.78



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Location: Cooks Cove - Area A

**ABH269 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329651.860

**Project: ESA**  Northing: 6243217.683

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

**Boyd Cooks Cove** Client:

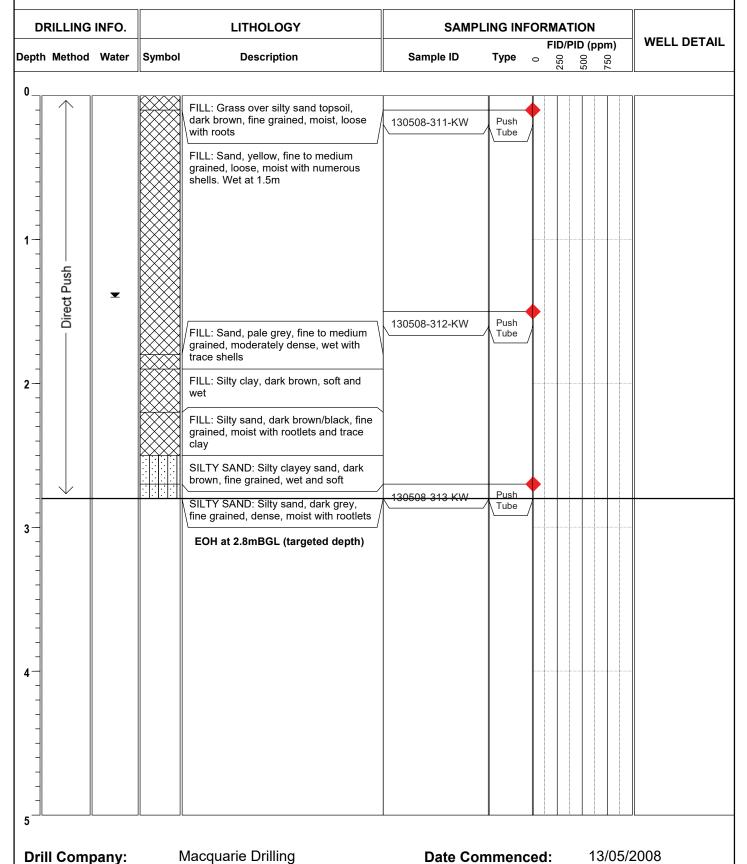
Elevation: 1.77



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH270 Environmental Log:** 



**Date Completed:** 

Logged/checked by:

13/05/2008

K.Weir/L.Jenkins

**ESA** 

Easting:

329701.581

Northing: 6243235.471



CONSULTING SCIENTIS TS

Client:

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

**Project:** 

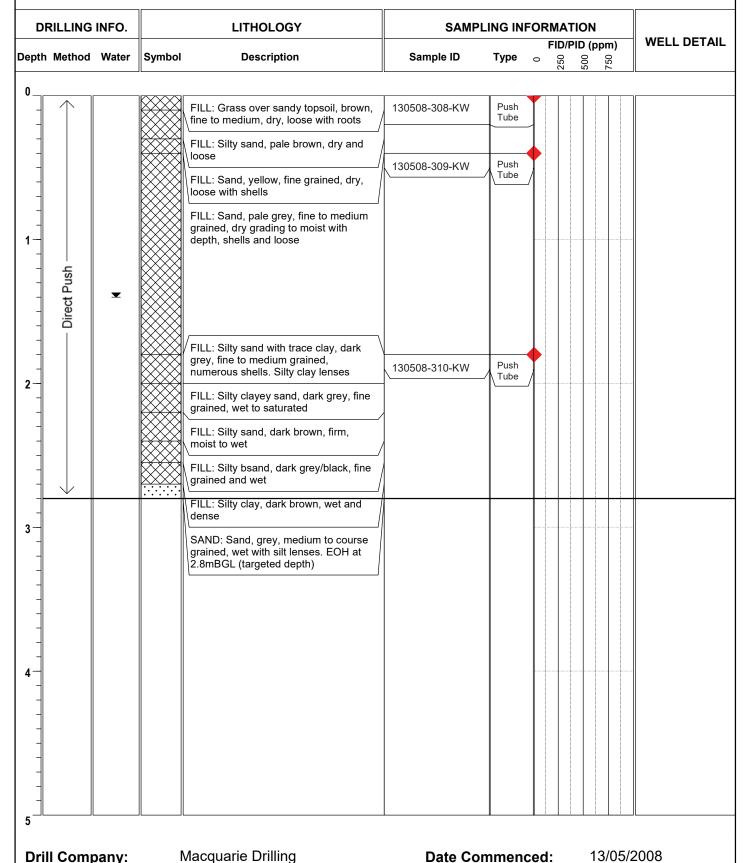
**Boyd Cooks Cove** 

Elevation: 2.04

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH271 Environmental Log:** 



**Date Completed:** 

Logged/checked by:

13/05/2008

K.Weir/L.Jenkins

CE3030700-BCC

Easting:

Elevation: 2.32

329748.078

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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Project: ESA

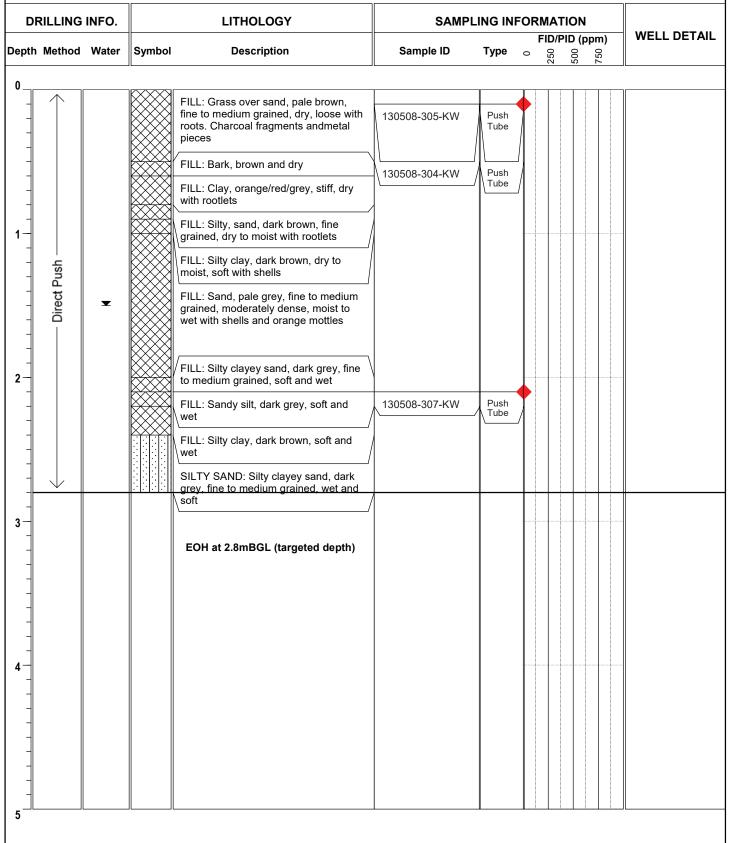
Client:

Northing: 6243224.958

Location: Cooks Cove - Area A

**Boyd Cooks Cove** 

Environmental Log: ABH272



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project: ESA

Client:

**Easting:** 329799.533

Elevation: 1.66

ESA **Northing:** 6243215.432

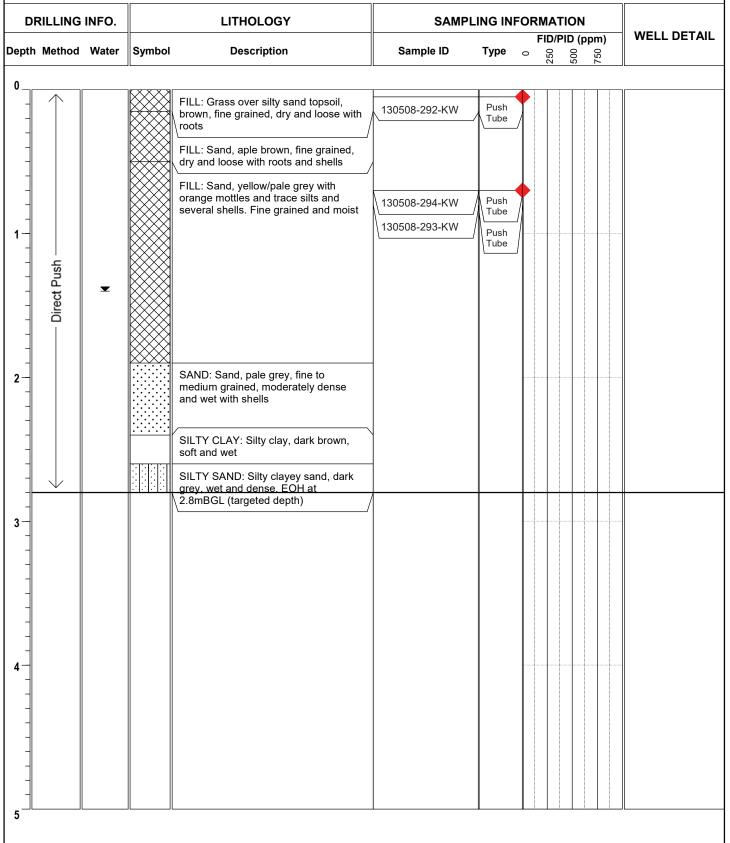
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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**Boyd Cooks Cove** 

Environmental Log: ABH273



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project: **ESA** 

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

Easting: 329843.486

Elevation: 2.05

Northing: 6243214.480

**Boyd Cooks Cove** Client:

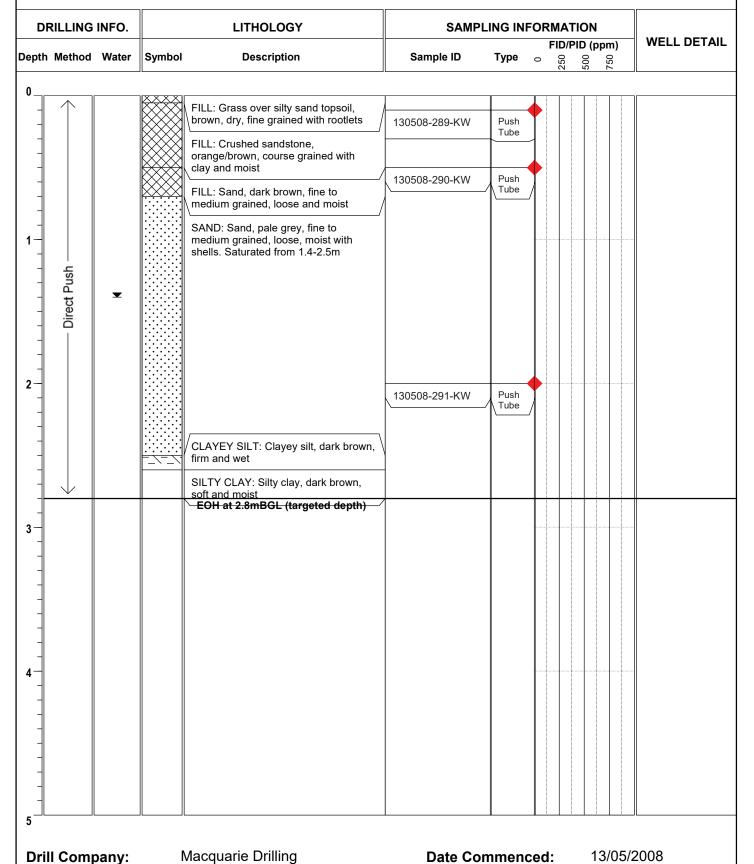
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

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Location: Cooks Cove - Area A

**ABH274 Environmental Log:** 



**Date Completed:** 

Logged/checked by:

13/05/2008

K.Weir/L.Jenkins

Easting:

329883.398

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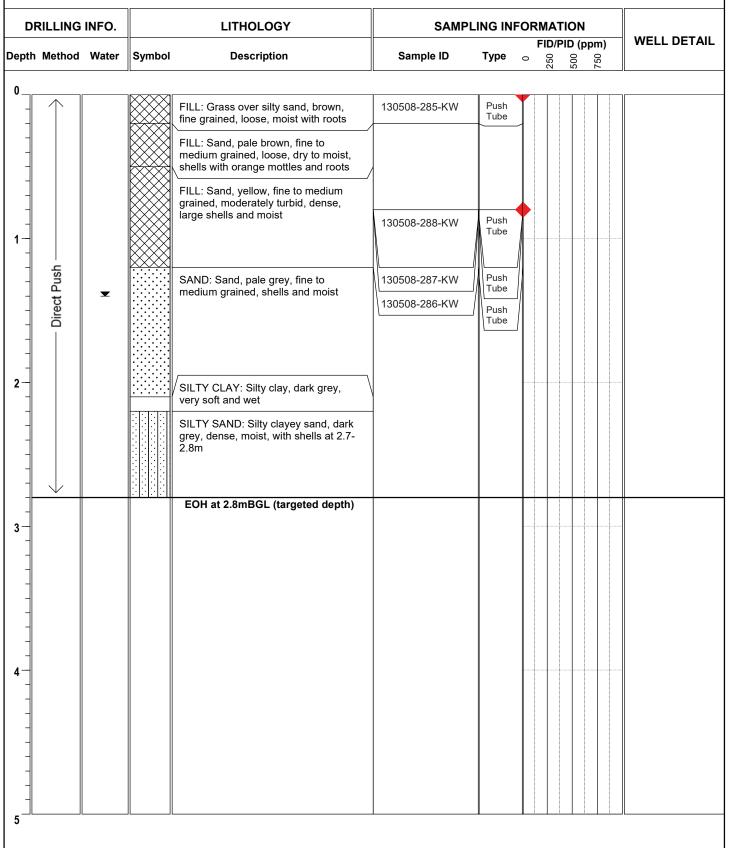
**Project: ESA**  Northing: 6243214.269

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cooks Cove** Client:

Elevation: 1.36

**ABH275** Location: Cooks Cove - Area A **Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329929.395

Elevation: 1.81

**Project: ESA** 

Client:

Northing: 6243205.442

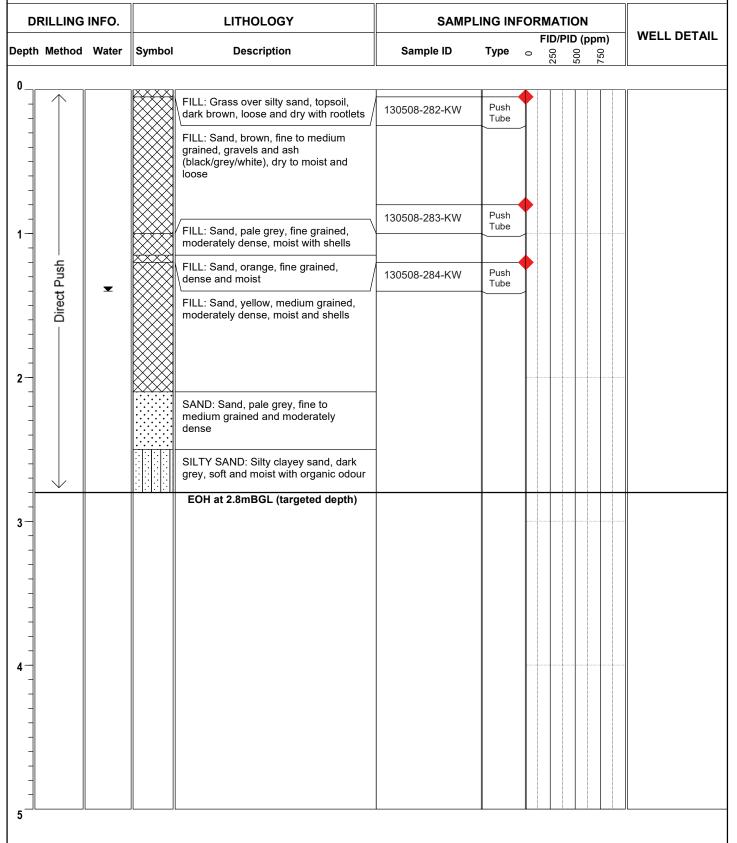
**Boyd Cooks Cove** 

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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH276 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

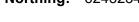
Logged/checked by: K.Weir/L.Jenkins

**Boyd Cooks Cove** 

Easting: 329968.774

**Project: ESA**  Northing: 6243234.696

Client:



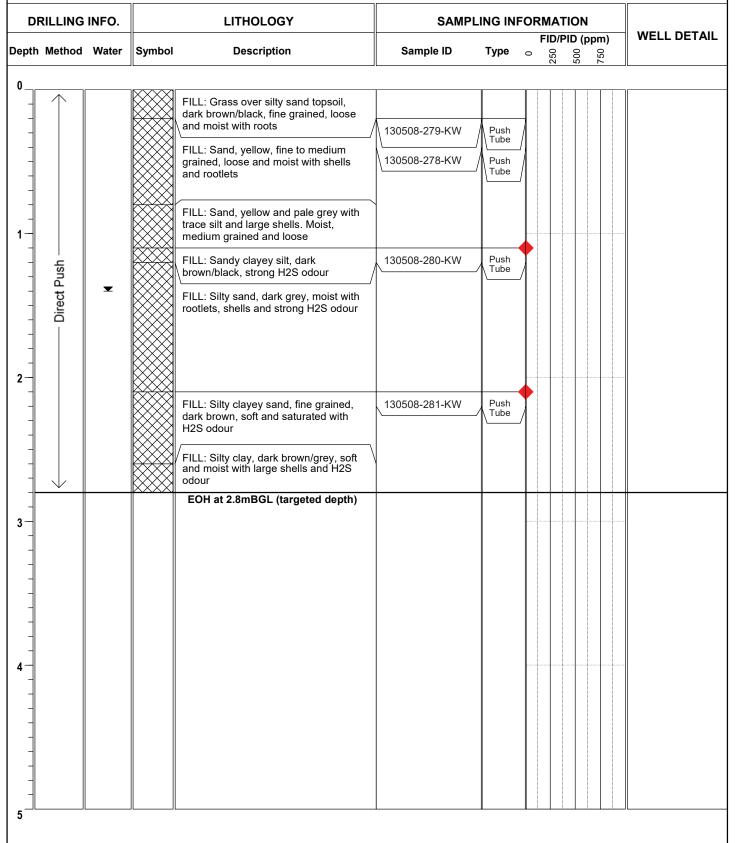
Elevation: 0.96

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

SCIENTIS TS

Location: Cooks Cove - Area A **Environmental Log: ABH277** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Project:** 

CES050706-BCC

ESA

Elevation: 0.89

Easting:

Northing: 6243235.996

330013.553

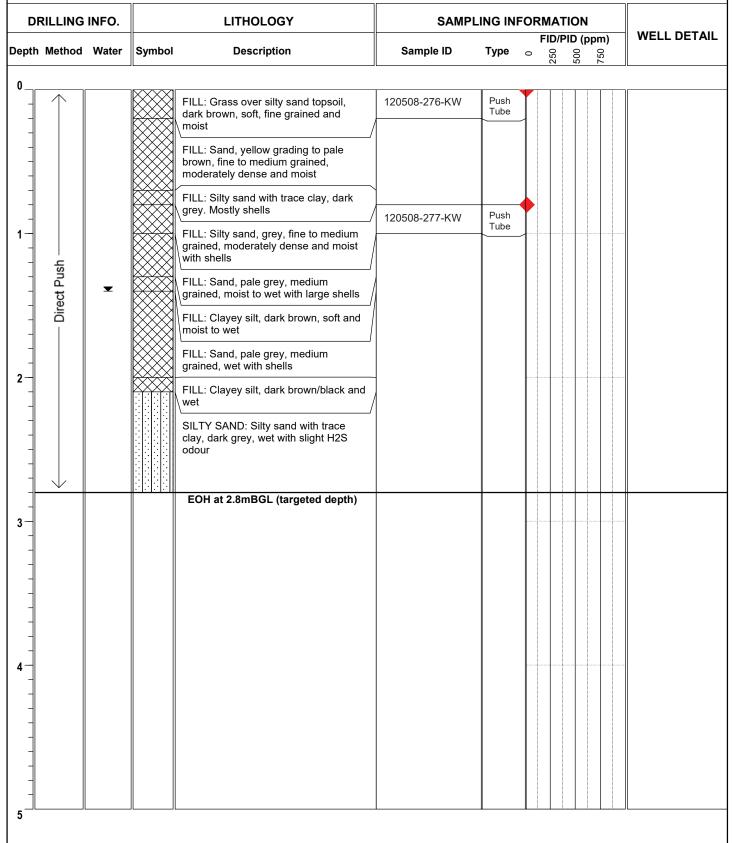
Client: Boyd Cooks Cove



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**Location:** Cooks Cove - Area A

Environmental Log: ABH278



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329709.653

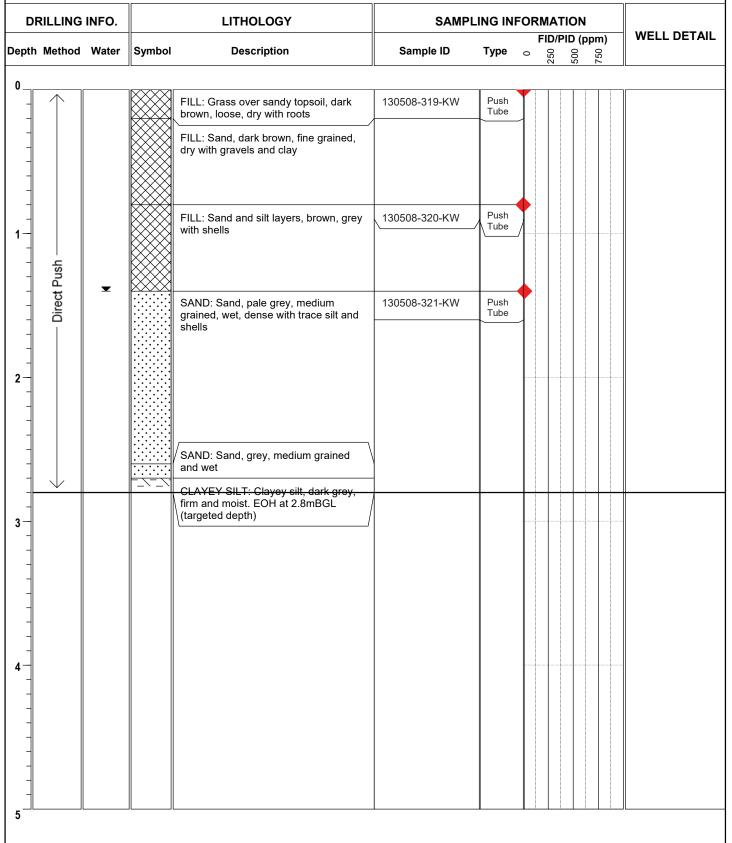
Project: **ESA**  Northing: 6243160.286

**Boyd Cooks Cove** Elevation: 2.58 Client:



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**ABH279** Location: Cooks Cove - Area A **Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329745.044

Northing: 6243167.894

**Project: ESA** 

**Boyd Cooks Cove** Client:

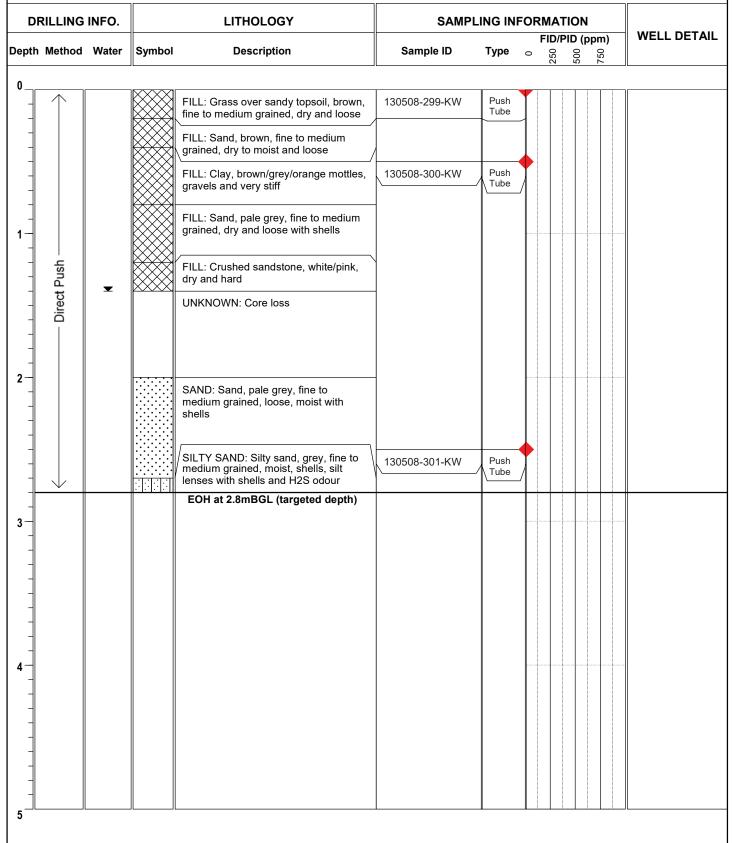
Elevation: 2.87



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH280 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting:

Elevation: 1.85

329789.418

CONSULTING SCIENTIS TS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Project: ESA** 

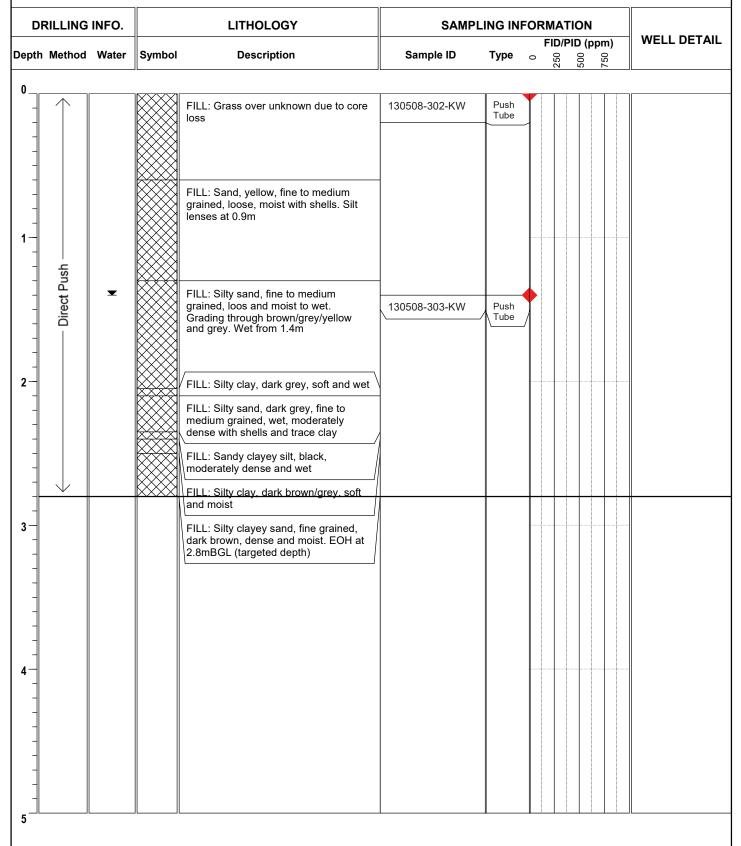
Location:

Northing: 6243190.974

**Boyd Cooks Cove** Client:

Cooks Cove - Area A

**ABH281 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project: ESA

**Easting:** 329825.352

Northing: 6243184.501

Elevation: 1.35

Client: Boyd Cooks Cove

ilig. 0243104.3

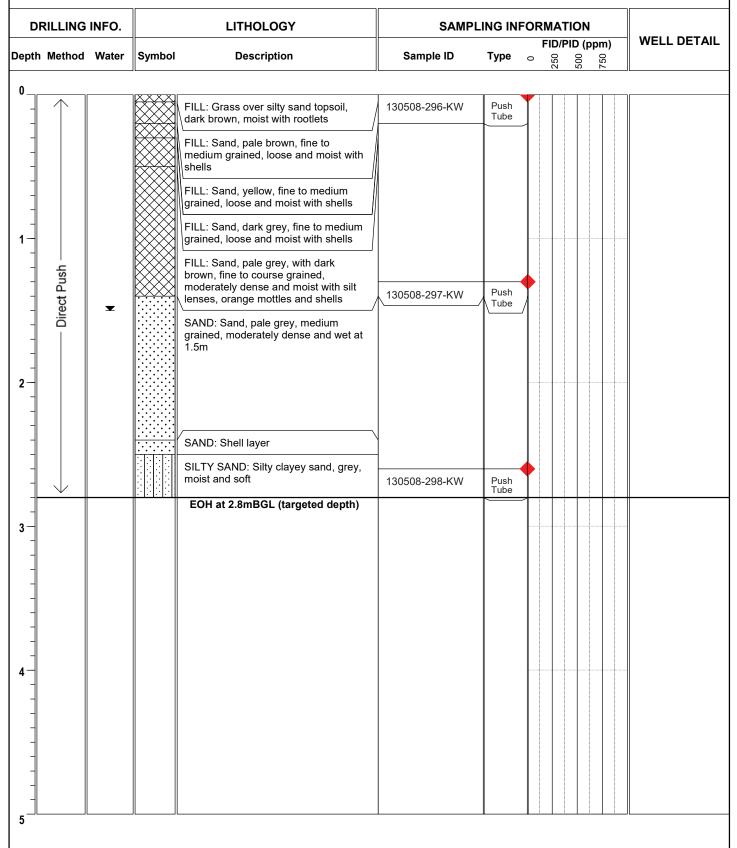
SCIENTISTS

Jones Bay Wharf 19-21, Lower Level Suite 121
26-32 Pirrama Road Pyrmont 2009
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CONSULTING

**Location:** Cooks Cove - Area A

Environmental Log: ABH282



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329888.702

Elevation: 1.59

**ESA Boyd Cooks Cove** Client:

**Project:** 

Northing: 6243165.119

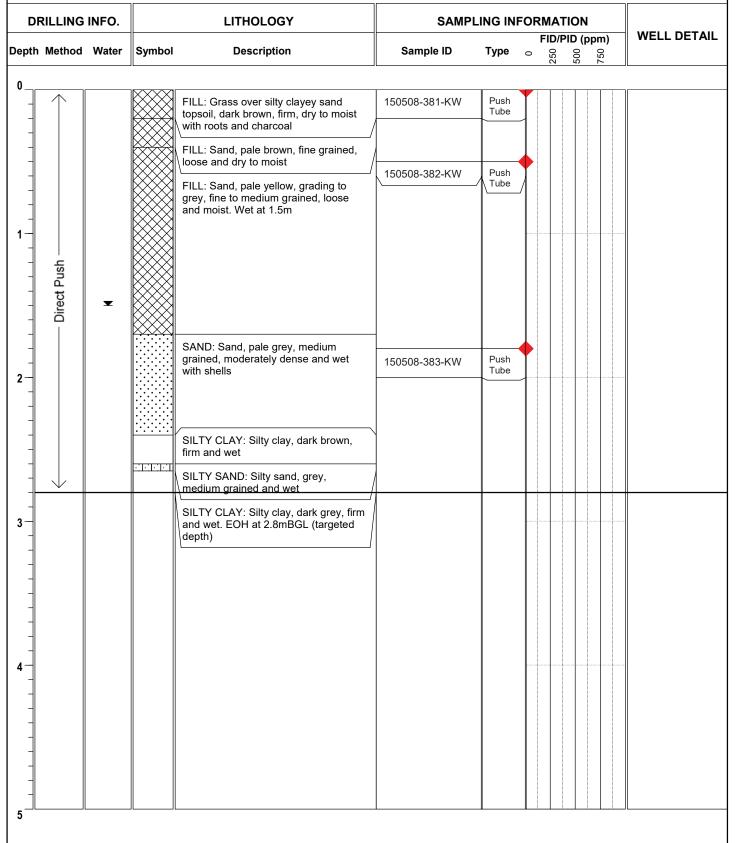
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

SCIENTIS TS

Location: Cooks Cove - Area A

**ABH283 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting:

329927.212

CONSULTING SCIENTIS TS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Project: ESA** 

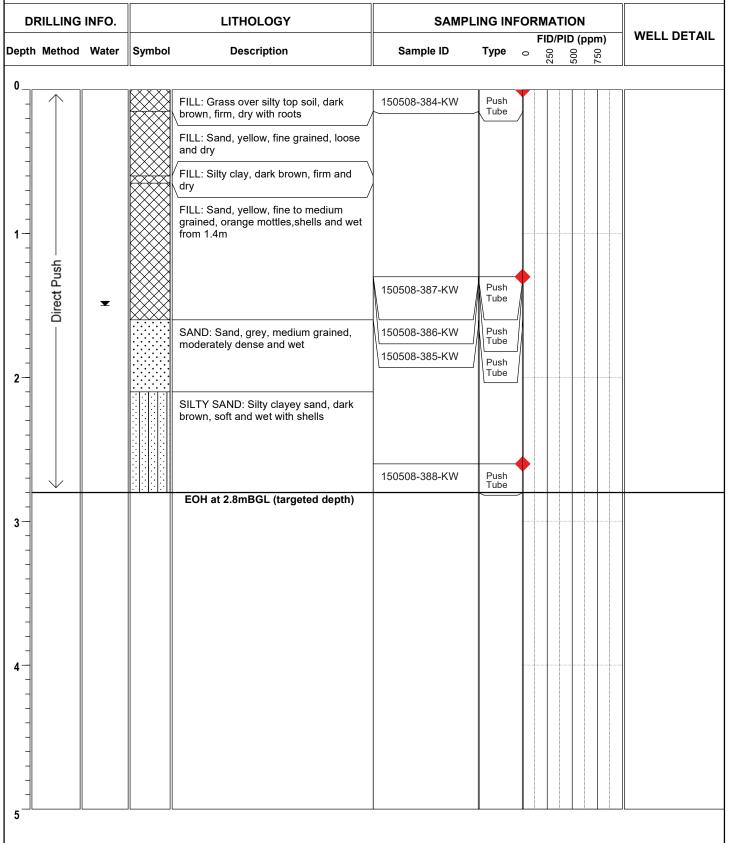
Client:

**Boyd Cooks Cove** 

Elevation: 1.76

Northing: 6243176.201

**ABH284** Location: Cooks Cove - Area A **Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

**ESA** 

Easting: 329971.624

Northing: 6243183.325

**Boyd Cooks Cove** Client:

Project:

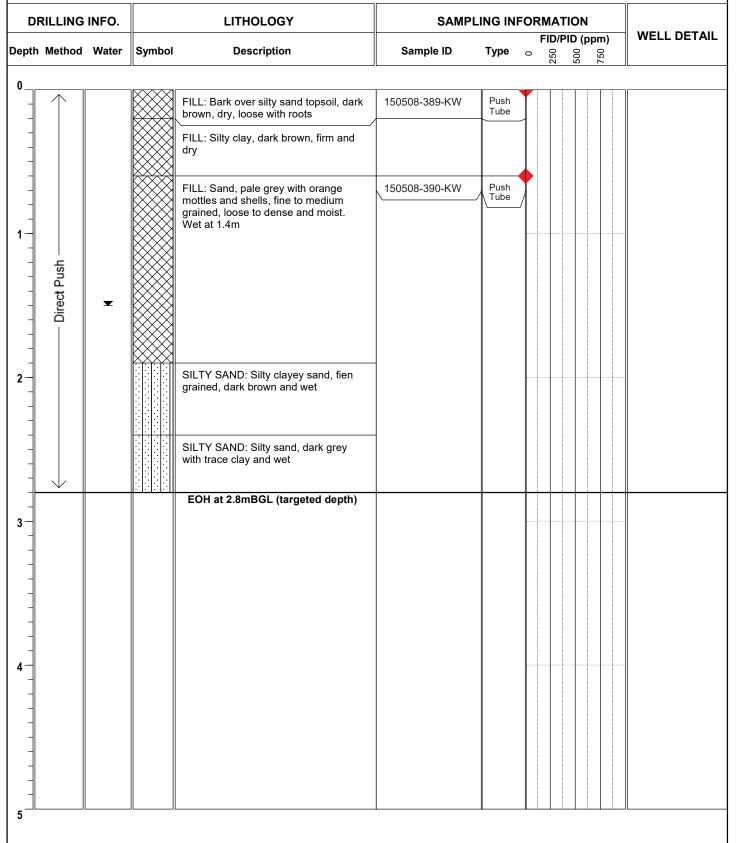
Elevation: 1.74



26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

Location: Cooks Cove - Area A **Environmental Log: ABH285** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 330001.417

**Project: ESA** 

Client:

Northing: 6243192.728

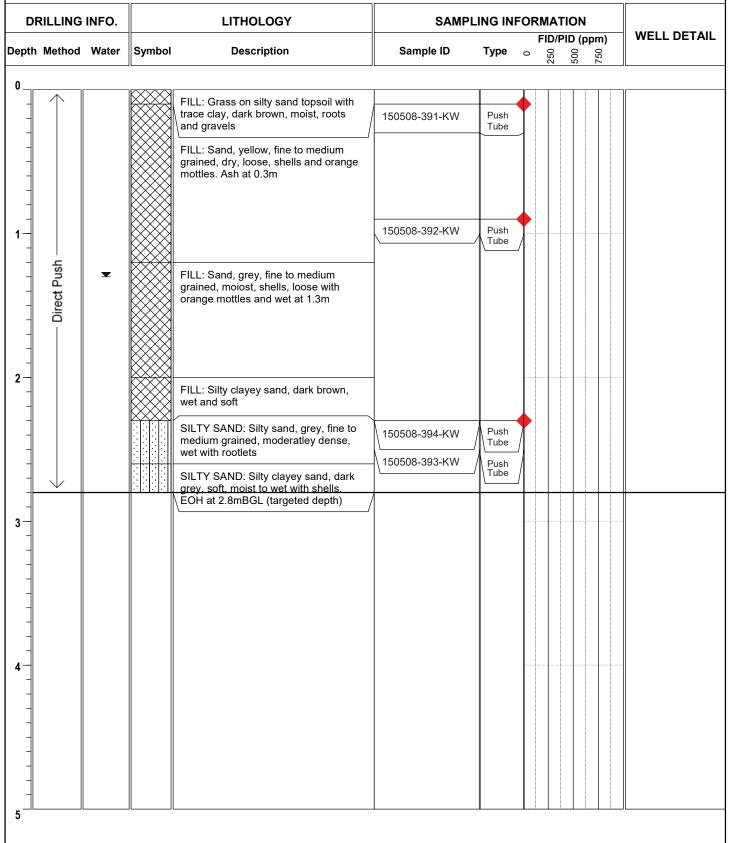
**Boyd Cooks Cove** Elevation: 1.44

SCIENTIS TS Jones Bay Wharf 19-21, Lower Level Suite 121

26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

Location: Cooks Cove - Area A **Environmental Log: ABH286** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Boyd Cooks Cove** 

Easting: 329802.345

Elevation: 1.88

Project: **ESA** 

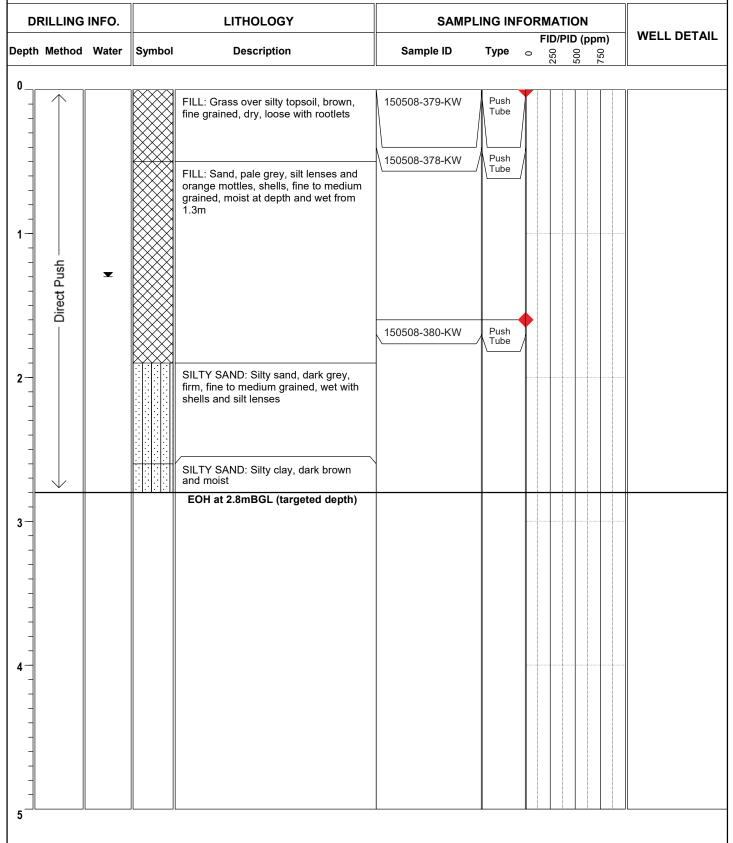
Client:

Northing: 6243164.287

CONSULTING SCIENTIS TS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH287** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

**ESA** 

**Project:** 

)50706-BCC **Ea** 

Easting:

329838.139

Northing: 6243142.892

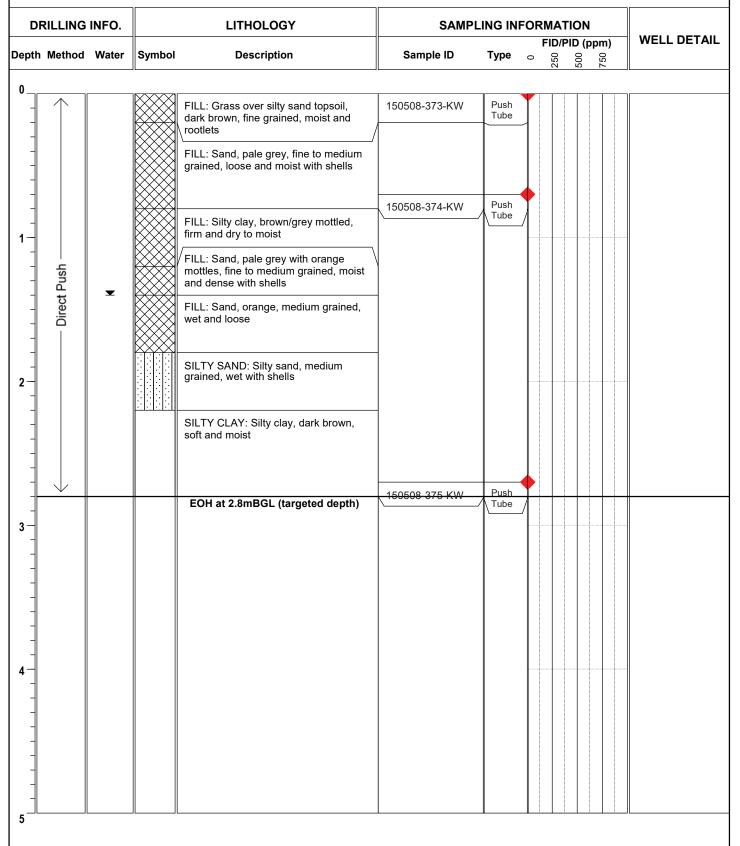
CONSULTING EARTH SCIENTISTS

Client: Boyd Cooks Cove Elevation: 1.53

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove - Area A

Environmental Log: ABH288



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting:

329888.068

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

Northing: 6243145.122

Project: **ESA** 

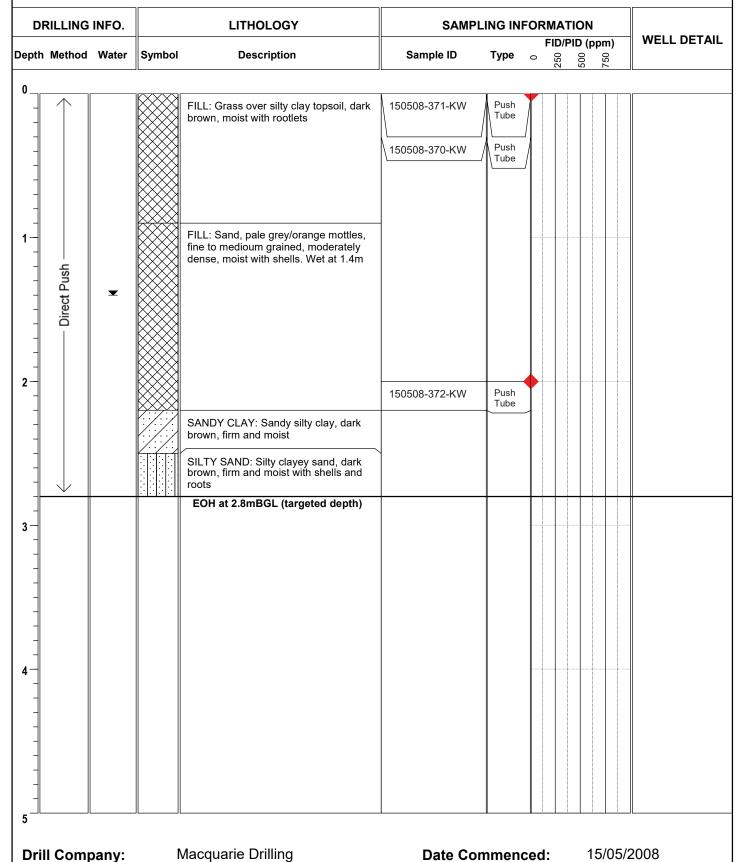


CONSULTING SCIENTIS TS

**Boyd Cooks Cove** Elevation: 1.88 Client:

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH289** 



**Date Completed:** 

Logged/checked by:

15/05/2008

K.Weir/L.Jenkins

**ESA** 

**Project:** 

Client:

Easting: 329924.715

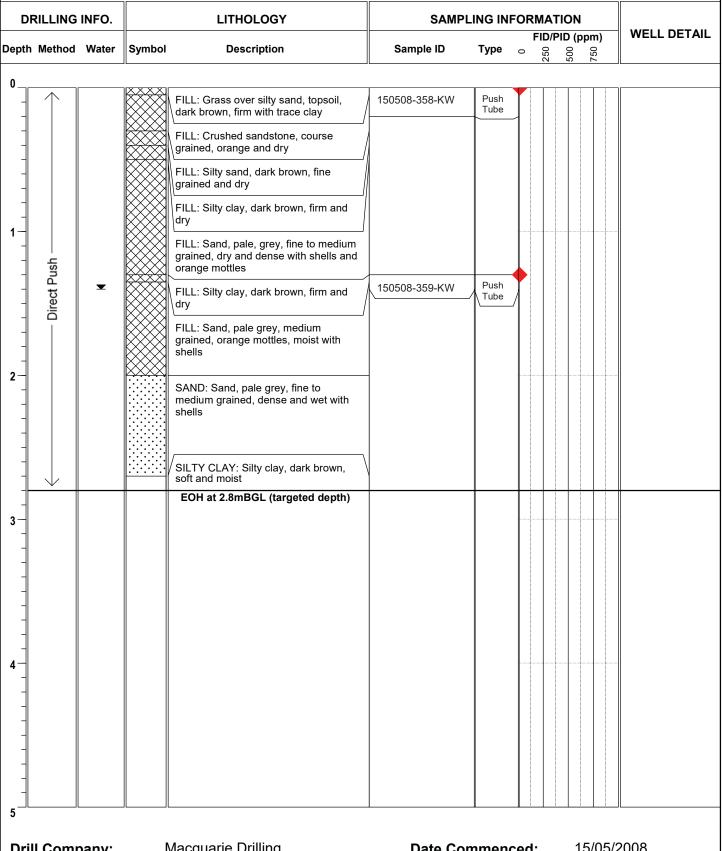
Northing: 6243131.849

**Boyd Cooks Cove** Elevation: 1.87



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**ABH290** Location: Cooks Cove - Area A **Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329972.055

**Project: ESA** 

Northing: 6243136.666

Client:

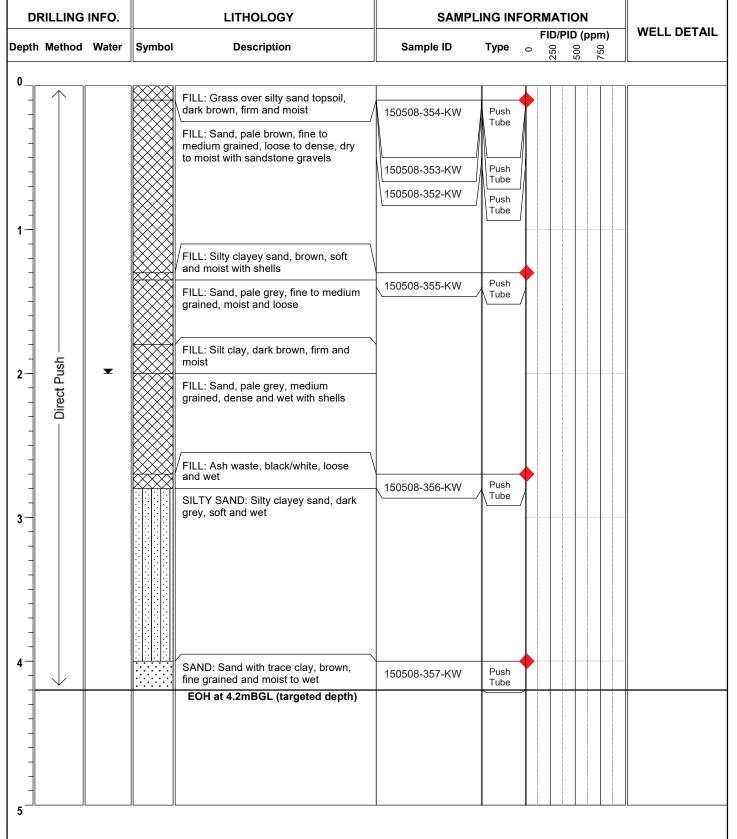
**Boyd Cooks Cove** Elevation: 2.52



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH291 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

Mac200

**Date Completed:** 

**Date Commenced:** 

15/05/2008

**Drill Model:** 

15/05/2008

Hole Diameter (mm): 50

Logged/checked by:

K.Weir/L.Jenkins

Easting: 329795.443

**Project: ESA** 

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

Northing: 6243093.234



CONSULTING SCIENTIS TS

**Date Completed:** 

Logged/checked by:

13/05/2008

K.Weir/L.Jenkins

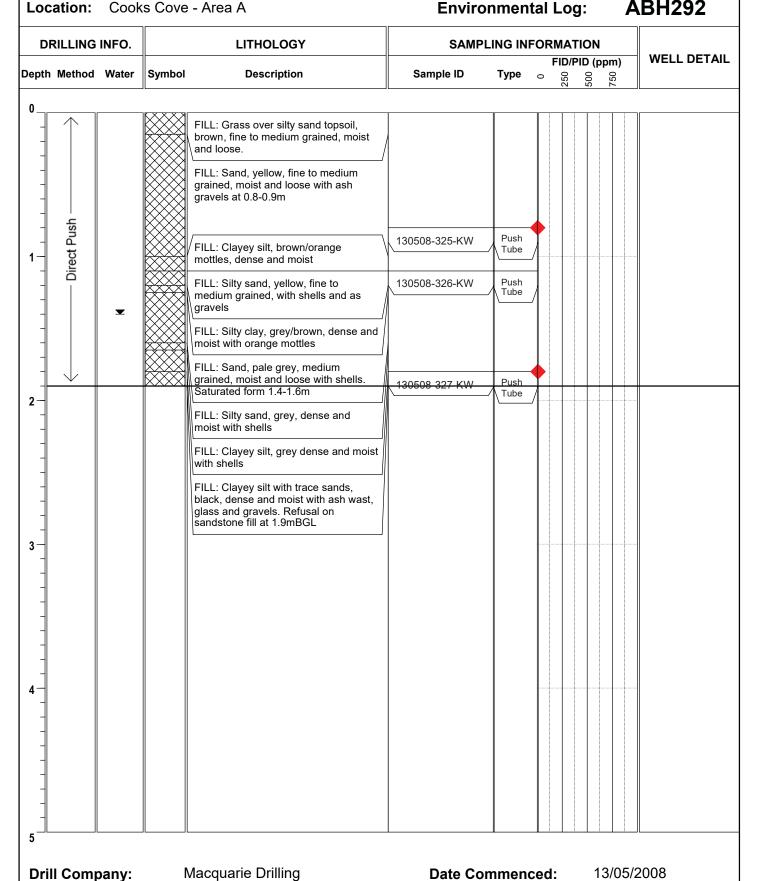
Sheet: 1 of 1

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cooks Cove** Client:

Elevation: 1.88

**ABH292 Environmental Log:** 



Easting: 329831.892

**Project: ESA**  Northing: 6243084.592

**Boyd Cooks Cove** Client:

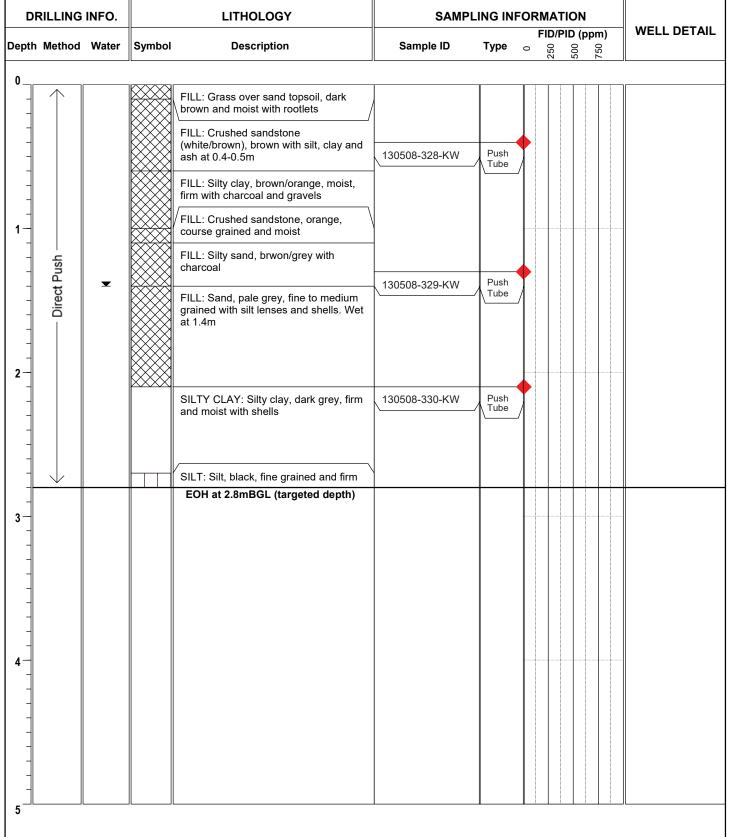
Elevation: 1.91



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH293 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Boyd Cooks Cove** 

Easting: 329858.669

**Project: ESA** 

Client:

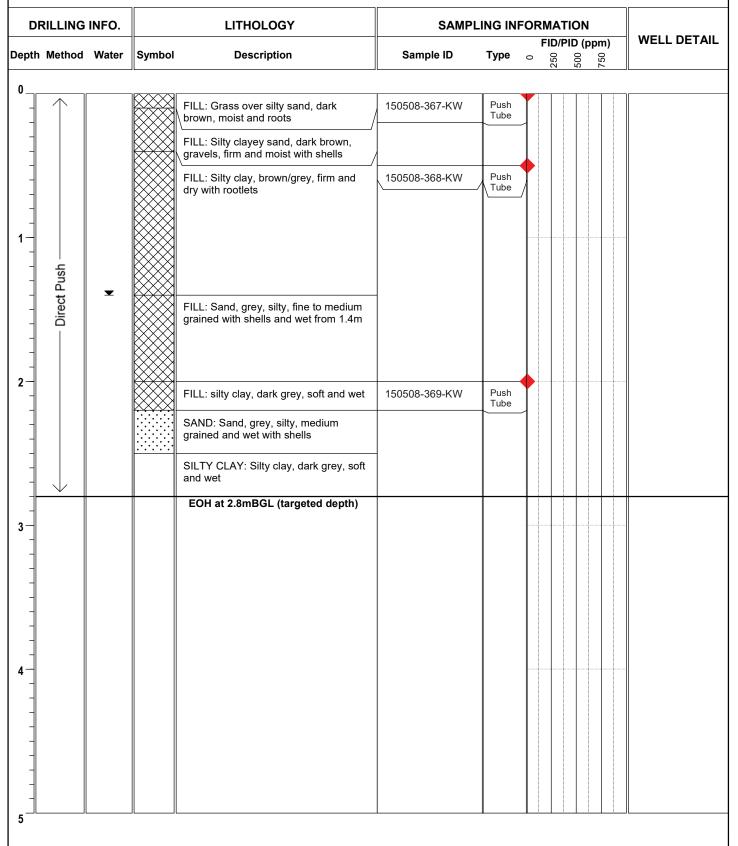
Northing: 6243120.087

Elevation: 1.70



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH294** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project: **ESA**  Easting: 329741.167

Elevation: 2.02

Northing: 6243137.961

**Boyd Cooks Cove** Client:

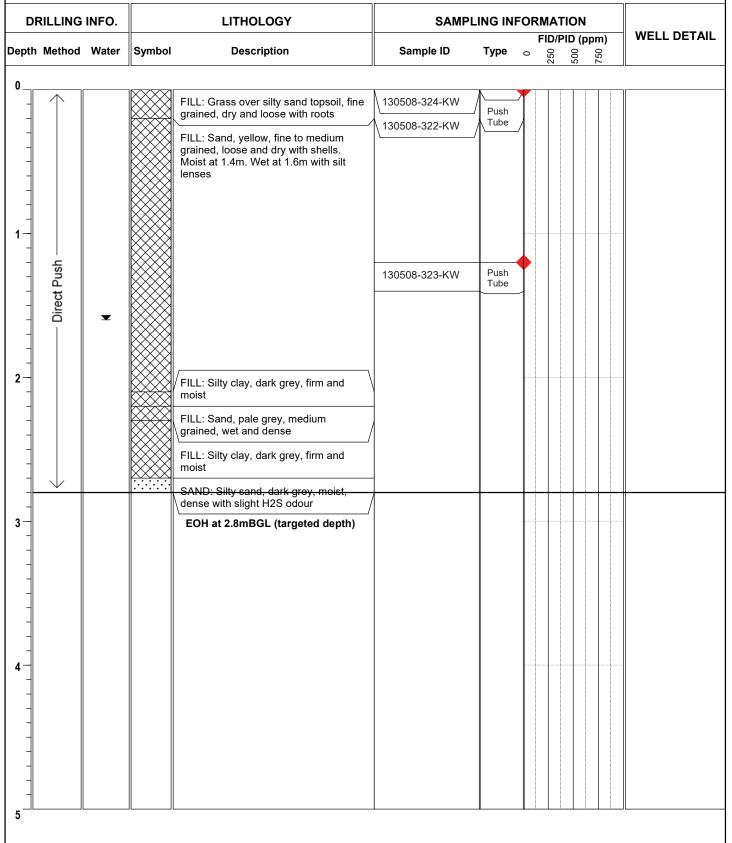
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

SCIENTIS TS

Location: Cooks Cove - Area A

**ABH295 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 13/05/2008

**Date Completed:** 13/05/2008

Logged/checked by: K.Weir/L.Jenkins

Project: ESA

Location:

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

**Easting:** 329442.022

A.I

Northing: 6243279.278

Client: Boyd Cooks Cove

Cooks Cove - Area A

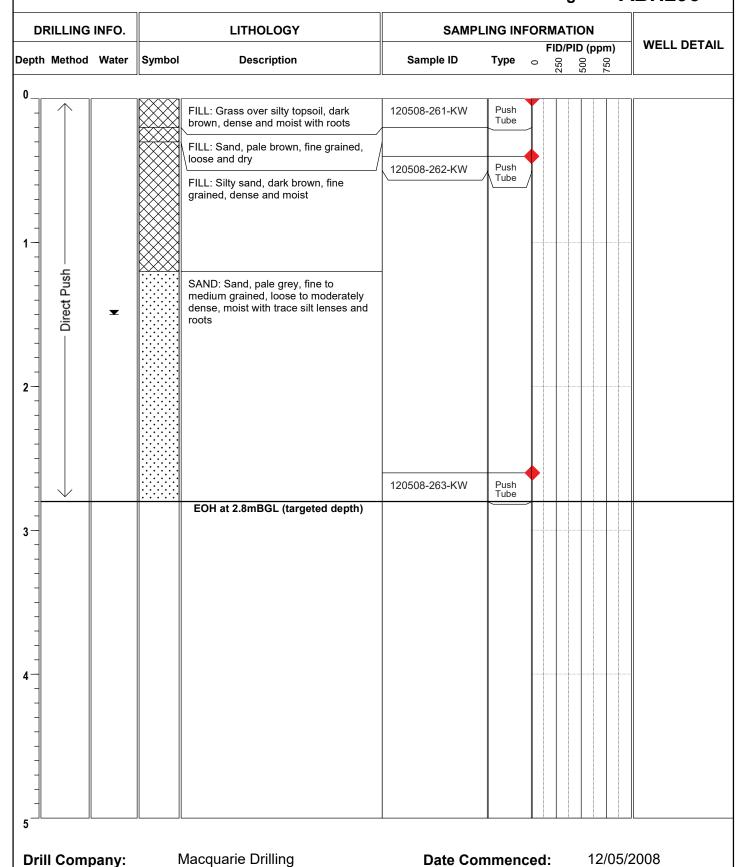
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

SCIENTIS TS

Client: Boyd Cooks Cove Elevation: 1.42

Environmental Log: ABH296



**Date Completed:** 

Logged/checked by:

12/05/2008

K.Weir/L.Jenkins

**Easting:** 329954.741

Project: ESA

Northing: 6243567.285

85

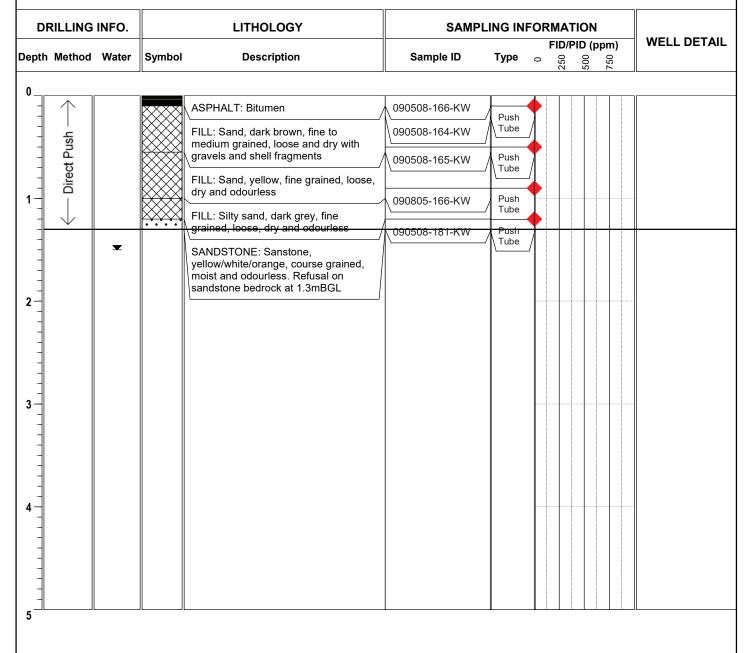
CONSULTING EARTH SCIENTISTS

Client: Boyd Cooks Cove Elevation: 1.82

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove - Area A

Environmental Log: ABH297



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 09/05/2008

**Date Completed:** 09/05/2008

Logged/checked by: K.Weir/L.Jenkins

**Easting:** 329957.270

Project: ESA

**Northing:** 6243565.596

Client: Boyd Cooks Cove

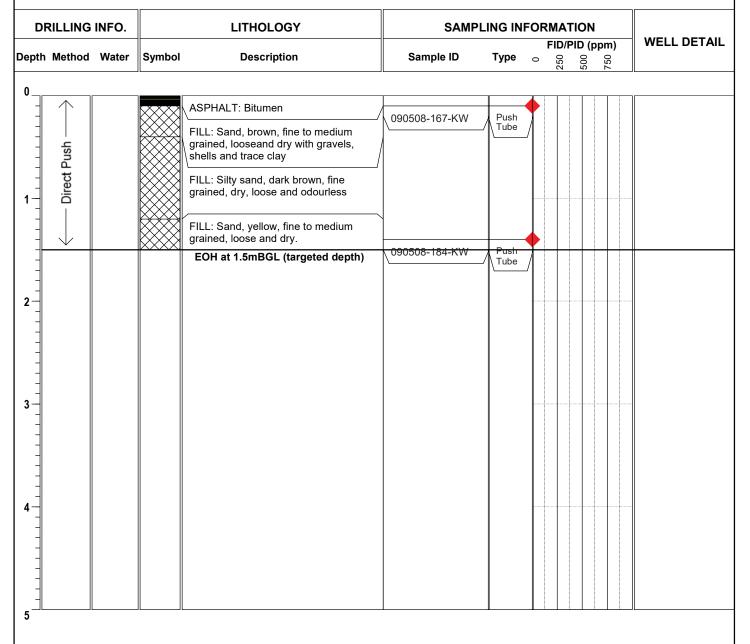
Elevation: 1.97

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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

Environmental Log: ABH298



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 09/05/2008

**Date Completed:** 09/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329956.887

Project: **ESA**  Northing: 6243568.981

**Boyd Cooks Cove** Client:

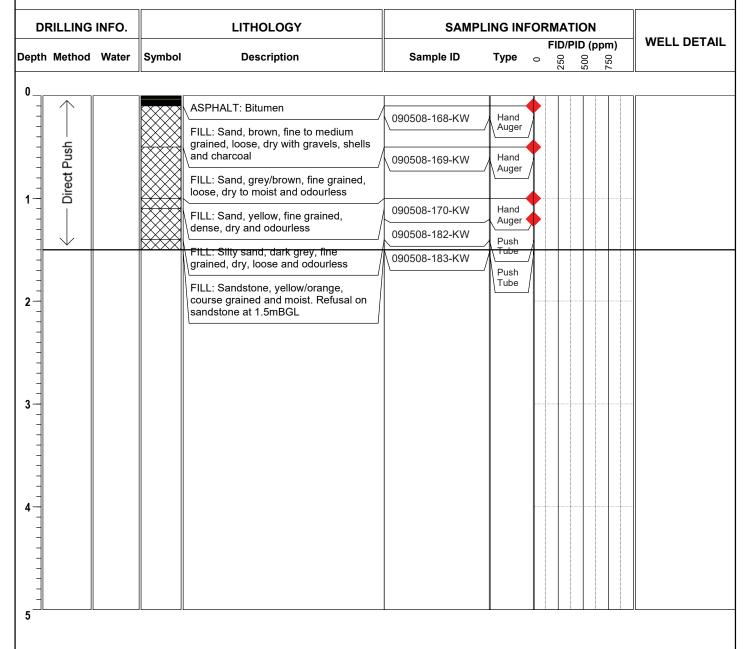
Elevation: 1.86



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH299 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 09/05/2008

**Date Completed:** 09/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329957.565

Elevation: 2.16

Project:

Client:

**Drill Model:** 

Hole Diameter (mm): 75

Mac200

Northing: 6243566.232

**ESA** 

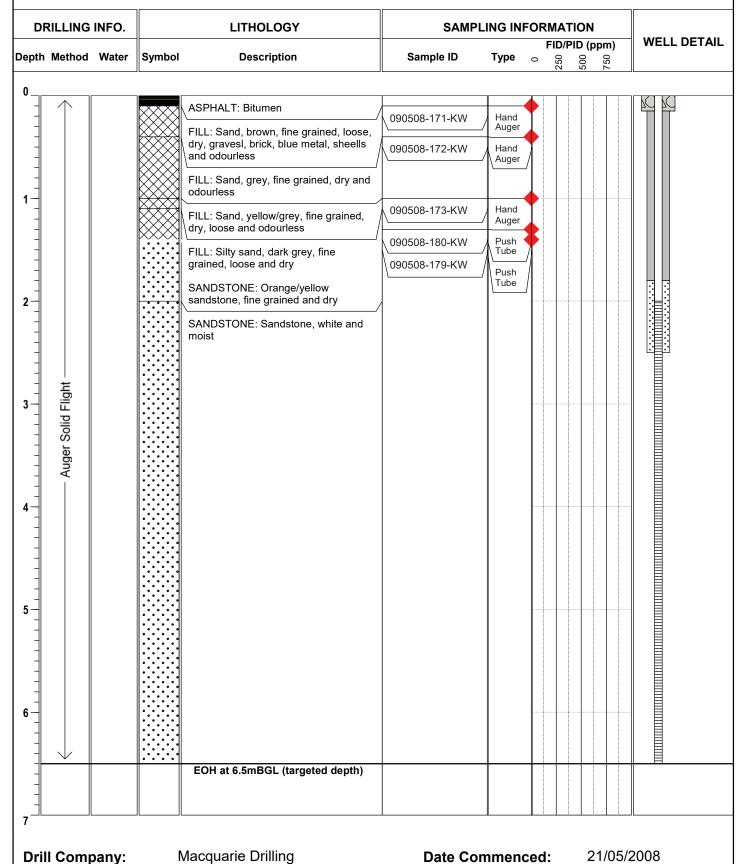


Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**Boyd Cooks Cove** 

**Environmental Log: ABH2100** 



**Date Completed:** 

Logged/checked by:

21/05/2008

Jenkins/Weir

**Easting:** 329960.173

Project: ESA

Northing: 6243565.265

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

Client:

Elevation: 2.16

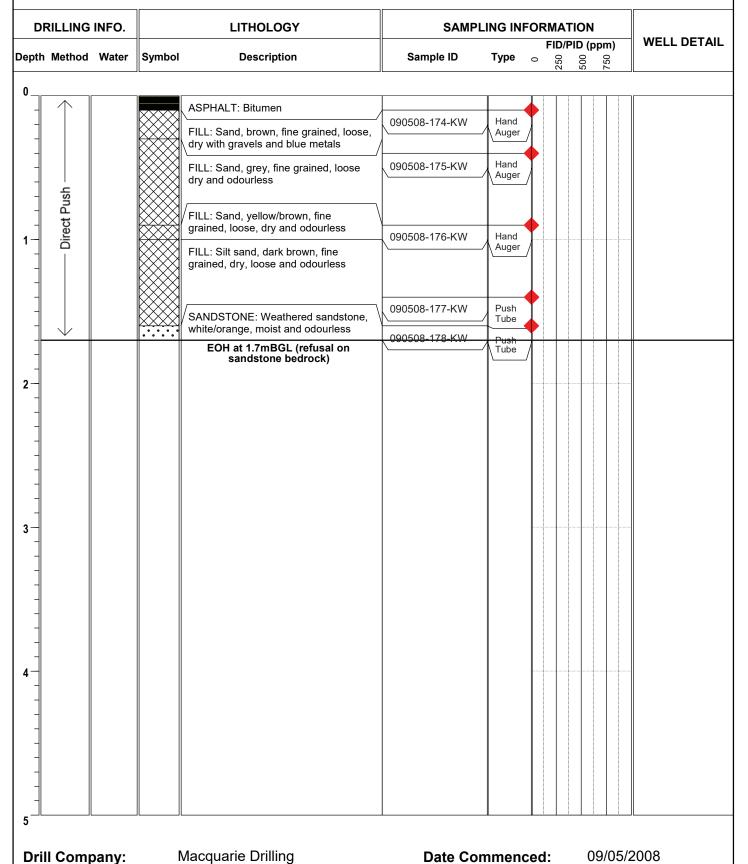


Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove - Area A

**Boyd Cooks Cove** 

Environmental Log: ABH2101



**Date Completed:** 

Logged/checked by:

09/05/2008

K.Weir/L.Jenkins

**ESA** 

**Project:** 

Easting: 329960.984

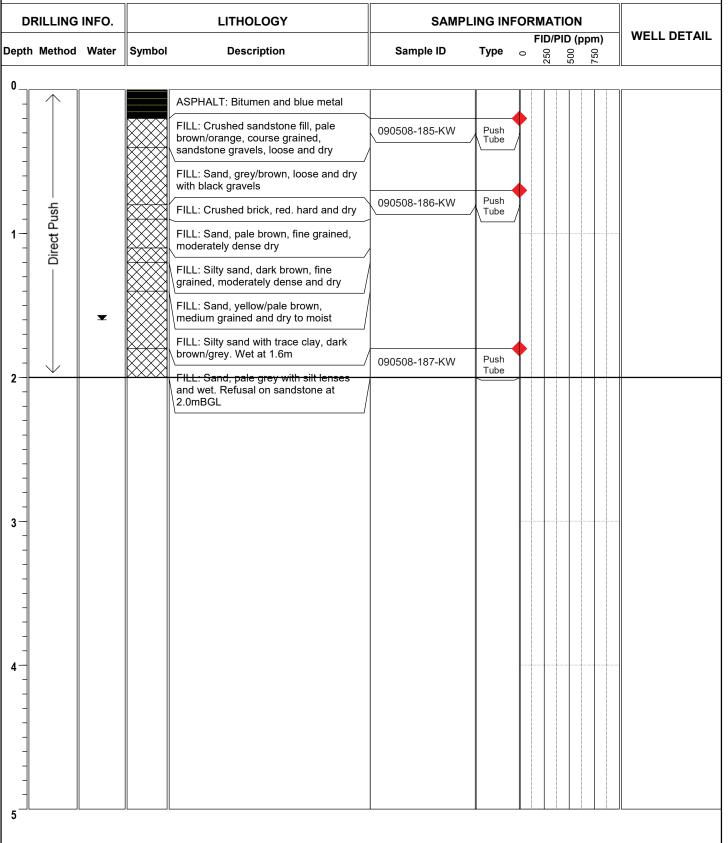
Northing: 6243570.536

**Boyd Cooks Cove** Elevation: 2.16 Client:



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**ABH2102** Location: Cooks Cove - Area A **Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 09/05/2008

**Date Completed:** 09/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329920.146

Project: **ESA** 

Client:

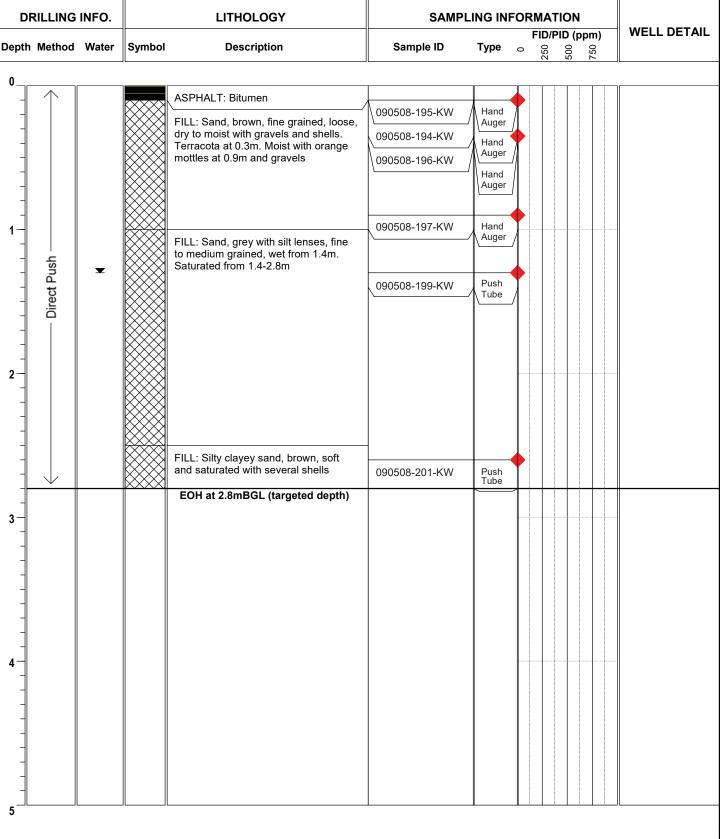
Northing: 6243581.574

**Boyd Cooks Cove Elevation:** 



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**ABH2103** Location: Cooks Cove - Area A **Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 09/05/2008

**Date Completed:** 09/05/2008

Logged/checked by: K.Weir/L.Jenkins

706-BCC Easting:

Project: ESA

Client:

329920.146

**Northing:** 6243581.574

Elevation: 1.89

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

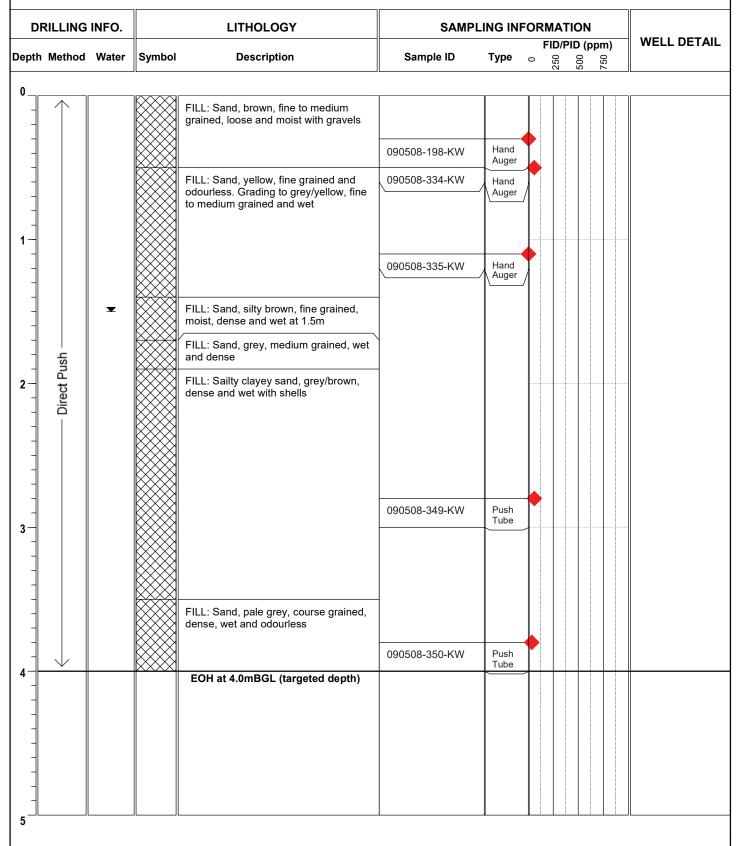
CONSULTING

SCIENTIS TS

**Location:** Cooks Cove - Area A

**Boyd Cooks Cove** 

Environmental Log: ABH2104



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 09/05/2008

**Date Completed:** 09/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329916.377

Project: **ESA**  Northing: 6243589.938

**Boyd Cooks Cove** Client:

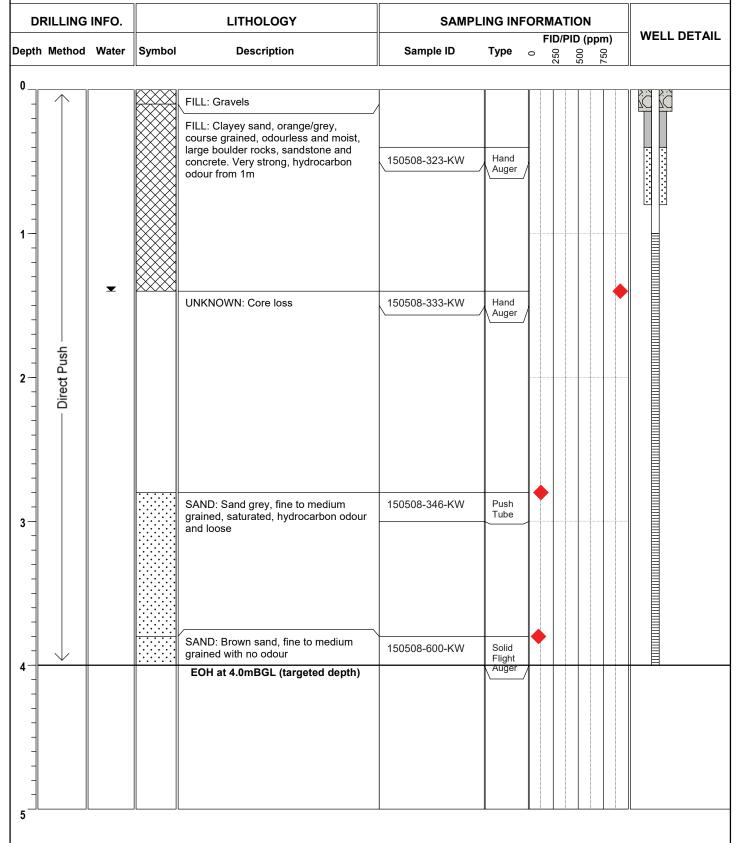
Elevation: 1.98



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH2105 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** 

Mac200

Hole Diameter (mm): 75

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: Jenkins/Weir

**ESA** 

Project:

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

Easting: 329905.057

Elevation: 2.25

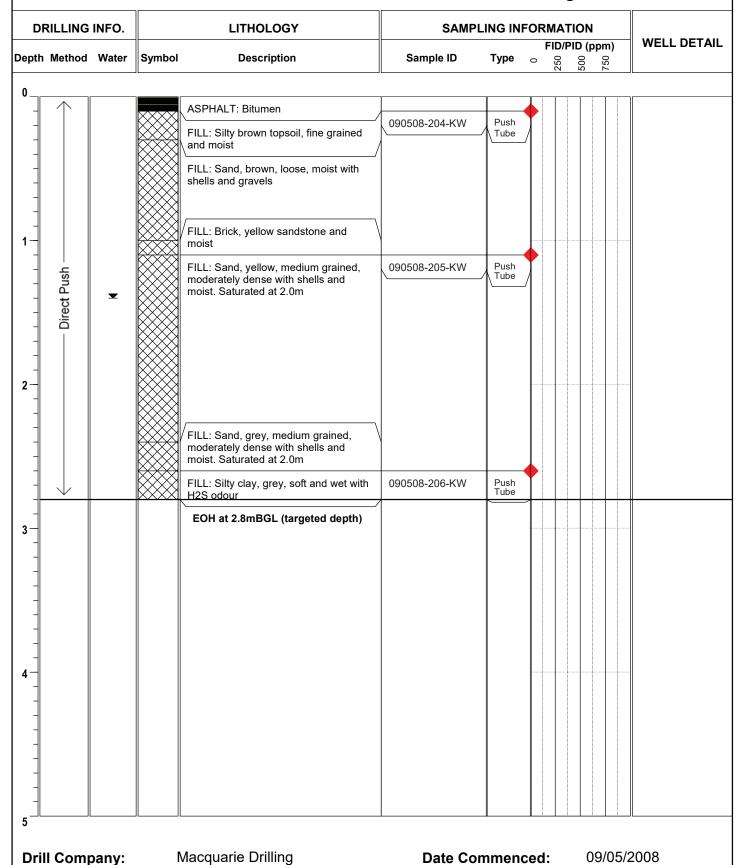
**Boyd Cooks Cove** Client:

Northing: 6243586.237

CONSULTING SCIENTIS TS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ABH2106** 



**Date Completed:** 

Logged/checked by:

09/05/2008

K.Weir/L.Jenkins

Project: **ESA**  Easting: 329919.941

Northing: 6243590.875

**Elevation:** 

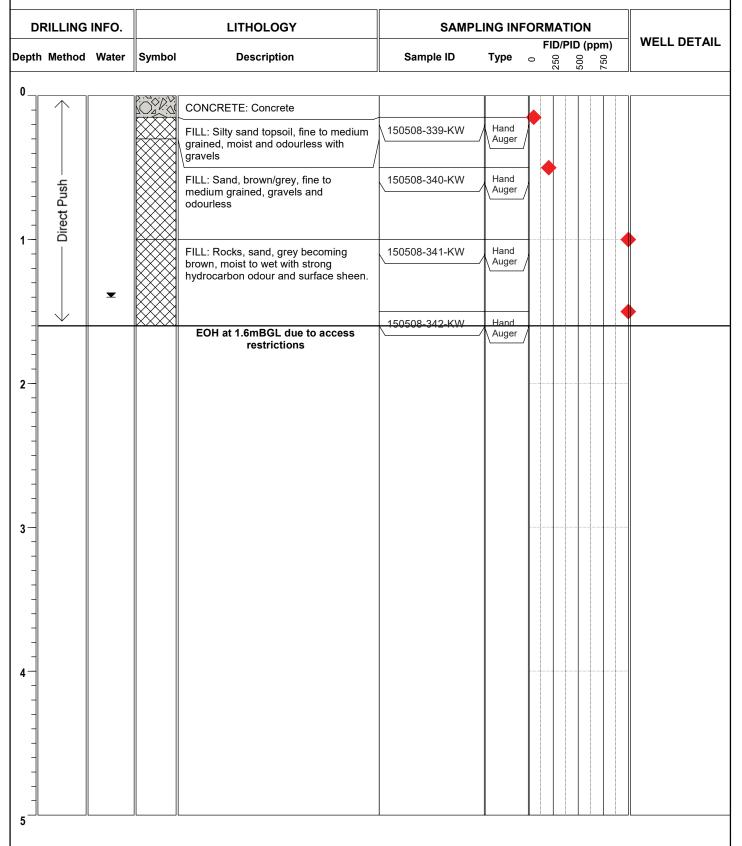
**Boyd Cooks Cove** Client:



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH2107 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 50

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

.....

**Easting:** 329921.010

Project: ESA

Northing: 6243586.932

Client:

Boyd Cooks Cove

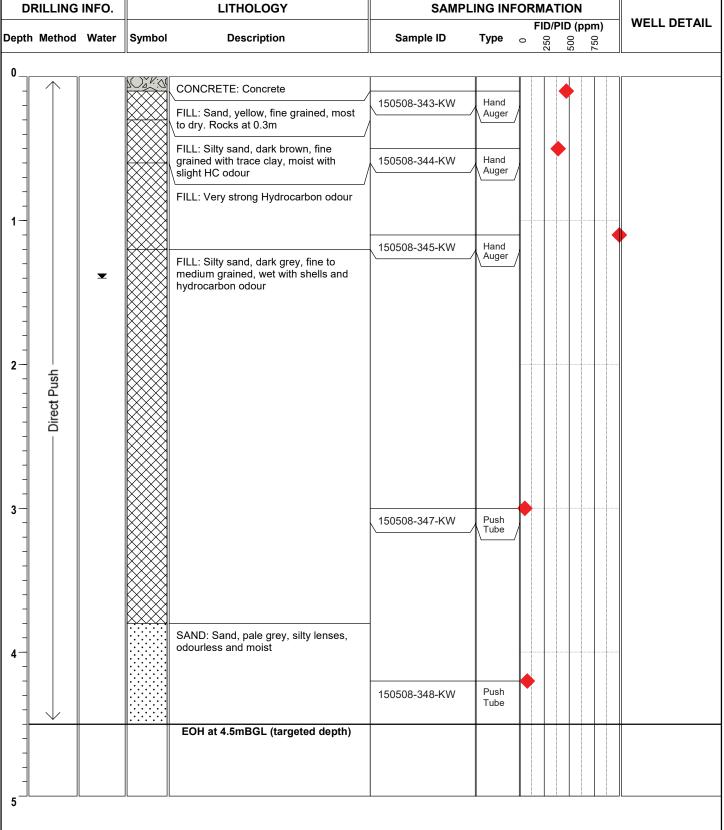
**Elevation:** 



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove - Area A

Environmental Log: ABH2108



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 50

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: K.Weir/L.Jenkins

Easting: 329905.057

Northing: 6243586.237

Project: **ESA** 

**Drill Model:** 

Hole Diameter (mm): 50

Mac200

**Boyd Cooks Cove** Client:

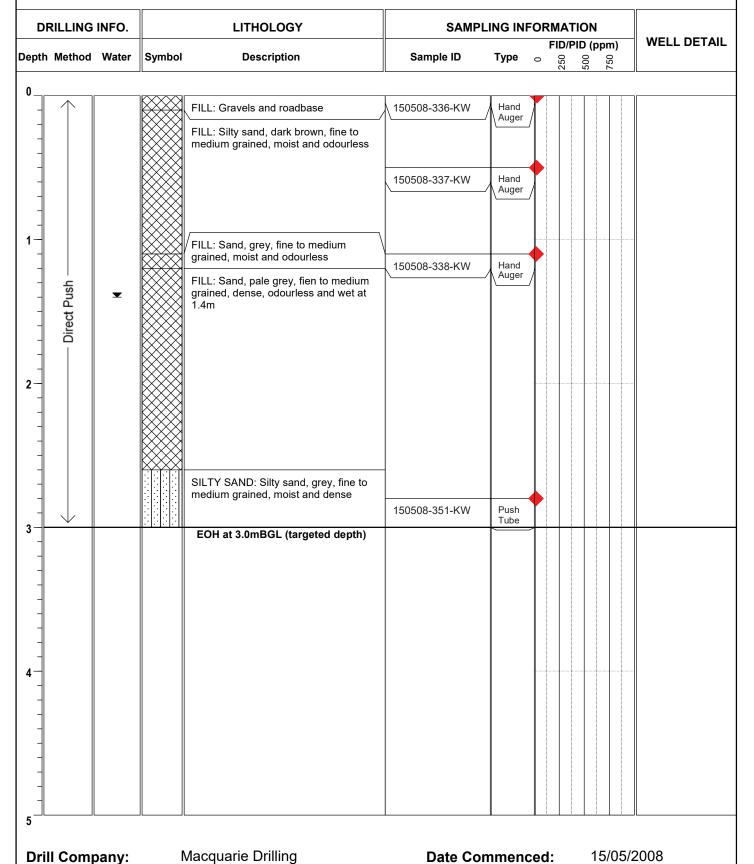
Elevation: 2.25



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**ABH2109 Environmental Log:** 



**Date Completed:** 

Logged/checked by:

15/05/2008

K.Weir/L.Jenkins

Easting: 329956.998

Project: **ESA**  Northing: 6243565.240

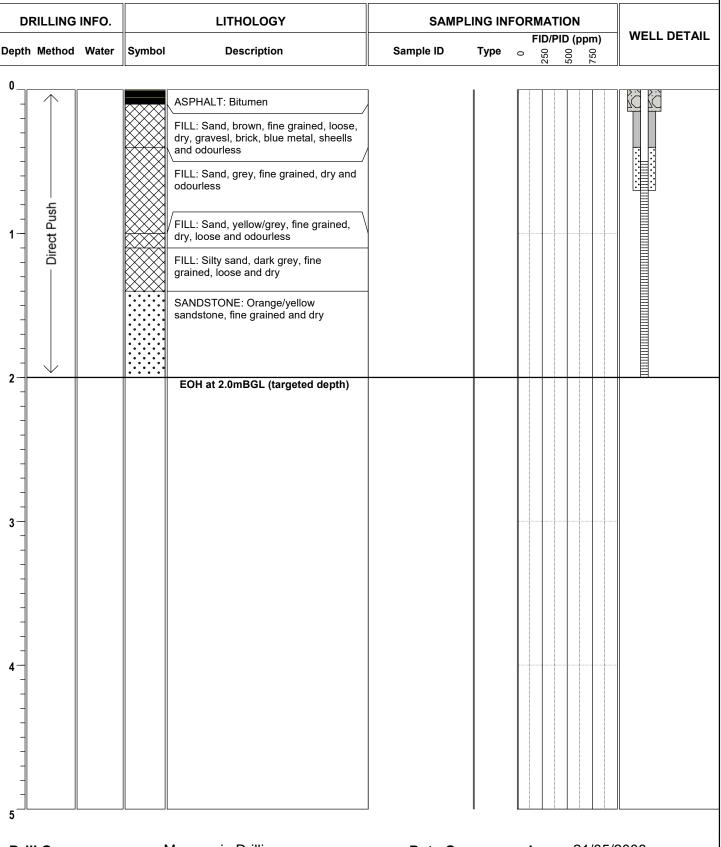
SCIENTISTS Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

**Boyd Cooks Cove** Client:

Elevation: 1.9

**ABH2110** Location: Cooks Cove - Area A **Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 75

**Date Commenced:** 21/05/2008

**Date Completed:** 21/05/2008

Logged/checked by: Jenkins/Weir

**ESA** 

Project:

Easting: 329464.951

Northing: 6243255.406

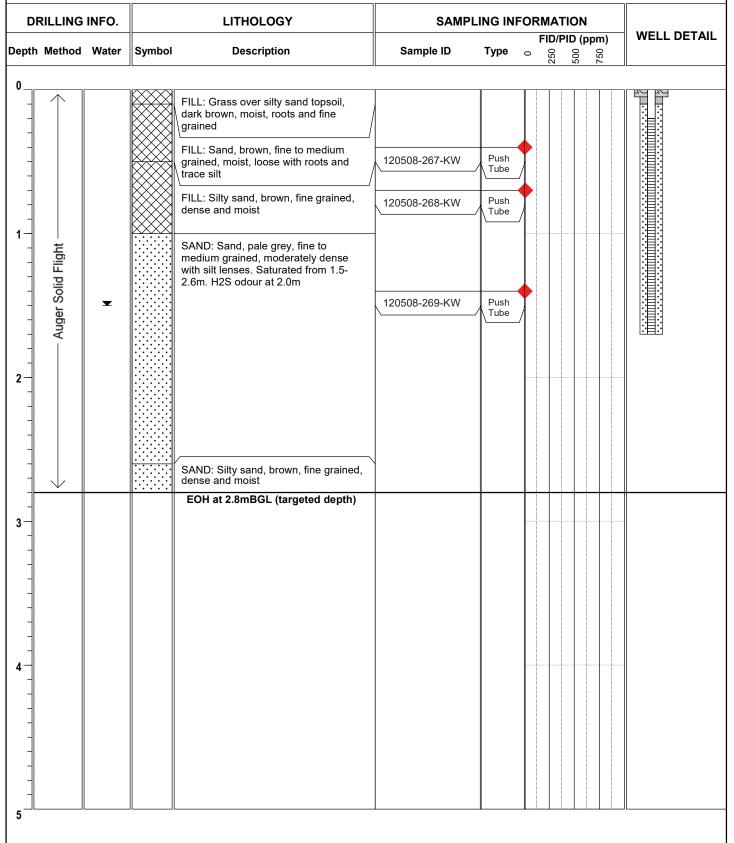
**Boyd Cooks Cove** Client:



CONSULTING

Elevation: 1.09

Location: Cooks Cove - Area A **Environmental Log: ALG201** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 75

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: Jenkins/Weir

**ESA** 

Project:

ES050706-BCC East

**Easting:** 329556.712

EARTH SCIENTISTS

**Northing:** 6243218.788

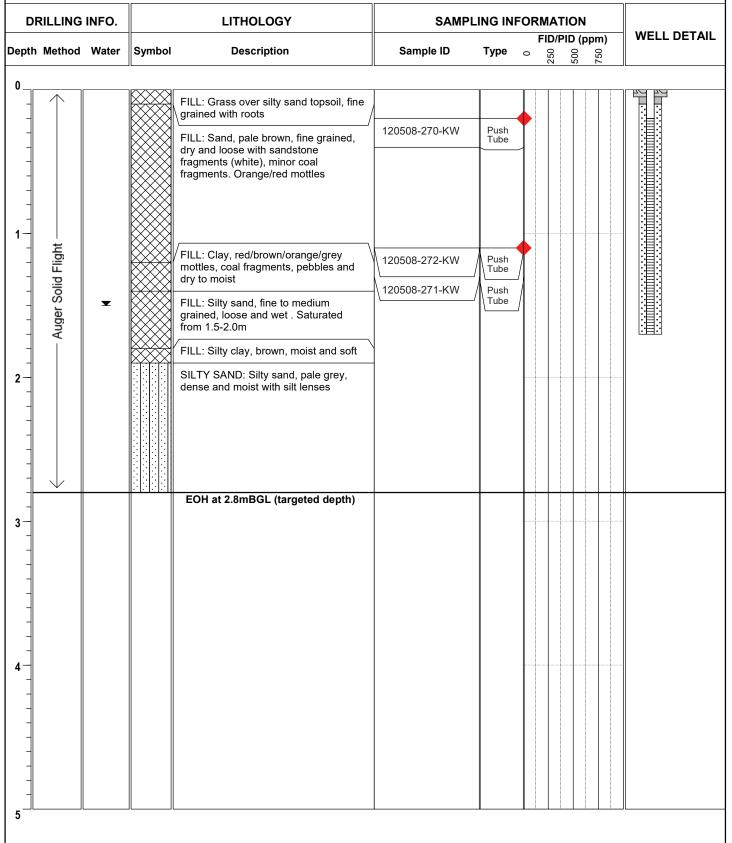
Client: Boyd Cooks Cove

Elevation: 1.68

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove - Area A

Environmental Log: ALG202



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 75

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: Jenkins/Weir

Easting: 329702.791

Project: **ESA** 

Client:

Northing: 6243184.299





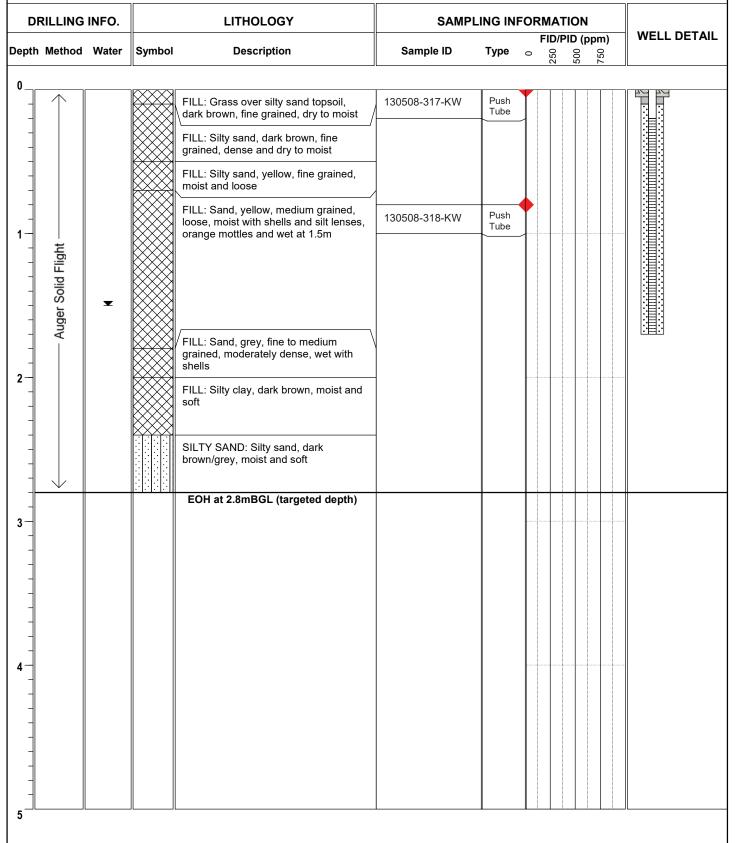
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

Location: Cooks Cove - Area A

**Boyd Cooks Cove** 

**Environmental Log: ALG203** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 75

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: Jenkins/Weir

Easting:

329801.119

Project: ESA

Northing: 6243134.358

<sub>58</sub> 📑

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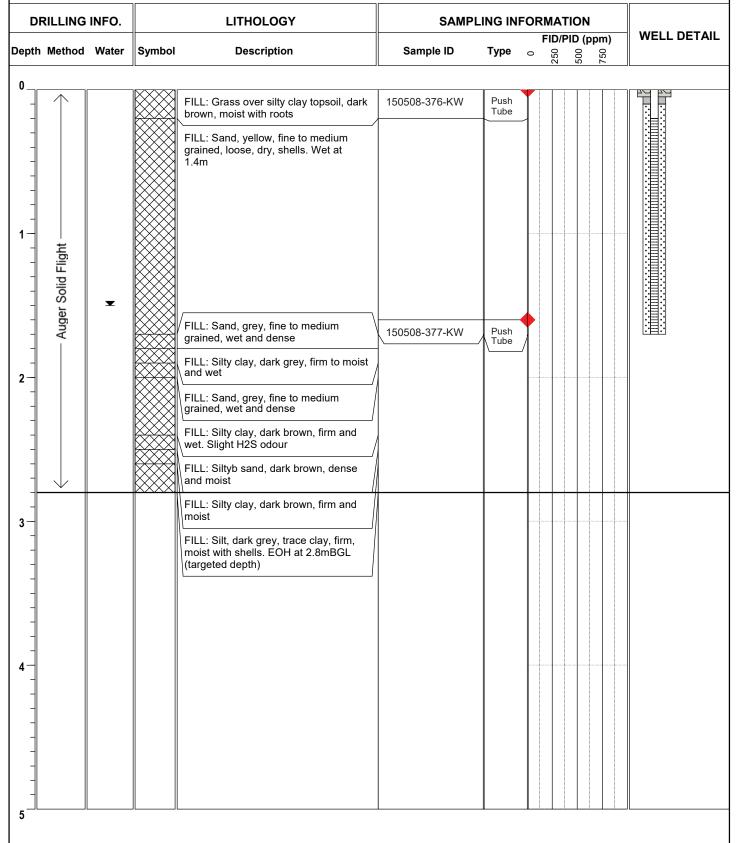
Client: Boyd Cooks Cove

Elevation: 1.54

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove - Area A

Environmental Log: ALG204



**Drill Company:** Macquarie Drilling

Drill Model: Mac200

Hole Diameter (mm): 75

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: Jenkins/Weir

Easting: 329892.571

**Project: ESA** 

Client:

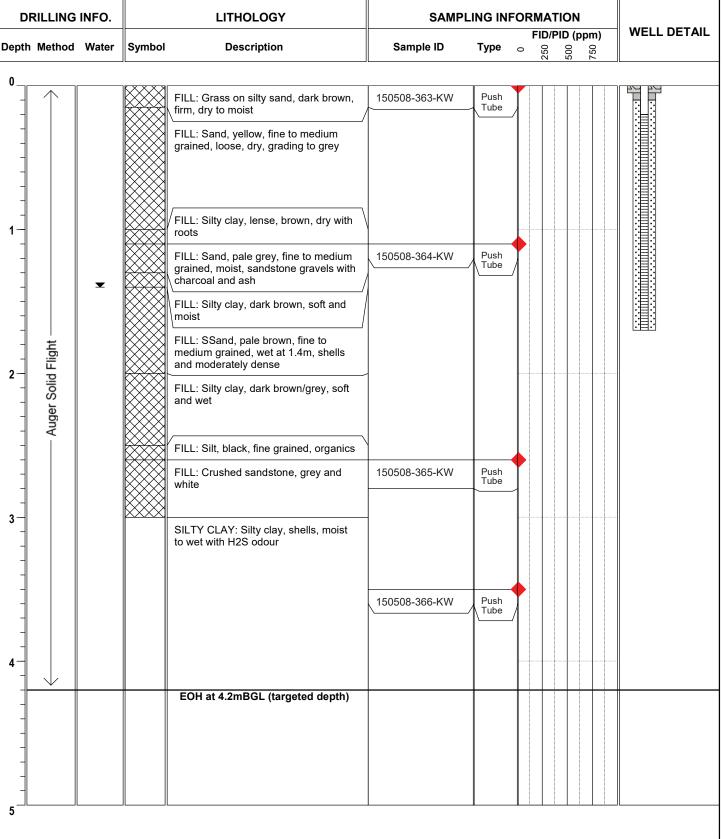
Northing: 6243104.247

**Boyd Cooks Cove** Elevation: 2.49



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: ALG205** 



**Drill Company:** Macquarie Drilling

**Drill Model:** Mac200

Hole Diameter (mm): 75

**Date Commenced:** 15/05/2008

**Date Completed:** 15/05/2008

Logged/checked by: Jenkins/Weir

Easting:

329967.076

Project: ESA

Northing: 6243101.231

31

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.

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Client: Location:

**Drill Model:** 

Hole Diameter (mm): 75

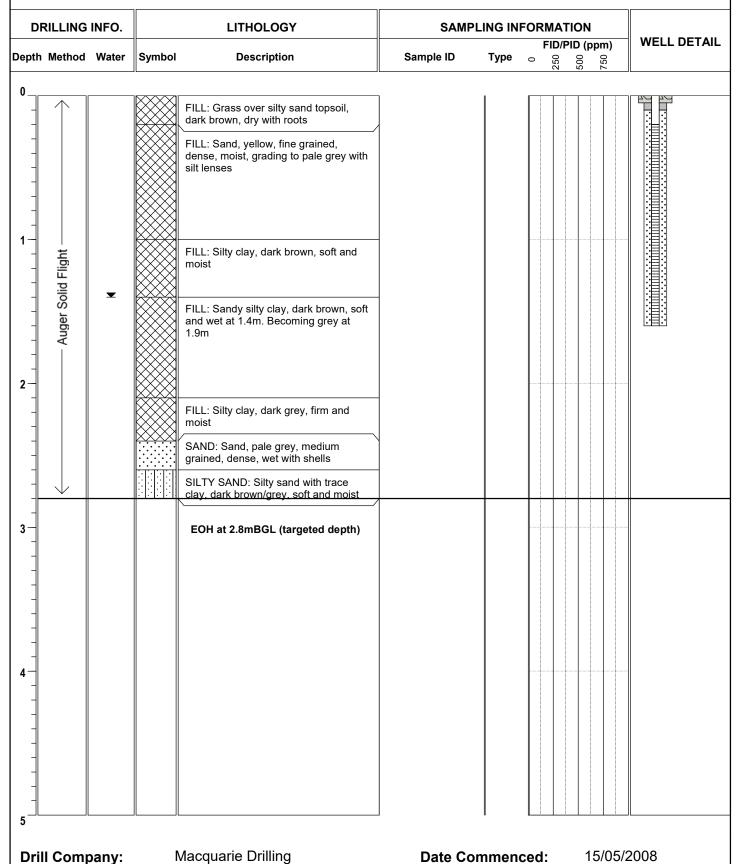
Mac200

Boyd Cooks Cove

Cooks Cove - Area A

Elevation: 1.75

Environmental Log: ALG206



**Date Completed:** 

Logged/checked by:

15/05/2008

Jenkins/Weir

**ESA** 

Project:

Easting: 329456.755

Northing: 6243292.819

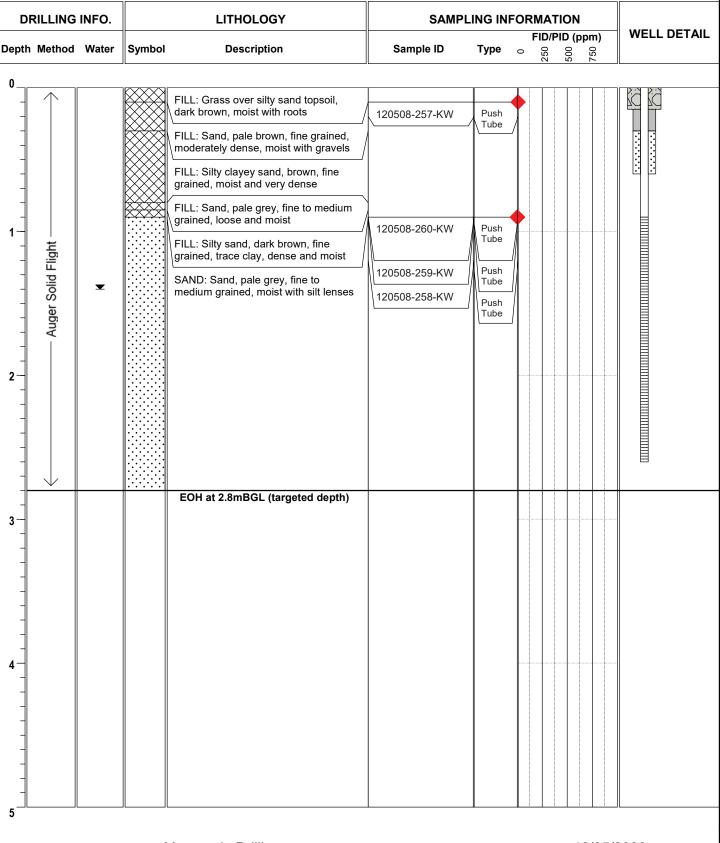
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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cooks Cove** Client:

Elevation: 1.15

**AMW201** Location: Cooks Cove - Area A **Environmental Log:** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 75

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: Jenkins/Weir

**ESA** 

Project:

**Drill Model:** 

Hole Diameter (mm): 75

Mac200

Easting: 329693.146

Elevation: 1.37

**Boyd Cooks Cove** Client:

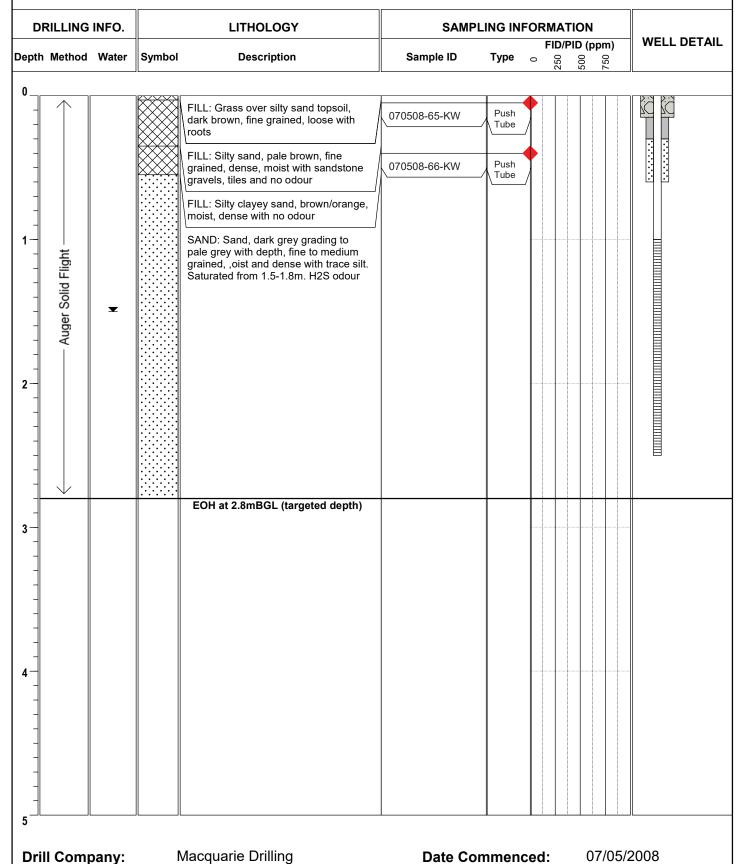
Northing: 6243513.796



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**AMW202 Environmental Log:** 



**Date Completed:** 

Logged/checked by:

07/05/2008

Jenkins/Weir

**Boyd Cooks Cove** 

Easting: 329961.734

**Project: ESA**  Northing: 6243611.832

Client:

**Drill Model:** 

Hole Diameter (mm): 75

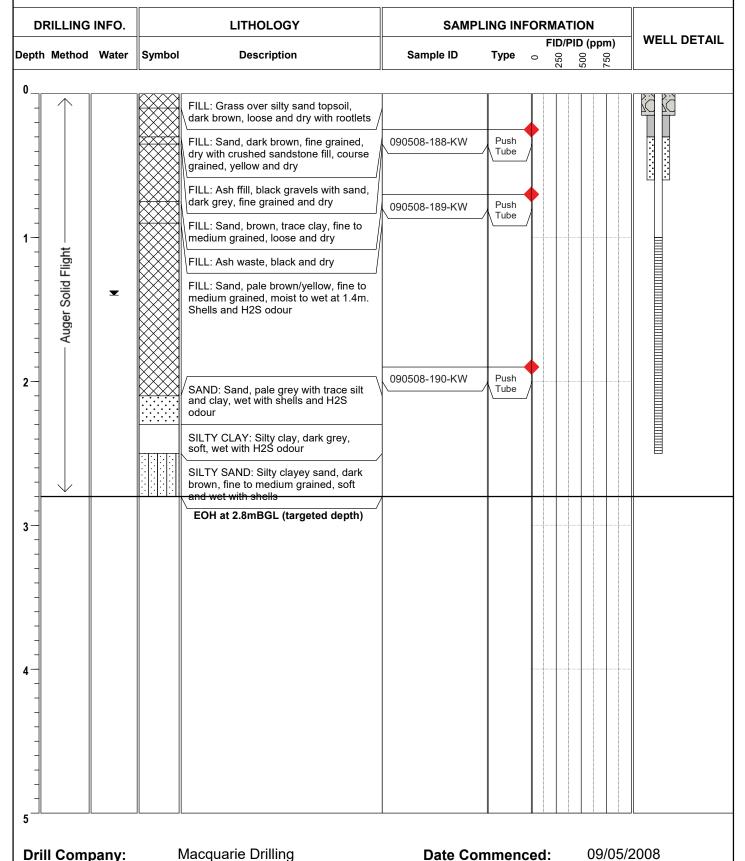
Mac200

Elevation: 1.97



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: AMW203** 



**Date Completed:** 

Logged/checked by:

09/05/2008

Jenkins/Weir

**Boyd Cooks Cove** 

Easting: 329812.026

**Project: ESA** 

Client:

**Drill Model:** 

Hole Diameter (mm): 75

Mac200

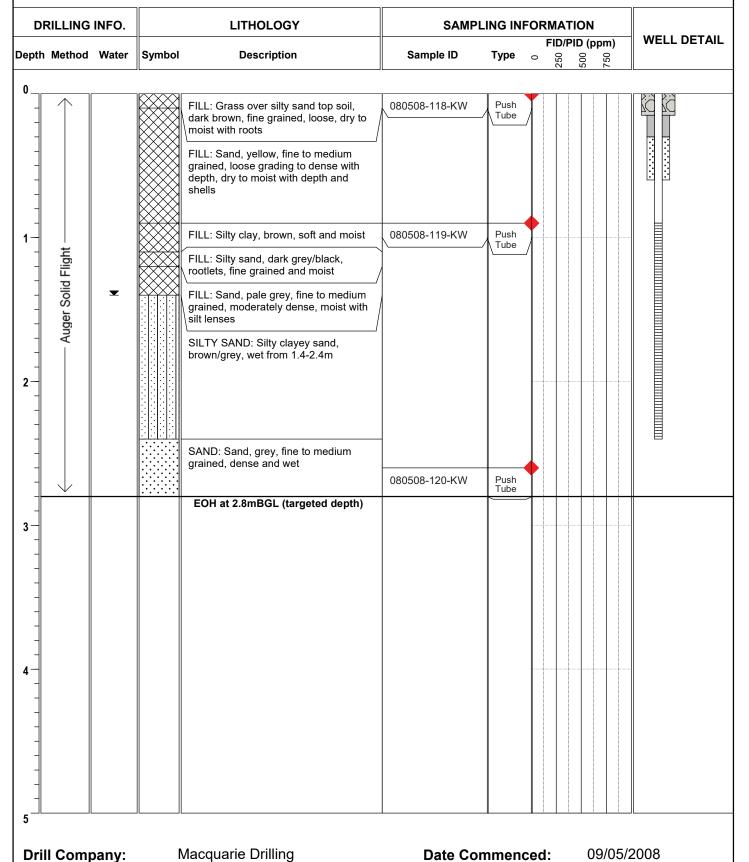
Northing: 6243339.925

Elevation: 1.21



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: AMW204** 



**Date Completed:** 

Logged/checked by:

09/05/2008

Jenkins/Weir

**ESA** 

**Project:** 

Location:

**Drill Model:** 

Hole Diameter (mm): 75

Mac200

Easting: 329962.633

Northing: 6243424.415

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Elevation: 0.78

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cooks Cove** Client:

Cooks Cove - Area A

**Date Completed:** 

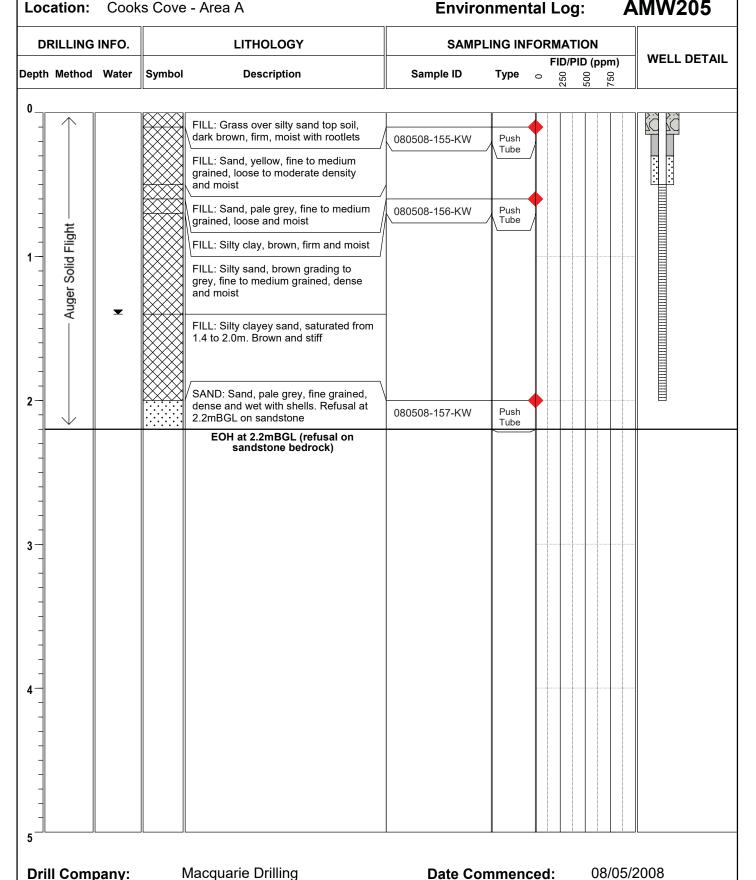
Logged/checked by:

08/05/2008

Jenkins/Weir

Sheet: 1 of 1

**AMW205** 



**Easting:** 329965.424

Elevation: 1.80

Project: ESA

Client:

**Drill Model:** 

Hole Diameter (mm): 75

Mac200

Northing: 6243103.057

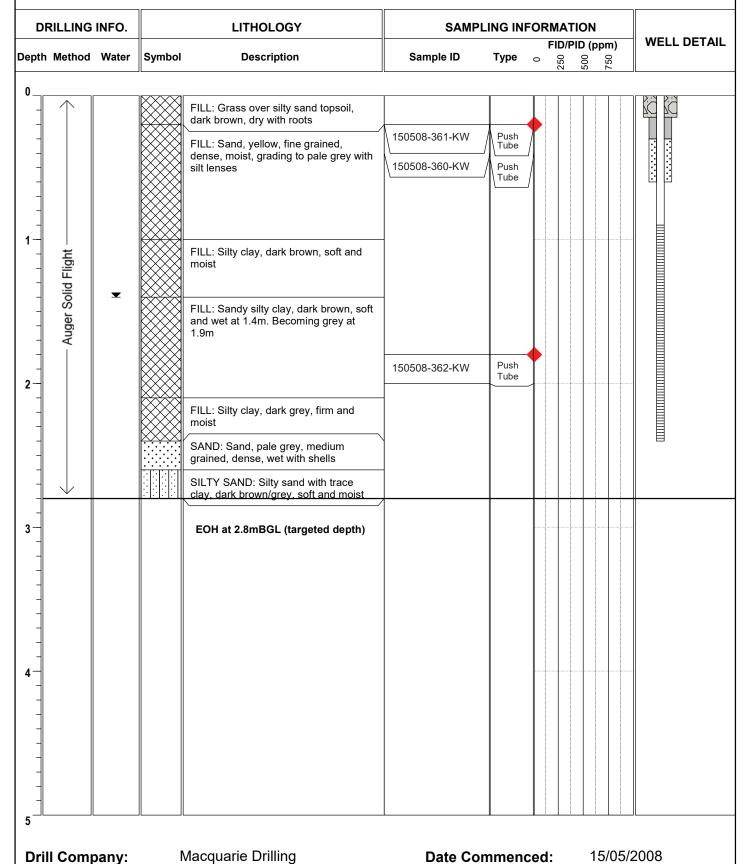


Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A

**Boyd Cooks Cove** 

Environmental Log: AMW206



**Date Completed:** 

Logged/checked by:

15/05/2008

Jenkins/Weir

**Boyd Cooks Cove** 

Easting: 330009.173

**Project: ESA** 

Client:

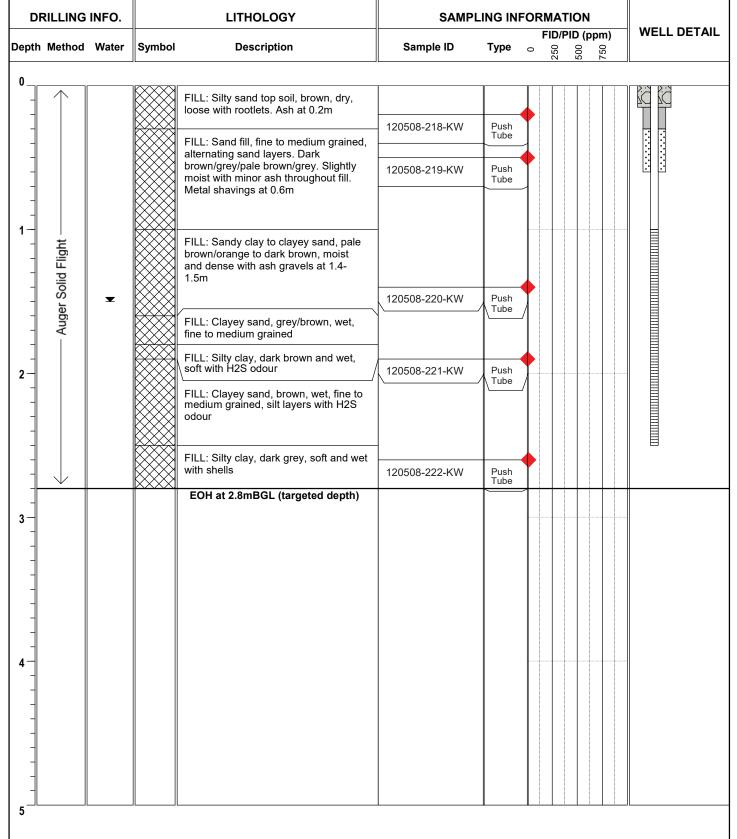
Northing: 6243281.985

Elevation: 1.71



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove - Area A **Environmental Log: AMW207** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** Mac200

Hole Diameter (mm): 75

**Date Commenced:** 12/05/2008

**Date Completed:** 12/05/2008

Logged/checked by: Jenkins/Weir

22000700 200

**Boyd Cook Cove** 

**Easting:** 6243578.389

**Elevation:** 

329982.604

Cooks Cove Northing:



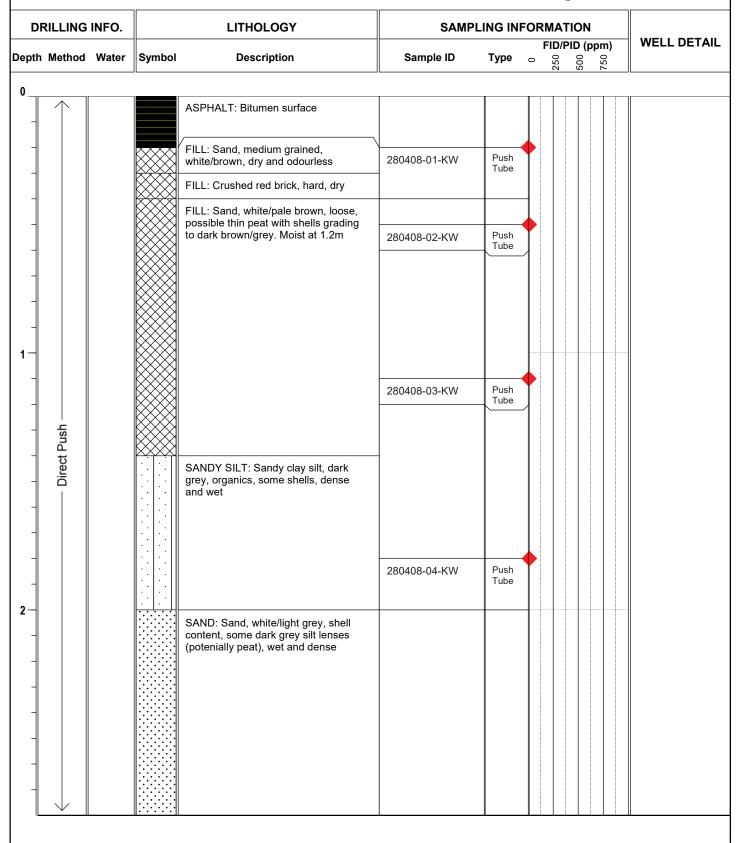
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

Project:

Client:

## Environmental Log: BBH401



**Drill Company:** Macquarie Drilling

Drill Model:

Hole Diameter (mm):

**Date Commenced:** 28/04/2008

**Date Completed:** 28/04/2008

Logged/checked by: Jenkins/Weir

DO-DCC Easti

**Easting:** 6243477.126



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Project: Cooks Cove

Location:

Northing: 330007.791

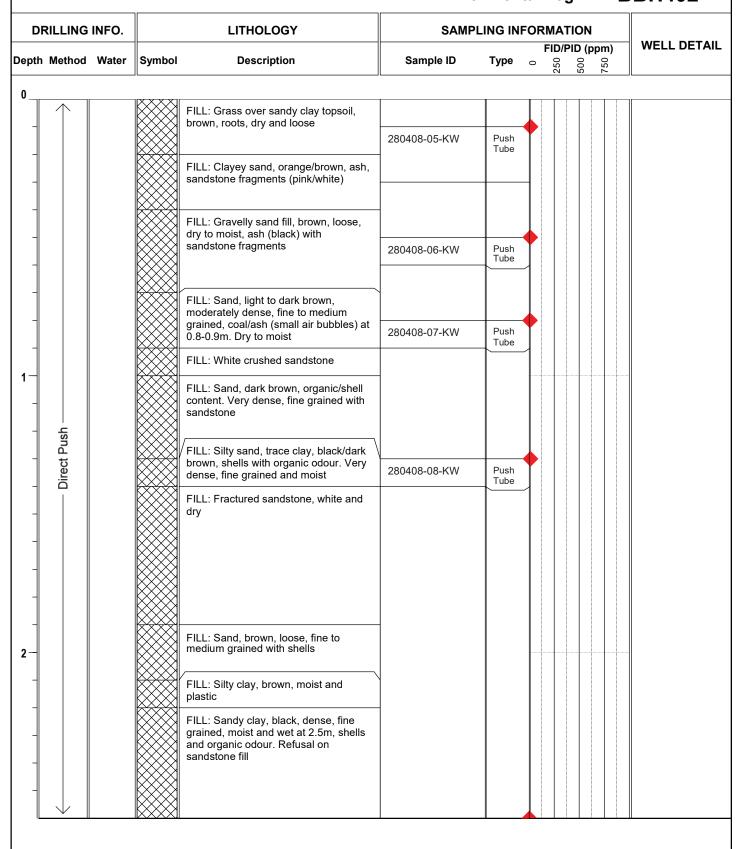
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Client: Boyd Cook Cove

Cooks Cove

Elevation:

Environmental Log: BBH402



**Drill Company:** Macquarie Drilling

.

Hole Diameter (mm):

**Drill Model:** 

**Date Commenced:** 28/04/2008

**Date Completed:** 28/04/2008

Logged/checked by: Jenkins/Weir

-3030700-BCC

**Easting:** 6243347.165

Cooks Cove

Northing: 330025.068

Client: Boyd Cook Cove

Project:

.....g. 000020.0

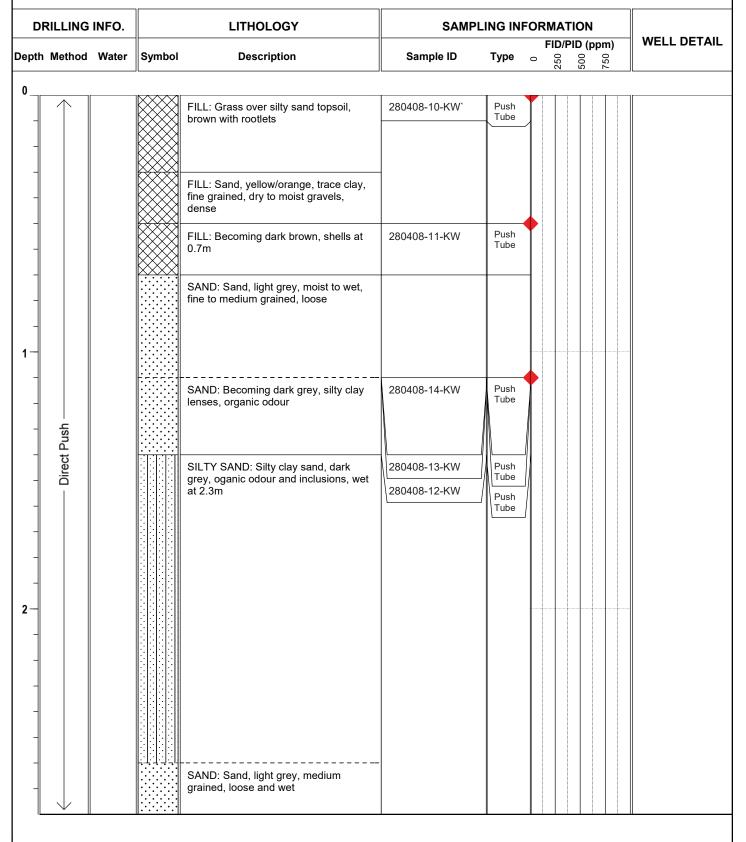
**Elevation:** 



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**Location:** Cooks Cove

Environmental Log: BBH403



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

**Date Commenced:** 28/04/2008

**Date Completed:** 28/04/2008

Logged/checked by: Jenkins/Weir

**Easting:** 

Project: Cooks Cove

Client:

Northing:

6243231.781

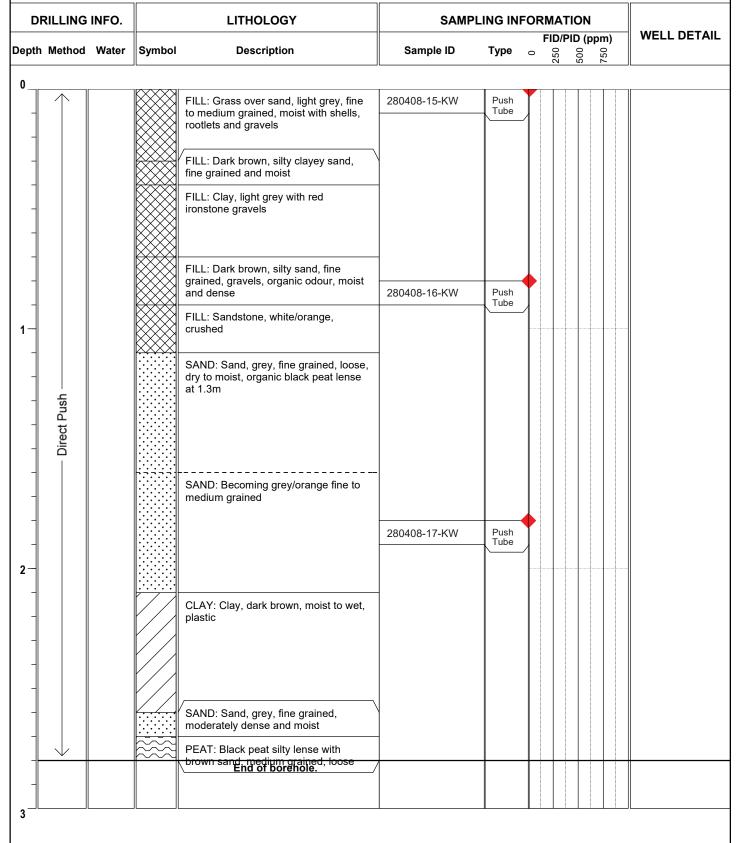
330048.383

**Boyd Cook Cove Elevation:** 



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove **Environmental Log: BBH404** 



Macquarie Drilling **Drill Company:** 

**Drill Model:** 

Hole Diameter (mm):

28/04/2008 **Date Commenced:** 

**Date Completed:** 28/04/2008

Logged/checked by: Jenkins/Weir

Cooks Cove

Cooks Cove

Easting: 6243245.671

**Northing:** 329381.599

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Client:

Project:

Location:

Boyd Cook Cove

Elevation:

Environmental Log: **BBH405** 

DRILLING INFO.		LITHOLOGY		SAMPLING INFORMATION					
epth	Method	Water	Symbol	Description	Sample ID	Туре	<b>FID</b> /I	PID (ppm)	WELL DETAIL
						- 71	250	500	
				FILL: Grass over fill comprising clayey sand, orange/brown, medium to coarse grained, dry to moist, gravels and rootlets	290408-48-KW	Hand Auger			
				FILL: Crushed sandstone fill, white/brown/orange, coarse grained, moist to dry, minor black bitumen gravels. Refusal on fill					
	Direct Push								
	Dire								
					290408-49-KW	Hand			
						Auger			

Macquarie Drilling **Drill Company:** 

**Drill Model:** 

Hole Diameter (mm):

28/04/2008 **Date Commenced:** 

**Date Completed:** 28/04/2008

Logged/checked by: Jenkins/Weir

Easting:

**Elevation:** 

6243252.022

Project:

Client:

Cooks Cove

**Boyd Cook Cove** 

Northing: 329429.637

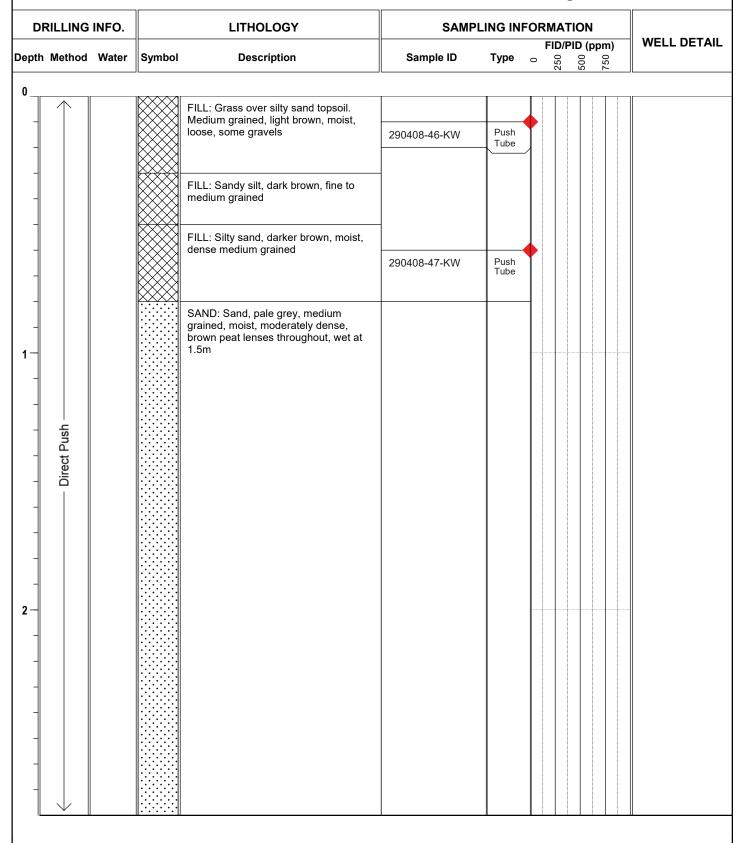
37

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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove

Environmental Log: BBH406



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

**Date Commenced:** 29/04/2008

**Date Completed:** 29/04/2008

Logged/checked by: Jenkins/Weir

Easting: 6243213.42

**Elevation:** 

Project: Cooks Cove Northing: 329440.547

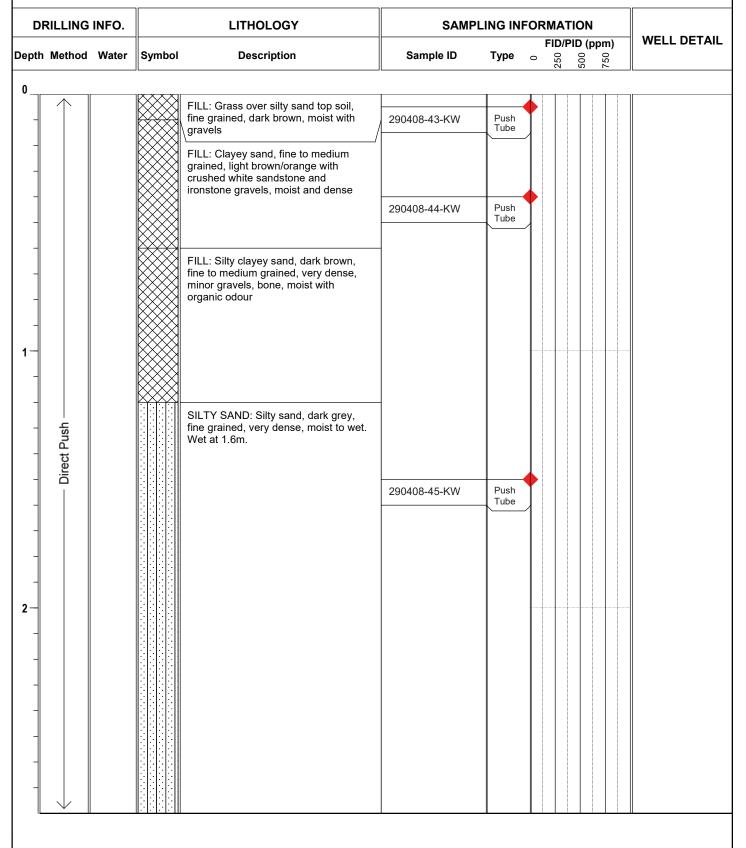
**Boyd Cook Cove** Client:



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

**BBH407 Environmental Log:** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

29/04/2008 **Date Commenced:** 

**Date Completed:** 29/04/2008

Logged/checked by: Jenkins/Weir

Easting:

6243233.644

Project: Cooks Cove

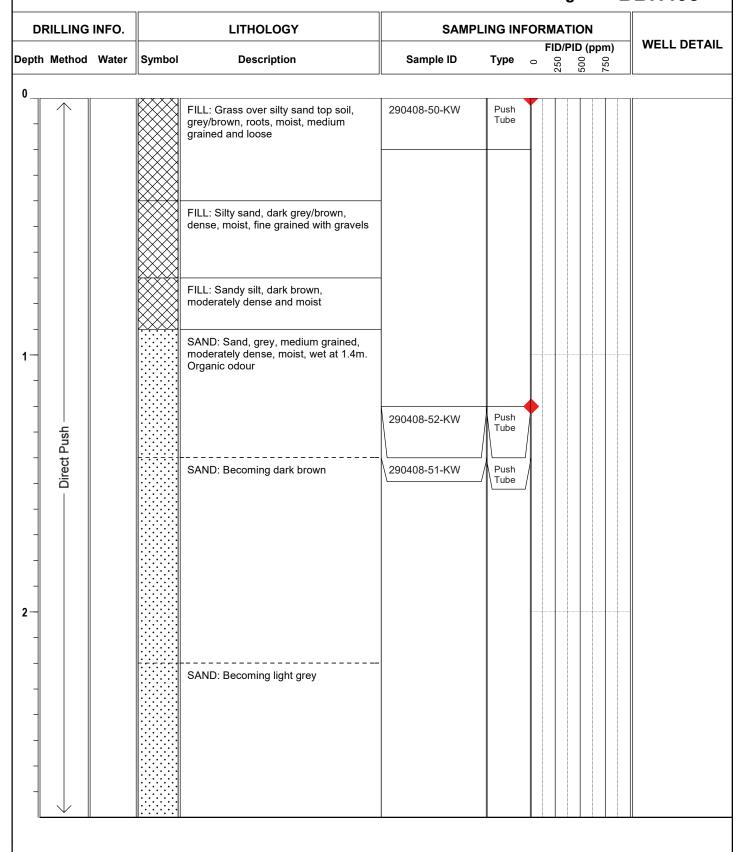
Northing: 329503.188 CONSULTING SCIENTIS TS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cook Cove** Client:

**Elevation:** 

Location: Cooks Cove **BBH408 Environmental Log:** 



**Drill Company:** Macquarie Drilling

29/04/2008

**Drill Model:** 

**Date Completed:** 

**Date Commenced:** 

29/04/2008

Hole Diameter (mm):

Logged/checked by:

Jenkins/Weir

**Boyd Cook Cove** 

Easting:

**Elevation:** 

6243181.502

Project:

Client:

329480.958

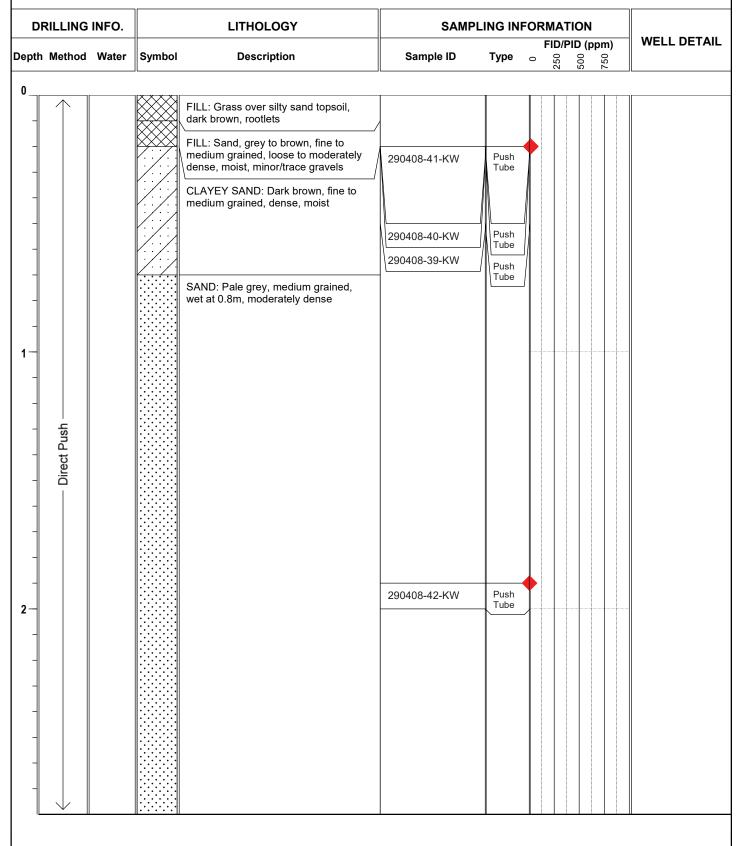
Northing: Cooks Cove



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

**BBH409 Environmental Log:** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

29/04/2008 **Date Commenced:** 

**Date Completed:** 29/04/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

D0700-DCC Ea

**Easting:** 6243199.687

**Elevation:** 

Project: Cooks Cove

Client:

Northing: 329560.807

60.807

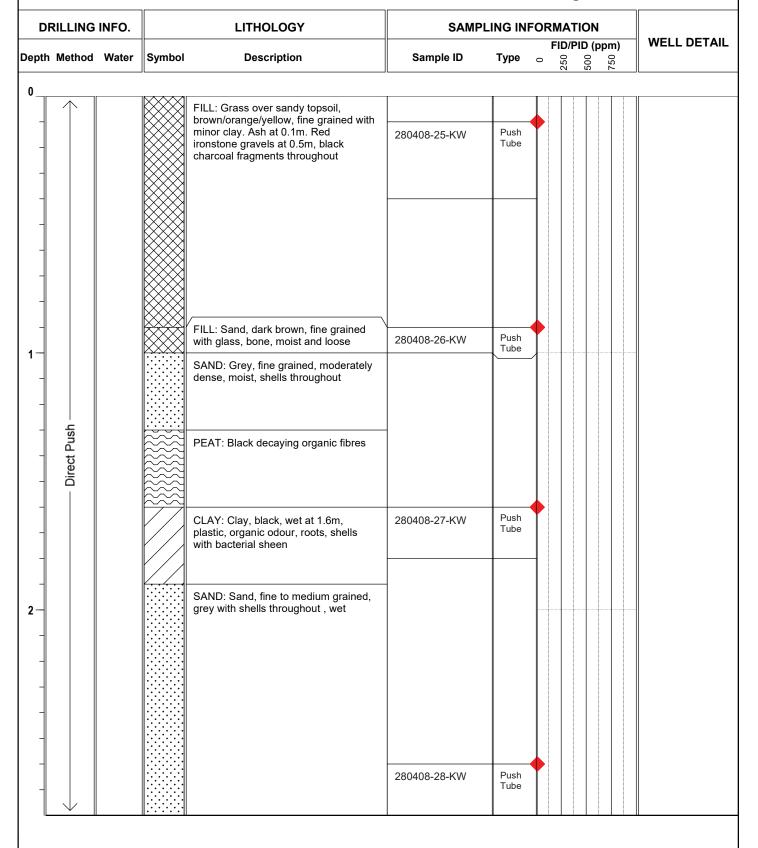


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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

Environmental Log: BBH410



**Drill Company:** Macquarie Drilling

Drill Model:

Hole Diameter (mm):

**Date Commenced:** 29/04/2008

**Date Completed:** 29/04/2008

Logged/checked by: Jenkins/Weir

020007.00 200

**Boyd Cook Cove** 

**Easting:** 6243134.049

Project: Cooks Cove

Client:

**Northing:** 329478.399

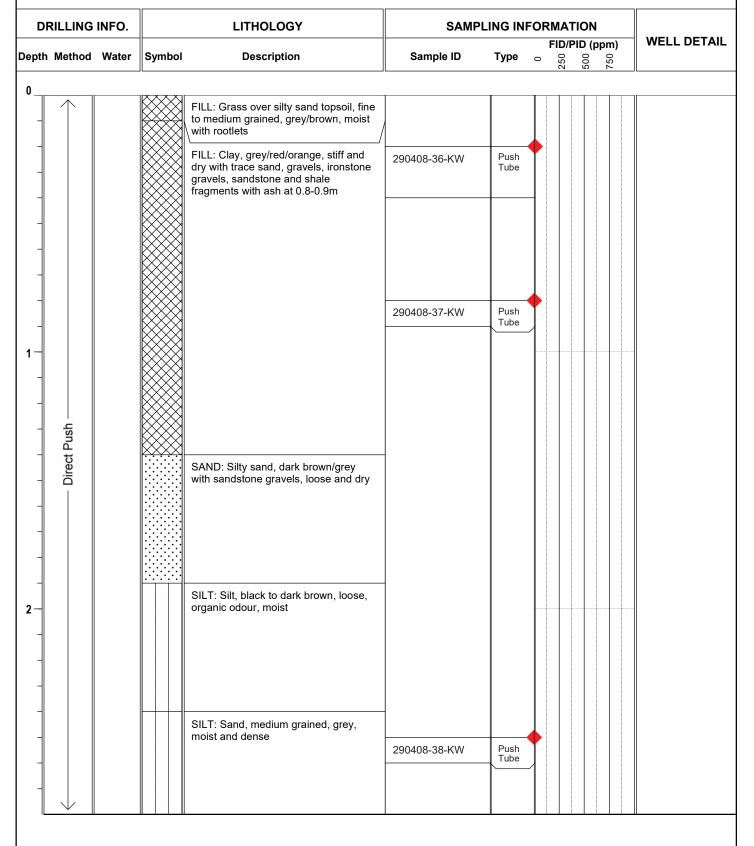
**Elevation:** 



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**Location:** Cooks Cove

Environmental Log: BBH411



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

**Date Commenced:** 29/04/2008

**Date Completed:** 29/04/2008

Logged/checked by: Jenkins/Weir

**Easting:** 6243161.139

Project: Cooks Cove Northing: 329551.915

**Boyd Cook Cove** Client:

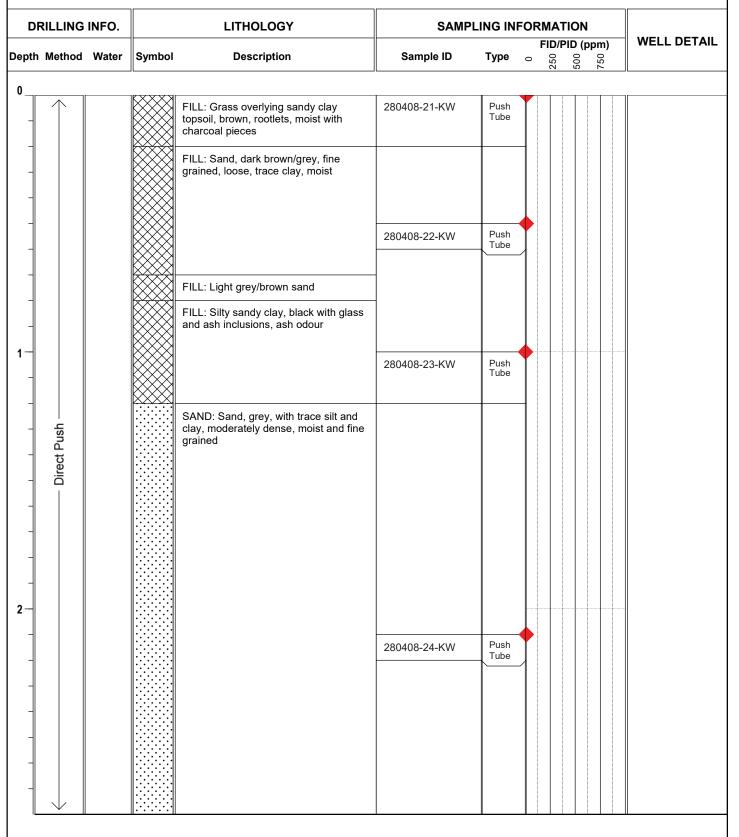
SCIENTIS TS Jones Bay Wharf 19-21, Lower Level Suite 121

26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

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Location: Cooks Cove **BBH412 Environmental Log:** 

**Elevation:** 



**Drill Company:** Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

29/04/2008 **Date Commenced:** 

**Date Completed:** 29/04/2008

Logged/checked by: Jenkins/Weir

Easting:

6243127.577

Project: Cooks Cove

Location:

Northing: 329632.103



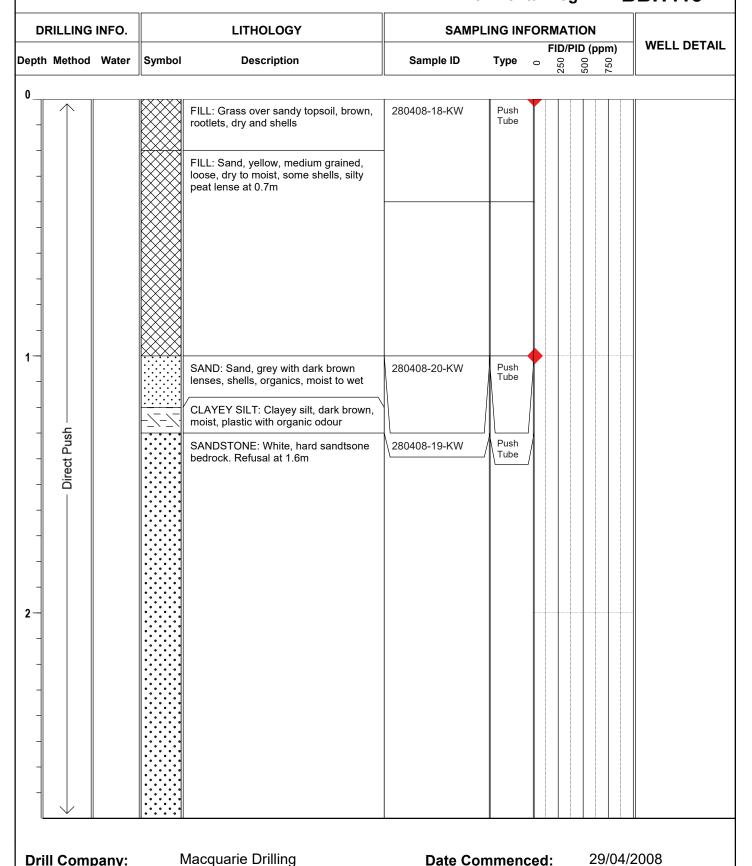
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cook Cove** Client:

Cooks Cove

**Elevation:** 

**BBH413 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

29/04/2008

**Drill Model:** 

**Date Completed:** 29/04/2008

Hole Diameter (mm):

Logged/checked by:

Jenkins/Weir

Easting: 6243132.138

**Elevation:** 

Project: Cooks Cove

Client:

Location:

Northing: 329689.226



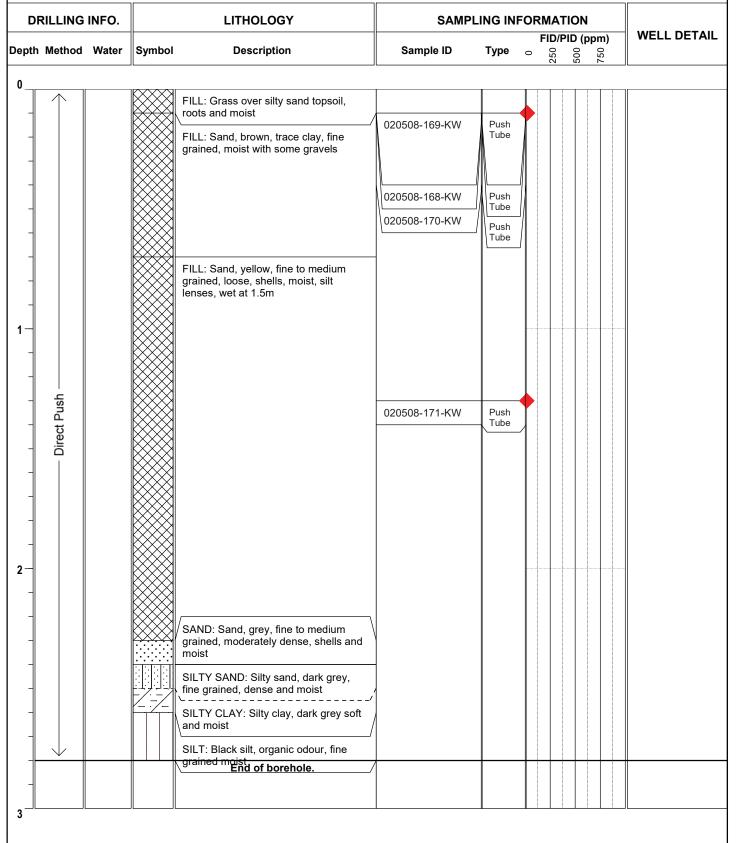
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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cook Cove** 

Cooks Cove

**BBH414 Environmental Log:** 



**Drill Company:** 

Macquarie Drilling

**Date Completed:** 

**Date Commenced:** 

02/05/2008

Jenkins/Weir

**Drill Model:** 

02/05/2008

Hole Diameter (mm):

Logged/checked by:

**Boyd Cook Cove** 

Easting:

6243127.487

Project: Cooks Cove

Client:

Northing: 330037.091

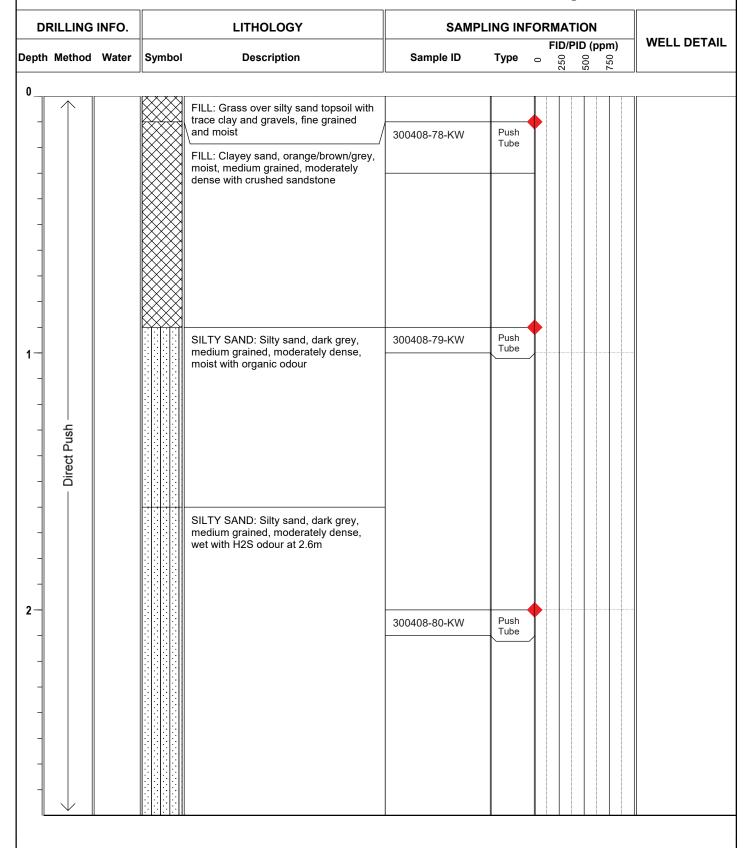
**Elevation:** 



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

**BBH415 Environmental Log:** 



**Drill Company:** 

Macquarie Drilling

30/04/2008

**Drill Model:** 

**Date Completed:** 30/04/2008

Hole Diameter (mm):

Logged/checked by:

**Date Commenced:** 

Jenkins/Weir Sheet: 1 of 1

Project:

Cooks Cove

Easting:

6243103.394

329558.472

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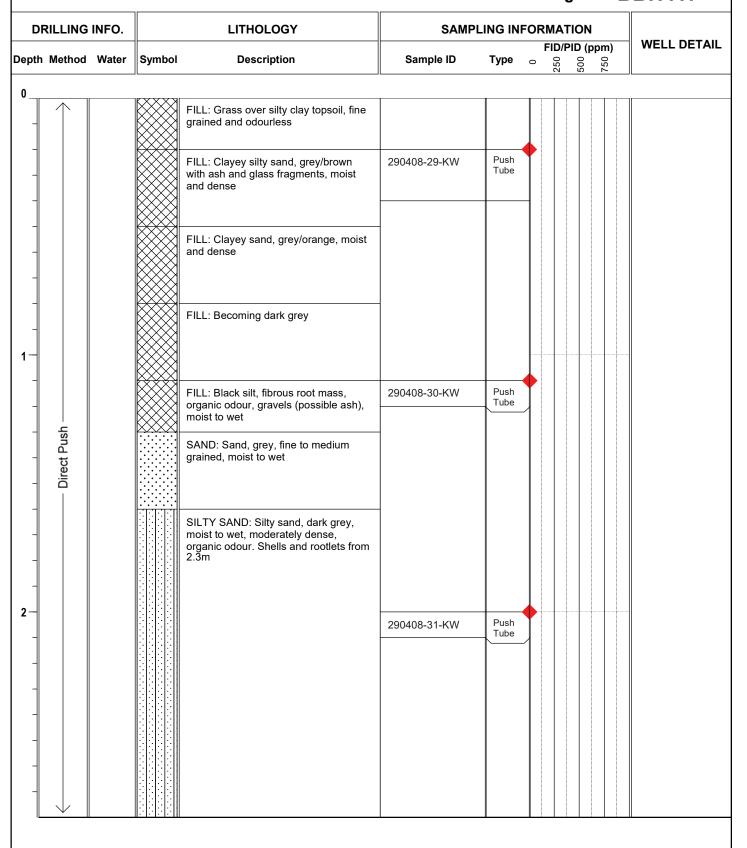
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cook Cove** Client:

**Elevation:** 

Northing:

Location: Cooks Cove **BBH417 Environmental Log:** 



**Drill Company:** Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

29/04/2008 **Date Commenced:** 

**Date Completed:** 29/04/2008

Logged/checked by: Jenkins/Weir

Easting:

6243065.891

Project:

Cooks Cove

Northing: 329619.808

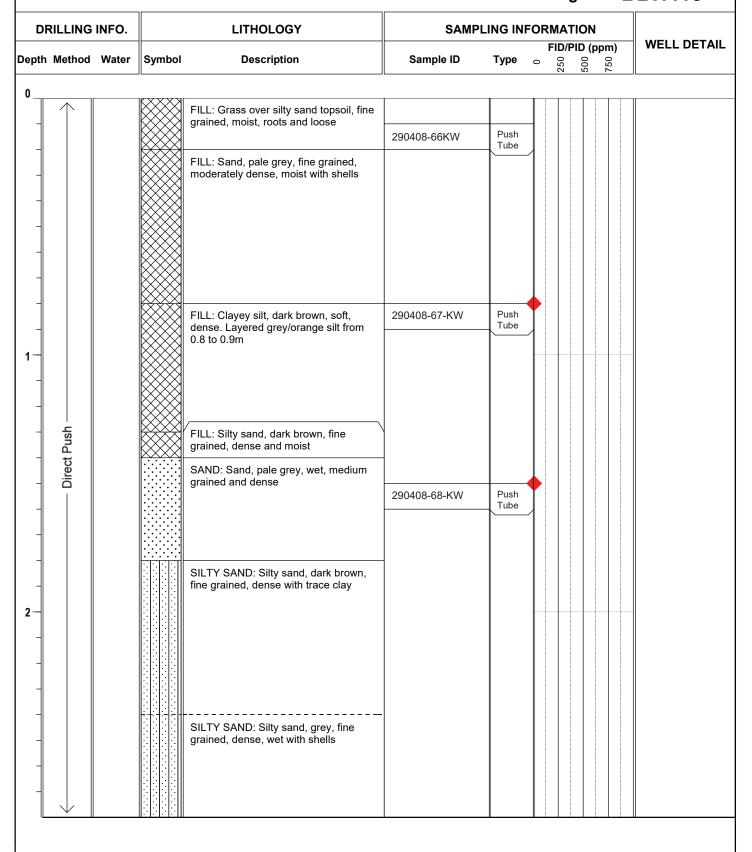
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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Client: Boyd Cook Cove

Elevation:

Location: Cooks Cove Environmental Log: BBH418



**Drill Company:** Macquarie Drilling

Drill Model:

Hole Diameter (mm):

**Date Commenced:** 29/04/2008

**Date Completed:** 29/04/2008

Logged/checked by: Jenkins/Weir

Easting: 6243081.721

Project: Cooks Cove Northing: 329679.285

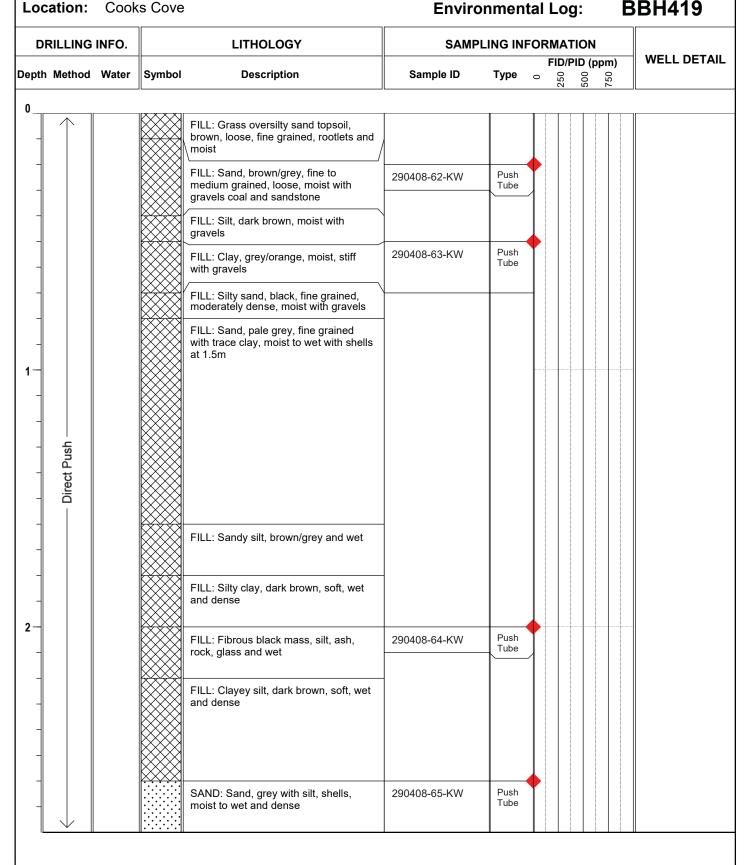
CONSULTING SCIENTIS TS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cook Cove** Client:

**Elevation:** 

**Environmental Log: BBH419** 



Macquarie Drilling **Drill Company:** 

Hole Diameter (mm):

**Drill Model:** 

29/04/2008 **Date Commenced:** 

**Date Completed:** 29/04/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

**Easting:** 6243090.111

Project: Cooks Cove Northing: 329732.258

**Elevation:** 

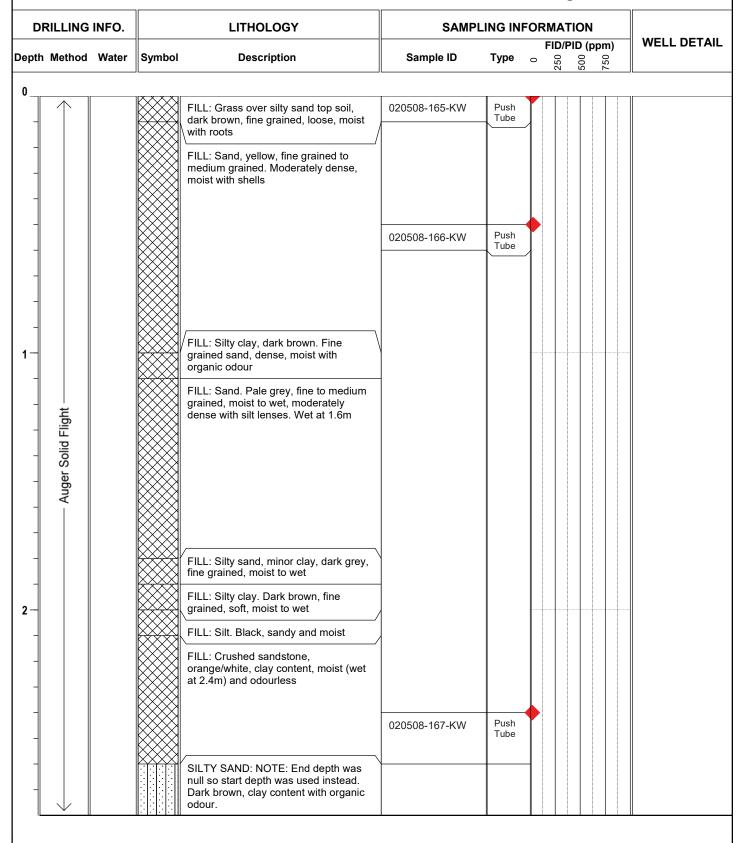
CONSULTING SCIENTIS TS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

Client:

**Environmental Log: BBH420** 



Macquarie Drilling **Drill Company:** 

Hole Diameter (mm): 75

**Drill Model:** 

02/05/2008 **Date Commenced:** 

**Date Completed:** 02/05/2008

Logged/checked by: Jenkins/Weir

02000.00200

**Easting:** 6243083.702

Project: Co

Client:

Cooks Cove

**Boyd Cook Cove** 

Northing: 329934.986

**Elevation:** 

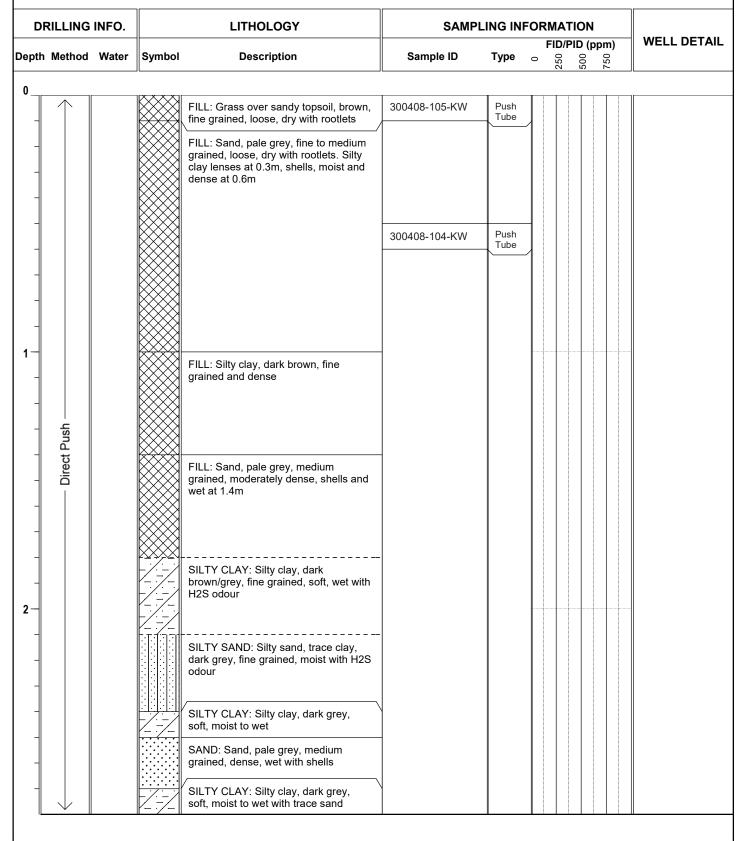
36

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Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove

Environmental Log: BBH421



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

**Date Commenced:** 30/04/2008

**Date Completed:** 30/04/2008

Logged/checked by: Jenkins/Weir

Easting:

6243065.802

Project:

Client:

Cooks Cove

**Boyd Cook Cove** 

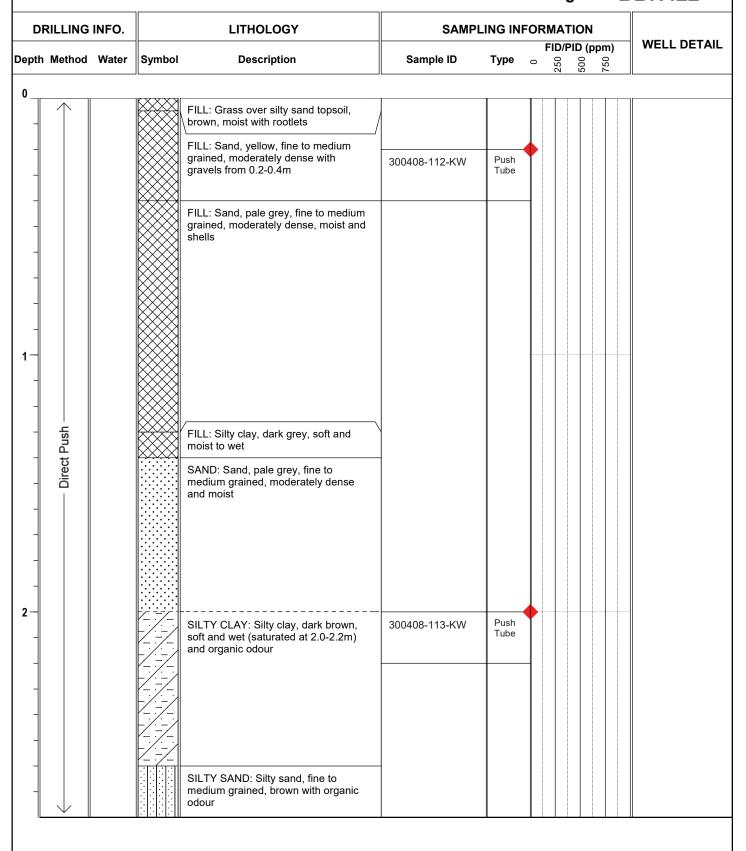
Northing: 329981.096



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove **Elevation:** 

**BBH422 Environmental Log:** 



**Drill Company:** 

Macquarie Drilling

30/04/2008

**Drill Model:** 

**Date Completed:** 30/04/2008

Hole Diameter (mm):

Logged/checked by:

**Date Commenced:** 

Jenkins/Weir

**Boyd Cook Cove** 

**Easting:** 6243077.14

Project: Cooks Cove

Northing: 330027.905

rioject. Coor

Client:

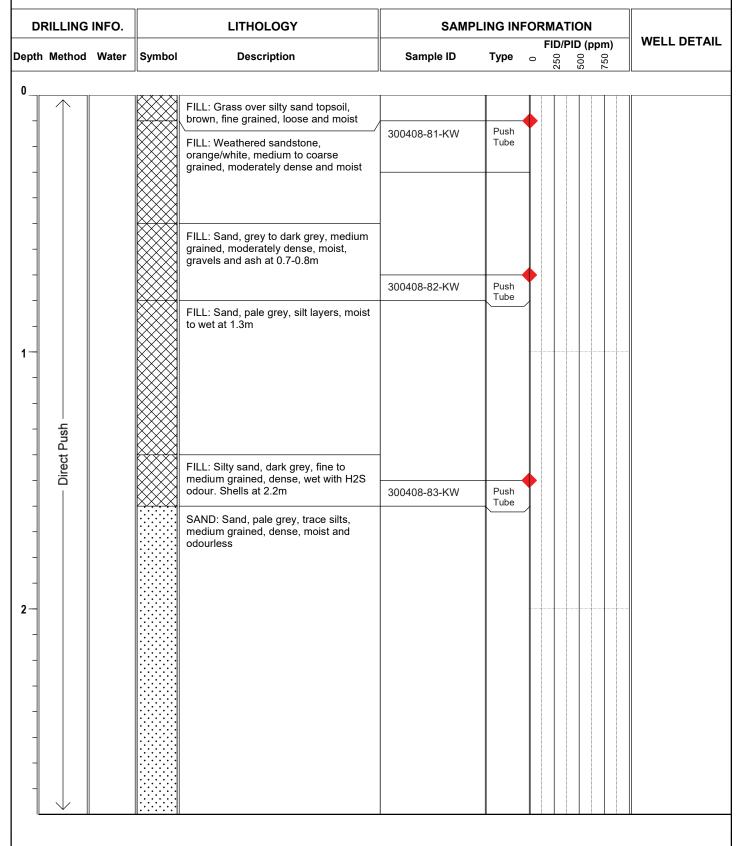
Elevation:



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove

Environmental Log: BBH423



**Drill Company:** M

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

**Date Commenced:** 30/04/2008

**Date Completed:** 30/04/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

Easting:

**Elevation:** 

6243018.161

329618.635

Project: Cook

Client:

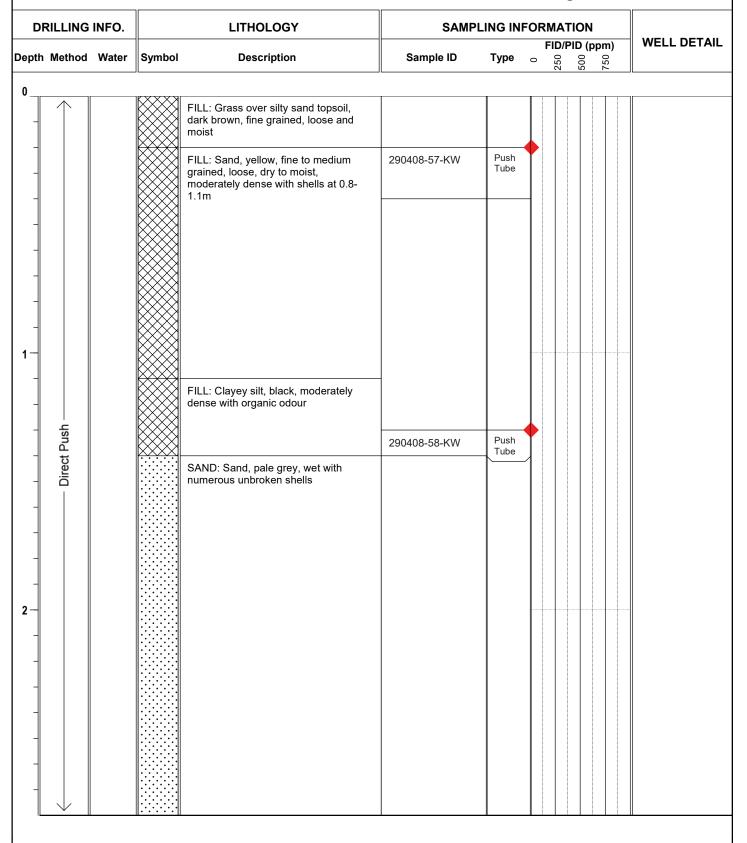
Cooks Cove Northing:

CONSULTING EARTH SCIENTISTS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove

Environmental Log: BBH425



Drill Company:

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

**Date Commenced:** 29/04/2008

**Date Completed:** 29/04/2008

Logged/checked by: Jenkins/Weir

Easting:

6243029.629

Project:

Location:

Cooks Cove

Cooks Cove

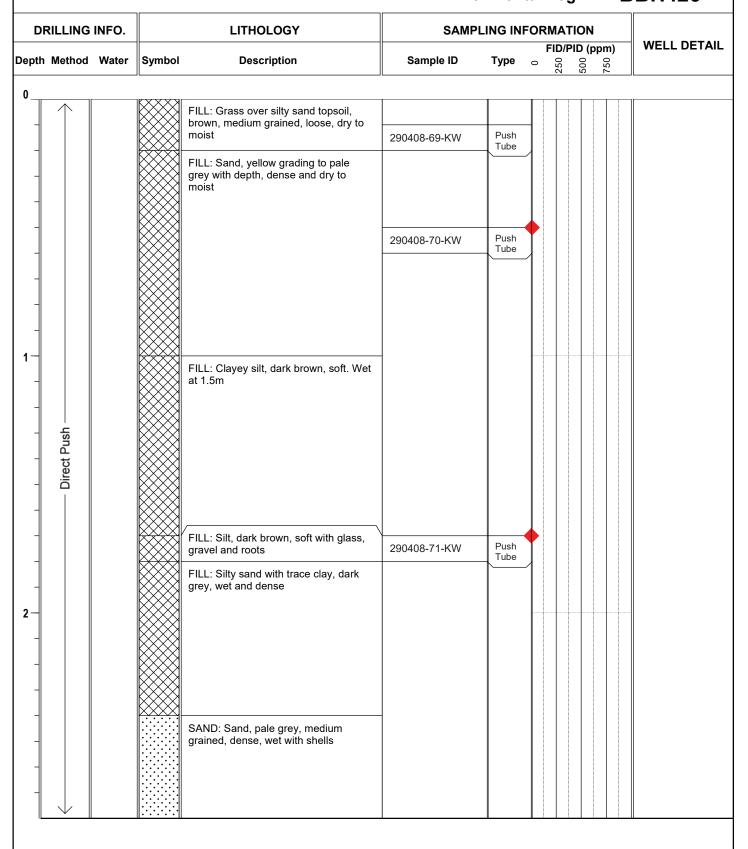
Northing: 329677.034 CONSULTING SCIENTIS TS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cook Cove** Client:

**Elevation:** 

**BBH426 Environmental Log:** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

29/04/2008

**Date Completed:** 29/04/2008

Hole Diameter (mm):

Logged/checked by:

**Date Commenced:** 

Jenkins/Weir Sheet: 1 of 1

Cooks Cove

**Easting:** 6243015.816

Northing:

329761.281



CONSULTING EARTH SCIENTISTS

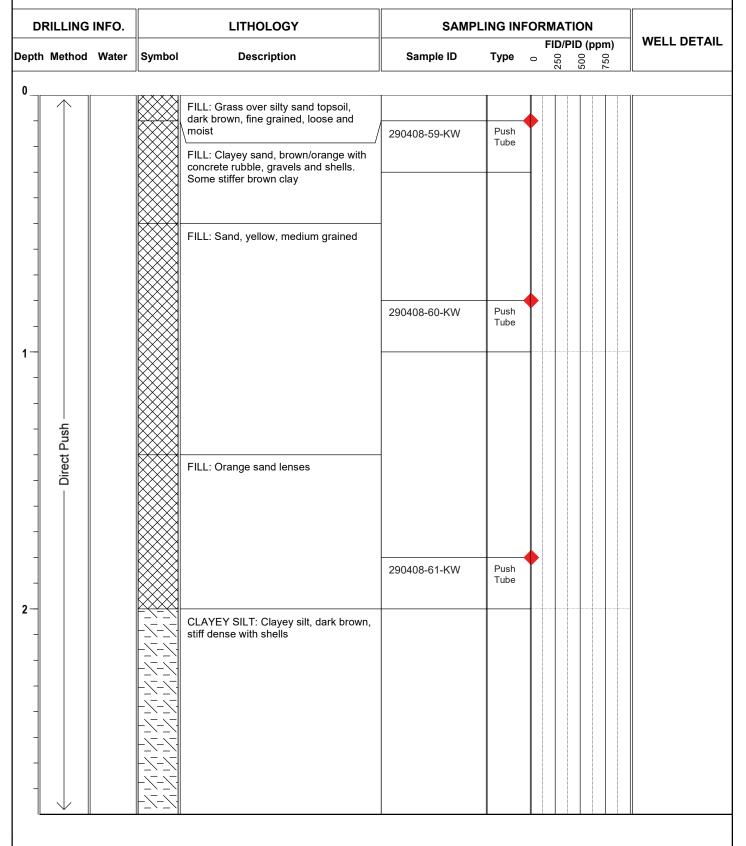
Client: Boyd Cook Cove Elevation:

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove

Project:

Environmental Log: BBH427



**Drill Company:** Macquarie Drilling

Drill Model:

Hole Diameter (mm):

**Date Commenced:** 29/04/2008

**Date Completed:** 29/04/2008

Logged/checked by: Jenkins/Weir

**Easting:** 6243055.224

Cooks Cove

**Boyd Cook Cove** 

**Northing:** 329789.882

**Elevation:** 

SCIENTISTS

Jones Bay Wharf 19-21, Lower Level Suite 121
26-32 Pirrama Road Pyrmont 2009
PH: (02) 8569 2200 FAX: (02) 9552 4399

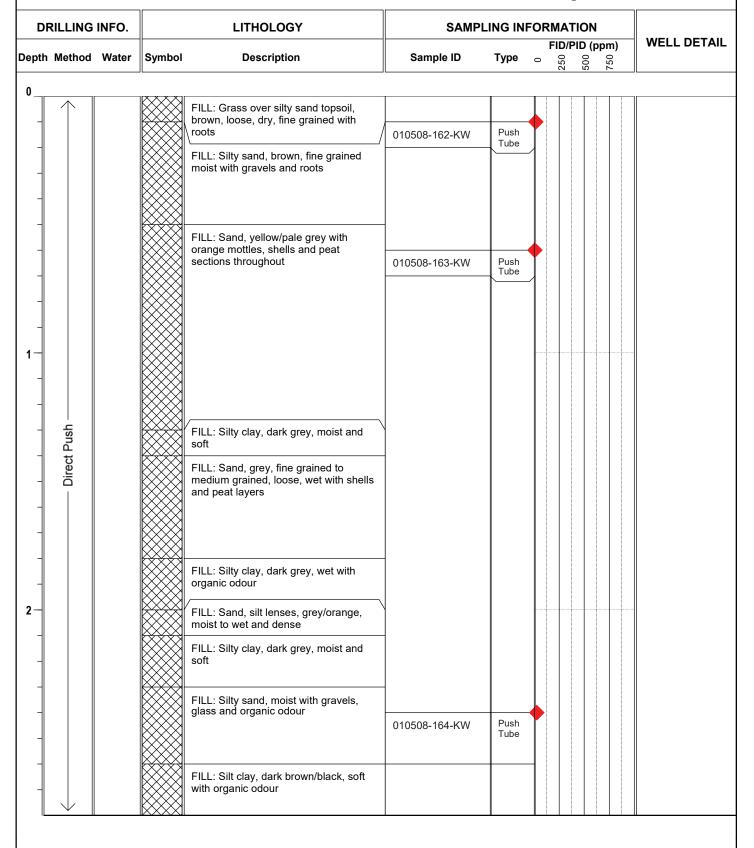
CONSULTING

**Location:** Cooks Cove

Project:

Client:

Environmental Log: BBH428



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

**Date Commenced:** 01/05/2008

**Date Completed:** 01/05/2008

Logged/checked by: Jenkins/Weir

Cooks Cove

Easting: 6243040.823

329870.154

**Boyd Cook Cove** Client:

Project:

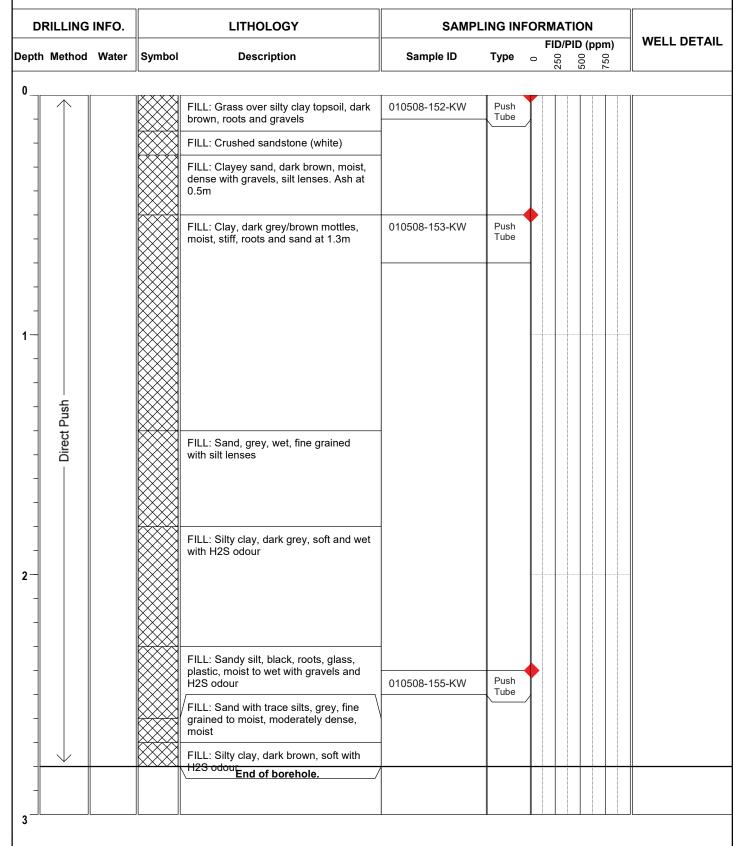
Northing:

**Elevation:** 



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove **Environmental Log: BBH429** 



**Drill Company:** 

Macquarie Drilling

**Date Commenced:** 

01/05/2008

**Drill Model:** 

**Date Completed:** 

01/05/2008

Hole Diameter (mm):

Logged/checked by:

Jenkins/Weir

**Boyd Cook Cove** 

Easting: 6243044.653

**Elevation:** 

Project:

Client:

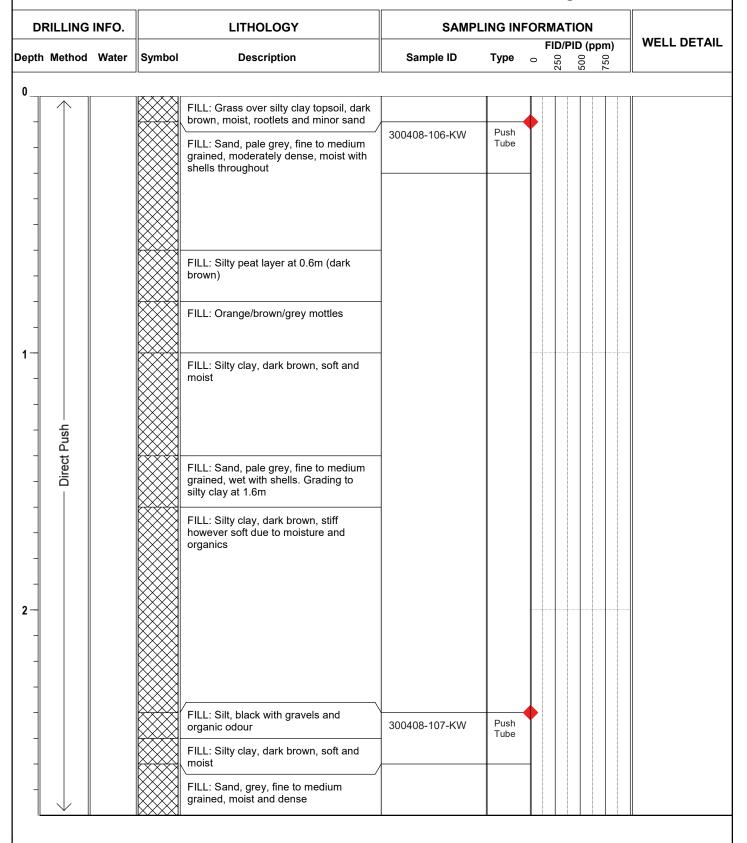
329936.013

Northing: Cooks Cove



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove **Environmental Log: BBH430** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

30/04/2008 **Date Commenced:** 

**Date Completed:** 30/04/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

Easting: 6243011.033

Project:

Client:

329810.103

**Elevation:** 

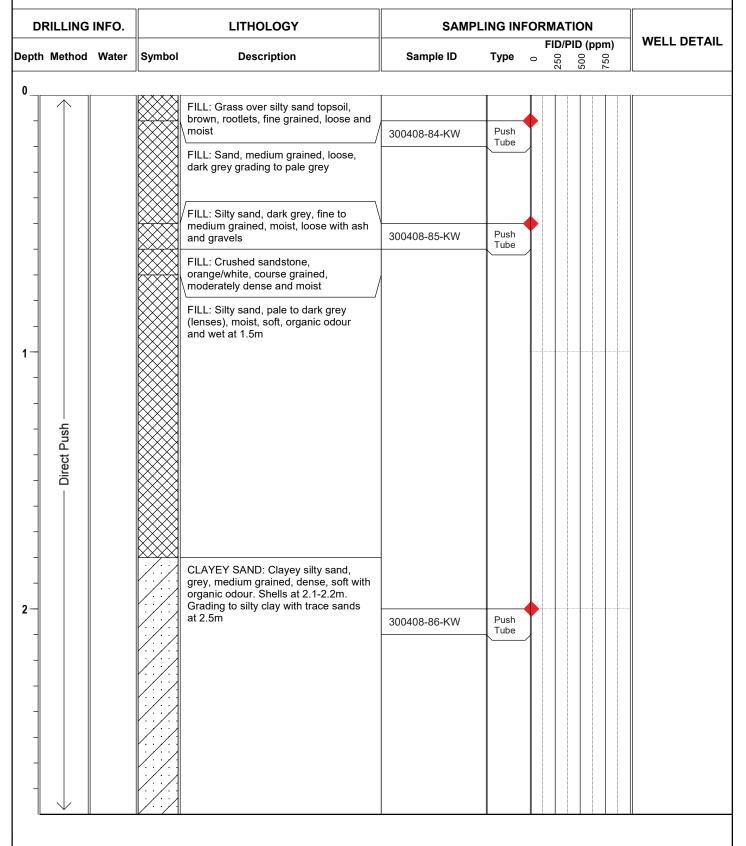
Northing: Cooks Cove



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

**BBH431 Environmental Log:** 



**Drill Company:** Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

30/04/2008 **Date Commenced:** 

**Date Completed:** 30/04/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

Easting: 6243019.116

Cooks Cove

Northing:

**Elevation:** 

Project:

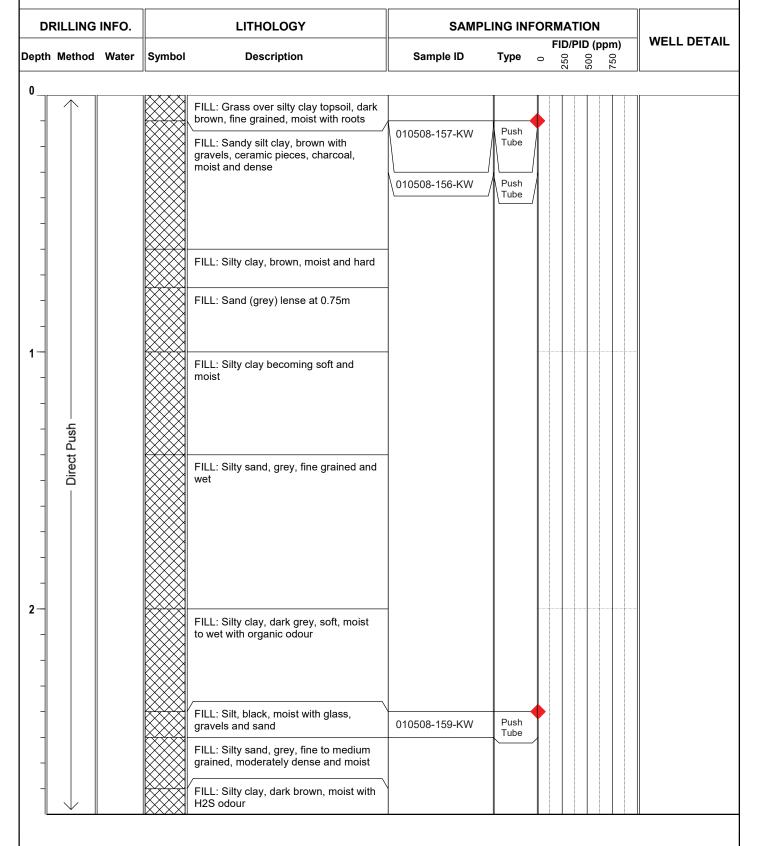
Client:

329848.468



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove **Environmental Log: BBH433** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

01/05/2008 **Date Commenced:** 

**Date Completed:** 01/05/2008

Logged/checked by: Jenkins/Weir

Easting:

6243005.174

Location:

Project: Cooks Cove **Northing:** 329919.656



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Boyd Cook Cove Client:

Cooks Cove

Elevation:

**BBH434 Environmental Log:** 

DRILLING INFO.			LITHOLOGY		SAMP				
Depth	Method	Water	Symbol	Description	Sample ID	Туре	0 FID/	PID (ppm) 200 (ppm)	WELL DETAIL
0_	$\uparrow$			FILL: Grass over sandy topsoil, dark brown, loose, dry to moist, rootlets with trace clays	300408-108-KW	Push Tube			
				FILL: Sand, yellow, fine to medium grained, concrete rubble and gravels at 0.4m. Ironstone gravels at 0.8m					
-					300408-109-KW	Push Tube			
1-									
-	Direct Push			FILL: Sand, grey, fine to medium grained, moderately dense, moist with shells					
	— Direc			FILL: Sand yellow, fine to medium grained, dense, wet with shells throughout					
_ _ _ _ 2—				FILL: Sand, grey, fine to medium grained, dense, wet grading to moist at 1.9m, Increasing clay content with depth					
_				FILL: Clayey sand, grey, fine to medium grained and moist					
-	\\			FILL: Silty clay, dark brown/grey, moist, soft grading to stiff with depth					

**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

01/05/2008 **Date Commenced:** 

**Date Completed:** 01/05/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

Easting: 6243031.649

Cooks Cove

Northing: 329978.796

**Elevation:** 

Project:

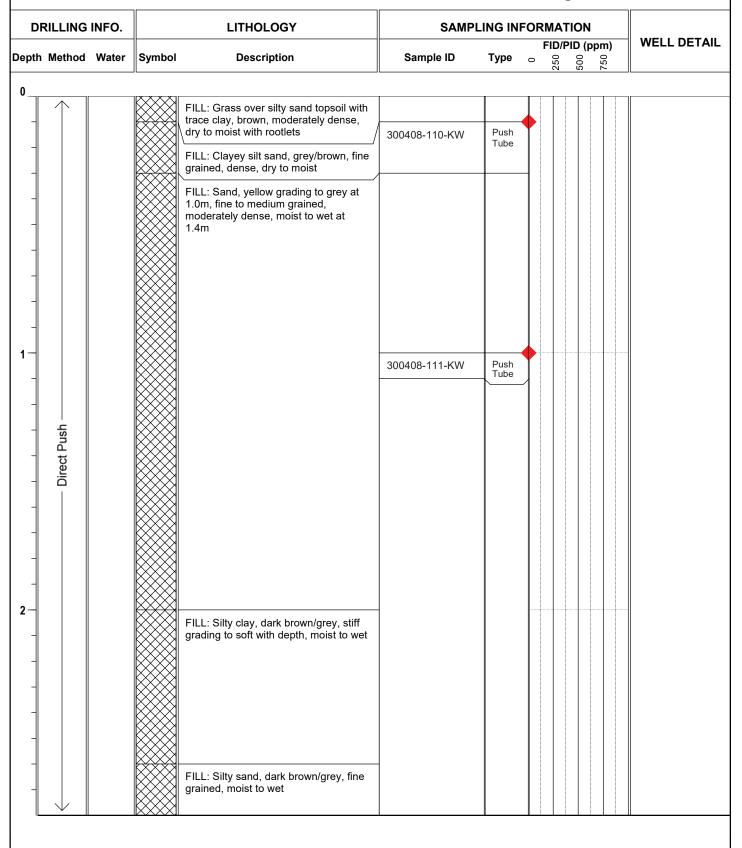
Client:



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

**BBH435 Environmental Log:** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

01/05/2008 **Date Commenced:** 

**Date Completed:** 01/05/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

**Easting:** 6242995.182

Project: Cooks Cove

Client:

Northing: 330012.116

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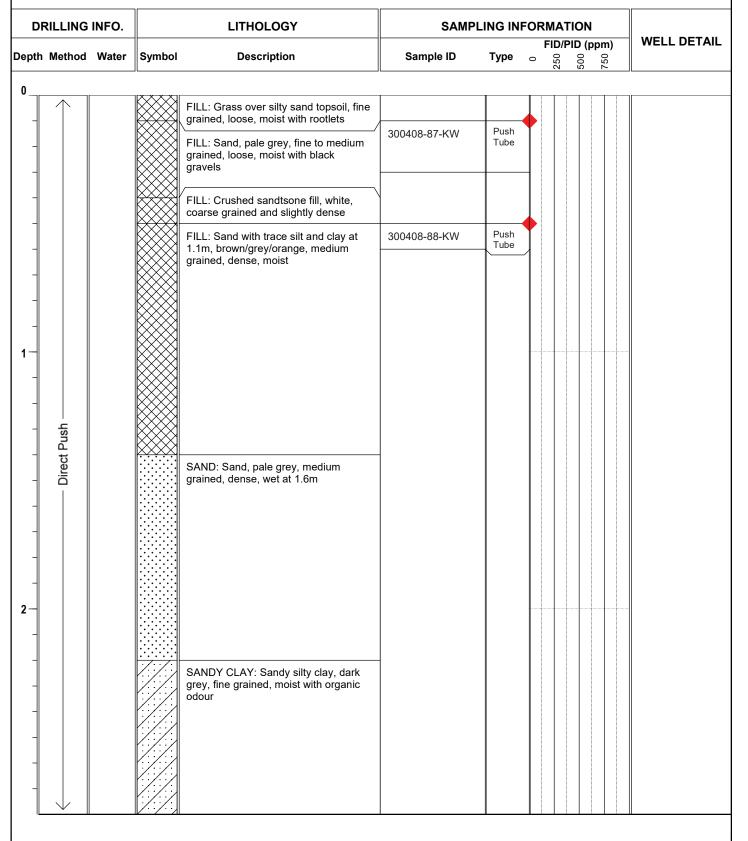
**Elevation:** 



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

## Environmental Log: BBH436



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

**Date Commenced:** 30/04/2008

**Date Completed:** 30/04/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

**Easting:** 6242976.331

Cooks Cove

**Elevation:** 

Project:

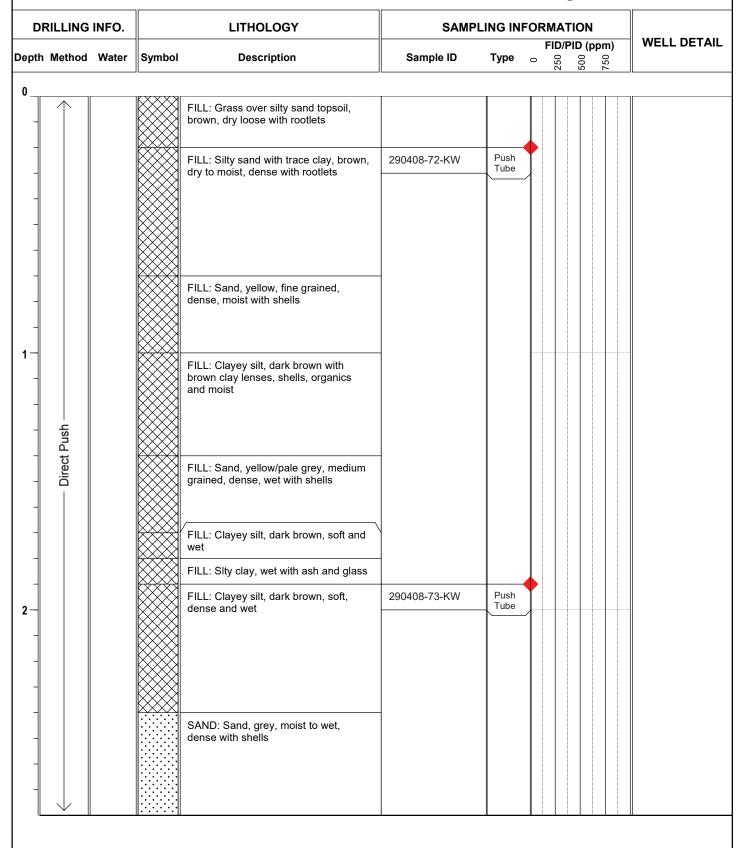
Client:

Northing: 329674.761



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove **Environmental Log: BBH438** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

30/04/2008 **Date Commenced:** 

**Date Completed:** 30/04/2008

Logged/checked by: Jenkins/Weir

Project:

Client:

CL3030700-BCC

**Easting:** 6242962.433

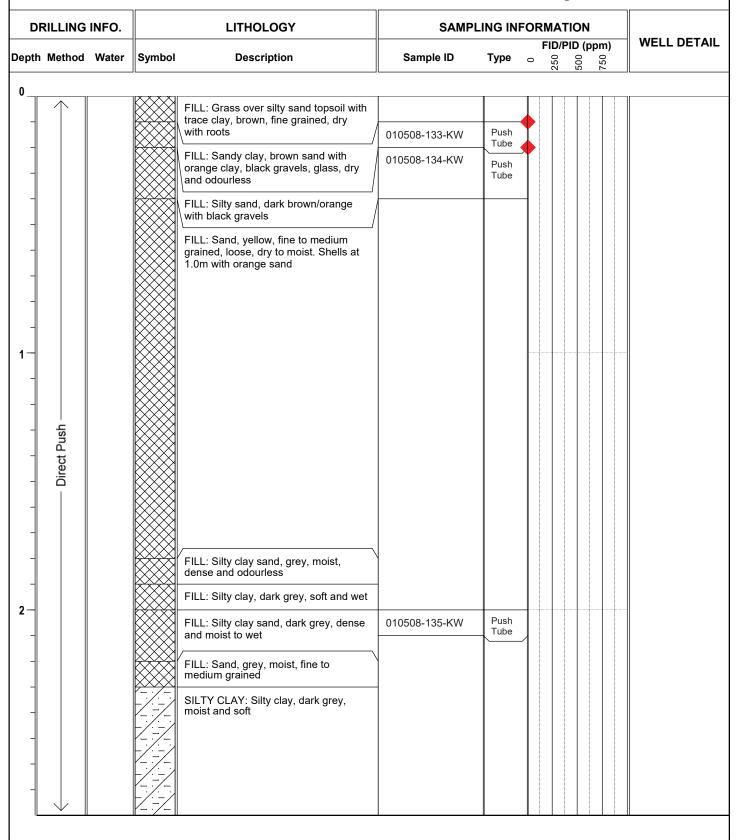
Cooks Cove Northing: 329755.357

Boyd Cook Cove Elevation:



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove Environmental Log: BBH439



**Drill Company:** Macquarie Drilling

Drill Model:

Hole Diameter (mm):

**Date Commenced:** 30/04/2008

**Date Completed:** 30/04/2008

Logged/checked by: Jenkins/Weir

DO-DCC Eas

**Easting:** 6242967.601

Project: Cooks Cove

**Northing:** 329806.411

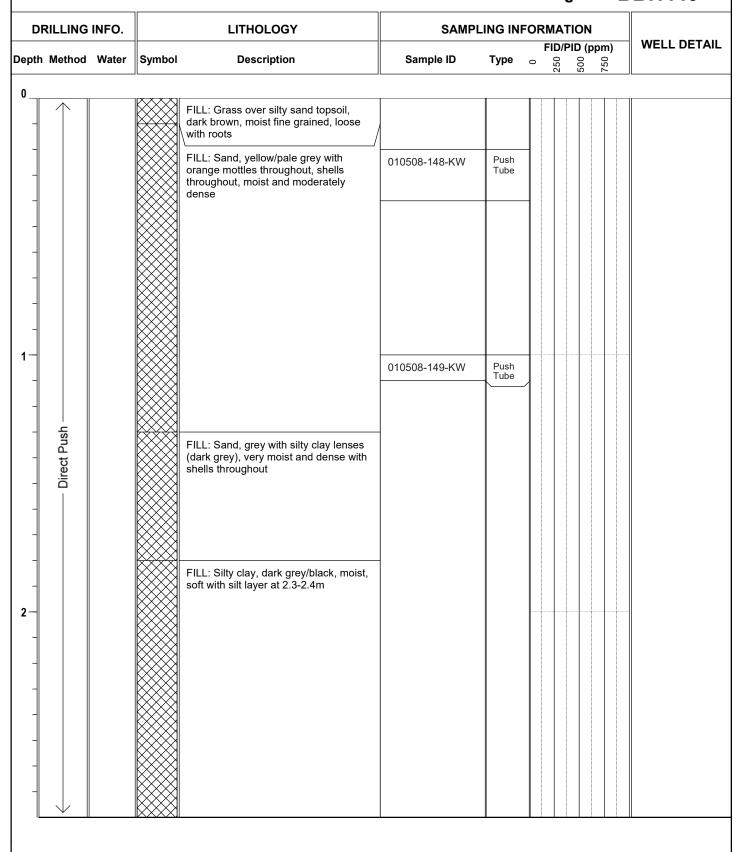


Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Client: Boyd Cook Cove

Elevation:

Location: Cooks Cove Environmental Log: BBH440



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

**Date Commenced:** 30/04/2008

**Date Completed:** 30/04/2008

Logged/checked by: Jenkins/Weir

Easting:

**Elevation:** 

6242971.259

Client:

**Boyd Cook Cove** 

Northing: 329862.301

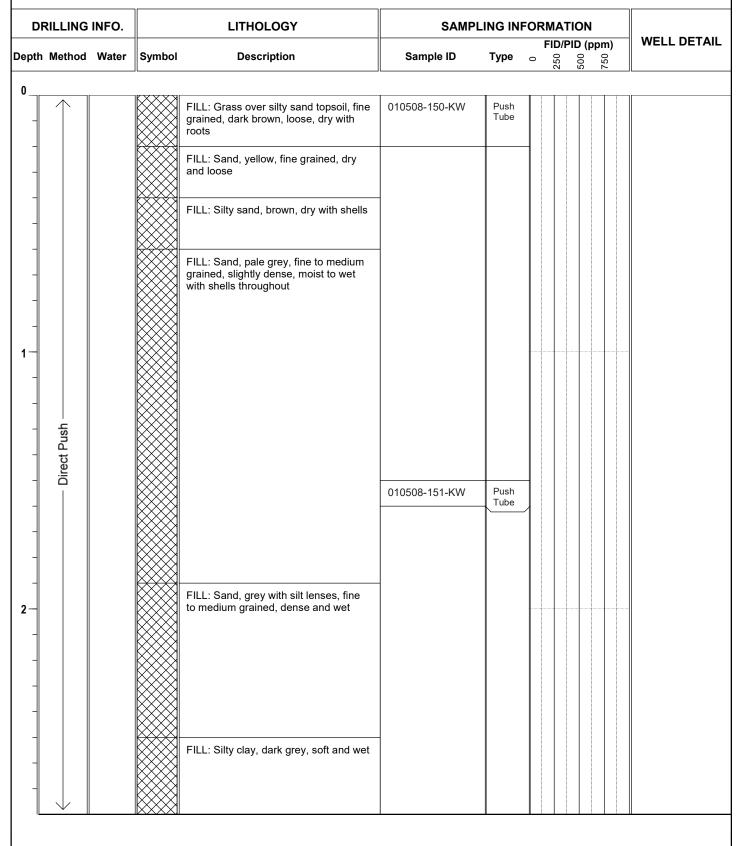
Project: Cooks Cove



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

**BBH441 Environmental Log:** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

30/04/2008 **Date Commenced:** 

**Date Completed:** 30/04/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

Easting: 6243065.802

Northing:

**Elevation:** 

Project: Cooks Cove

Client:

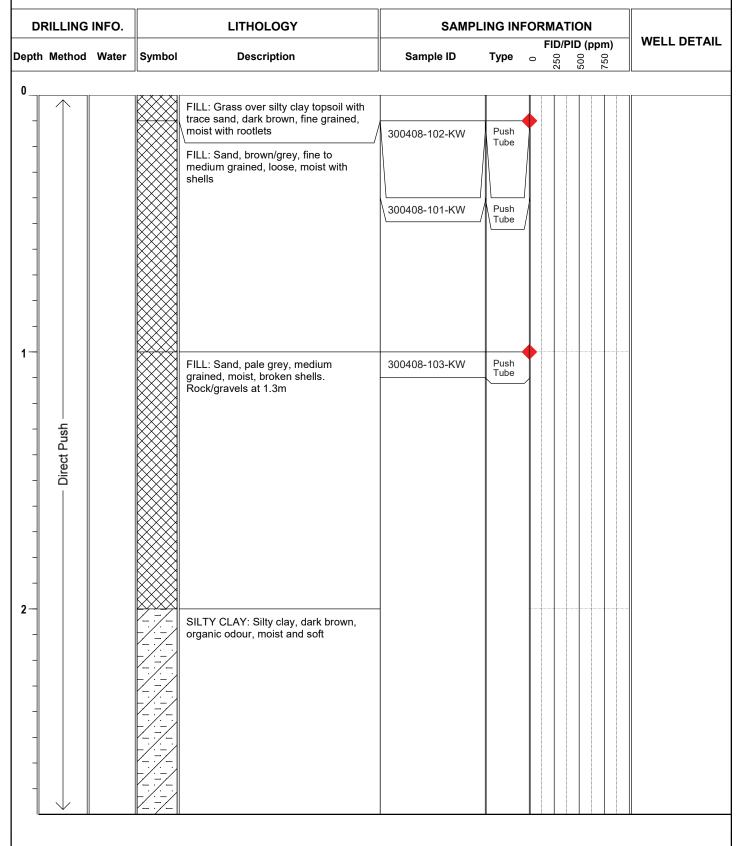
329981.096



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

**BBH442 Environmental Log:** 



Macquarie Drilling **Drill Company:** 

Hole Diameter (mm):

**Drill Model:** 

**Date Commenced:** 30/04/2008

**Date Completed:** 30/04/2008

Logged/checked by: Jenkins/Weir

Cooks Cove

**Easting:** 6242955.64

Project: Cooks Cove

Location:

Northing: 330006.678

6.678

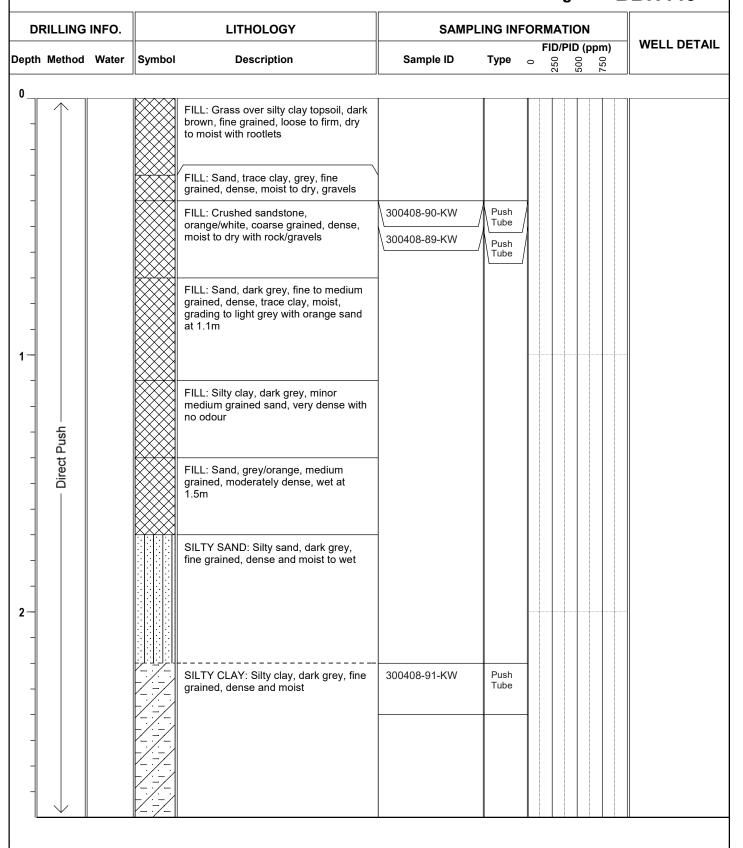
EARTH SCIENTISTS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Client: Boyd Cook Cove

**Elevation:** 

Environmental Log: BBH443



**Drill Company:** Macquarie Drilling

'

Hole Diameter (mm):

**Drill Model:** 

**Date Commenced:** 30/04/2008

**Date Completed:** 30/04/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

Project: Cooks Cove **Easting:** 

**Elevation:** 

Northing:

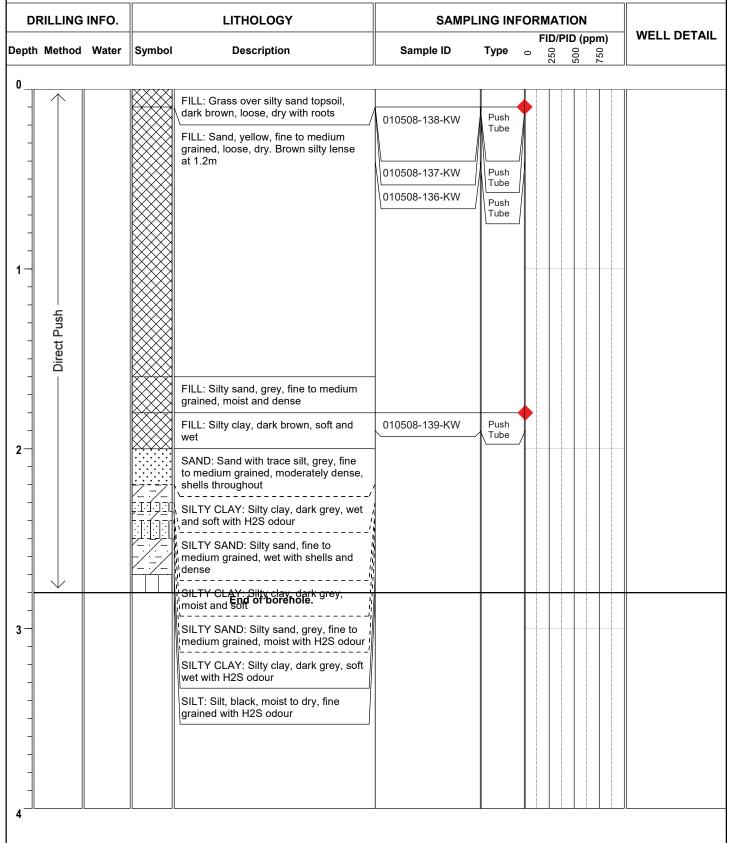


Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

Client:

**Environmental Log: BBH445** 



**Drill Company:** 

Macquarie Drilling

**Date Commenced: Date Completed:** 

01/05/2008

**Drill Model:** 

01/05/2008

Hole Diameter (mm):

Logged/checked by:

Jenkins/Weir

**Boyd Cook Cove** 

**Easting:** 6242919.264

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**Elevation:** 

329830.177

Project: Cooks Cove Northing: 3298

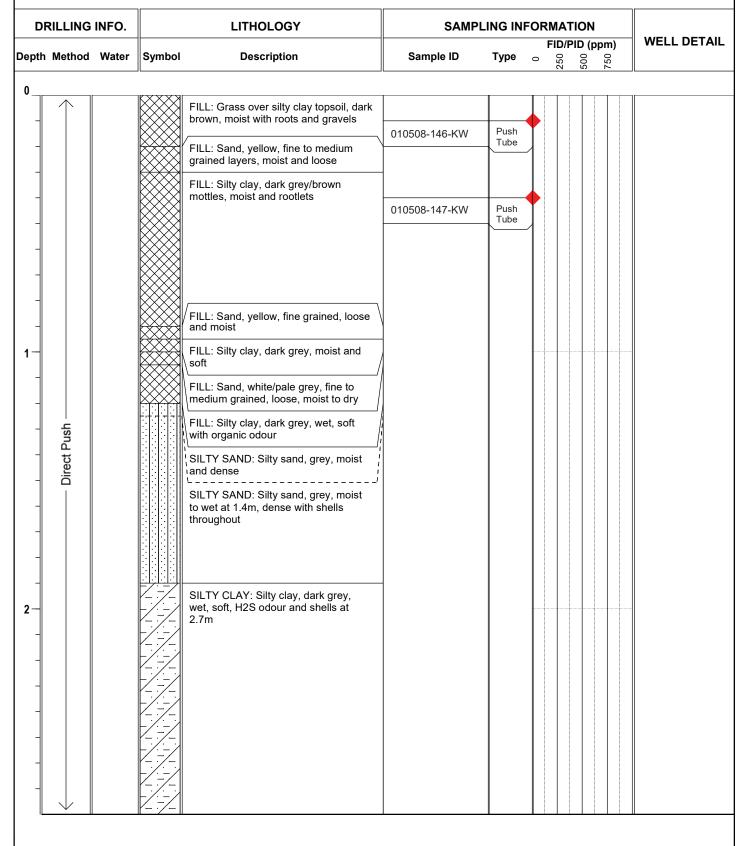


Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove

Client:

Environmental Log: BBH446



Drill Company:

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

**Date Commenced:** 01/05/2008

**Date Completed:** 01/05/2008

Logged/checked by: Jenkins/Weir

Project: Cooks Cove

Cooks Cove

**Easting:** 6242925.015

Northing: 329881.732

> Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

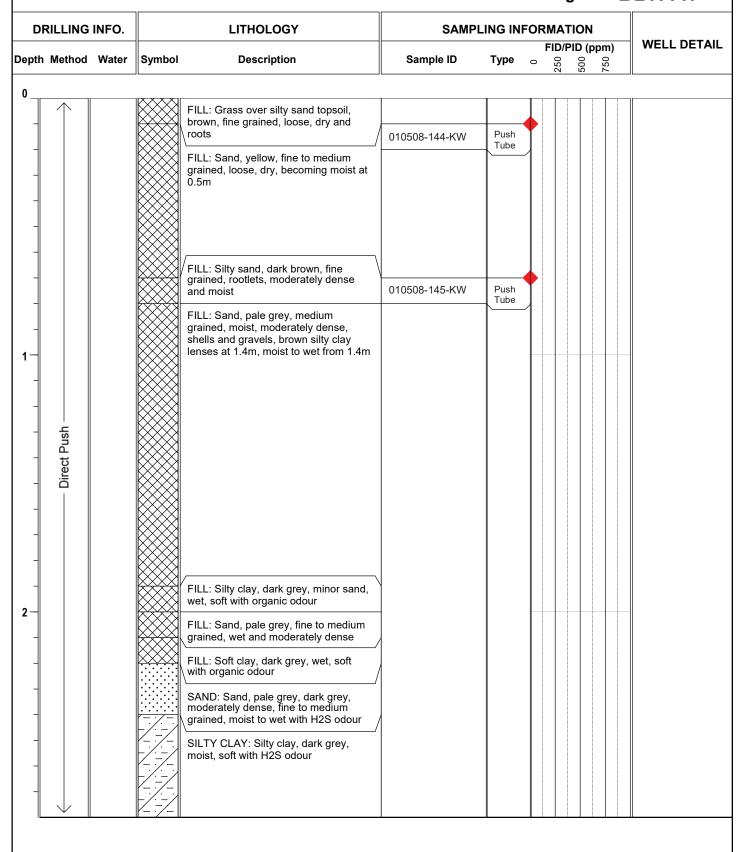
SCIENTIS TS

**Boyd Cook Cove** Client:

Location:

**Elevation:** 

**Environmental Log: BBH447** 



**Drill Company:** 

Macquarie Drilling

01/05/2008

**Drill Model:** 

**Date Completed:** 01/05/2008

Hole Diameter (mm):

Logged/checked by:

**Date Commenced:** 

Jenkins/Weir

**Boyd Cook Cove** 

Easting:

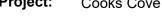
**Elevation:** 

6242916.076

Project: Cooks Cove

Client:

Northing: 329928.224



Jones Bay Wharf 19-21, Lower Level Suite 121

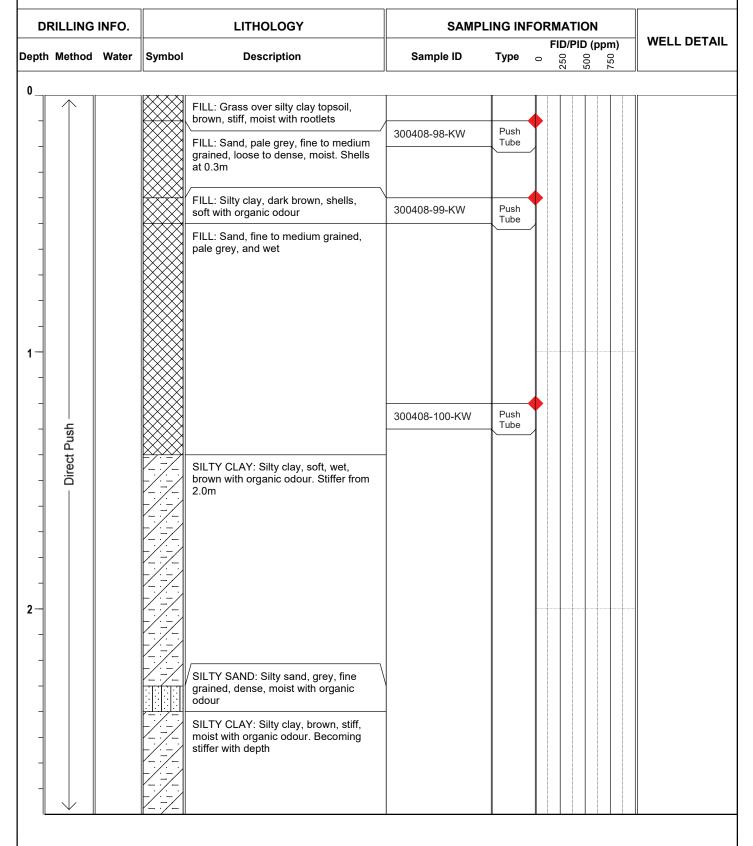
26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

SCIENTIS TS

Location: Cooks Cove

**BBH448 Environmental Log:** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

01/05/2008 **Date Commenced:** 

**Date Completed:** 01/05/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

Easting: 6242777.469

Cooks Cove

Northing: 329955.331

**Elevation:** 



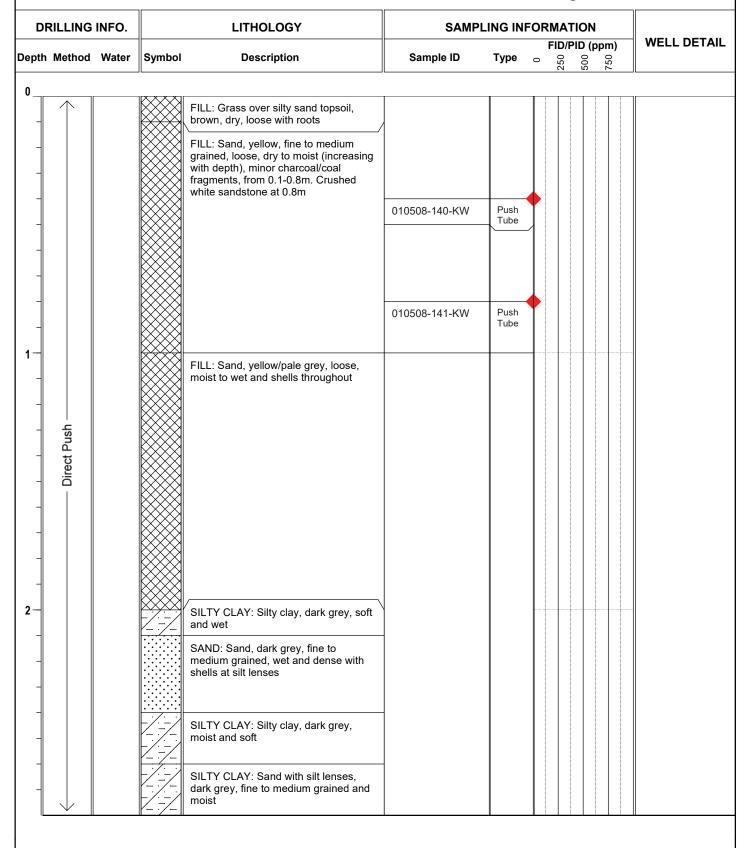
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

Project:

Client:

**Environmental Log: BBH450** 



**Drill Company:** 

Macquarie Drilling

**Date Completed:** 

**Date Commenced:** 

01/05/2008

**Drill Model:** 

01/05/2008

Hole Diameter (mm):

Logged/checked by: Jenkins/Weir

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**Easting:** 6242875.203

Cooks Cove

**Boyd Cook Cove** 

Northing: 329862.954

**Elevation:** 

CONSULTING EARTH SCIENTISTS

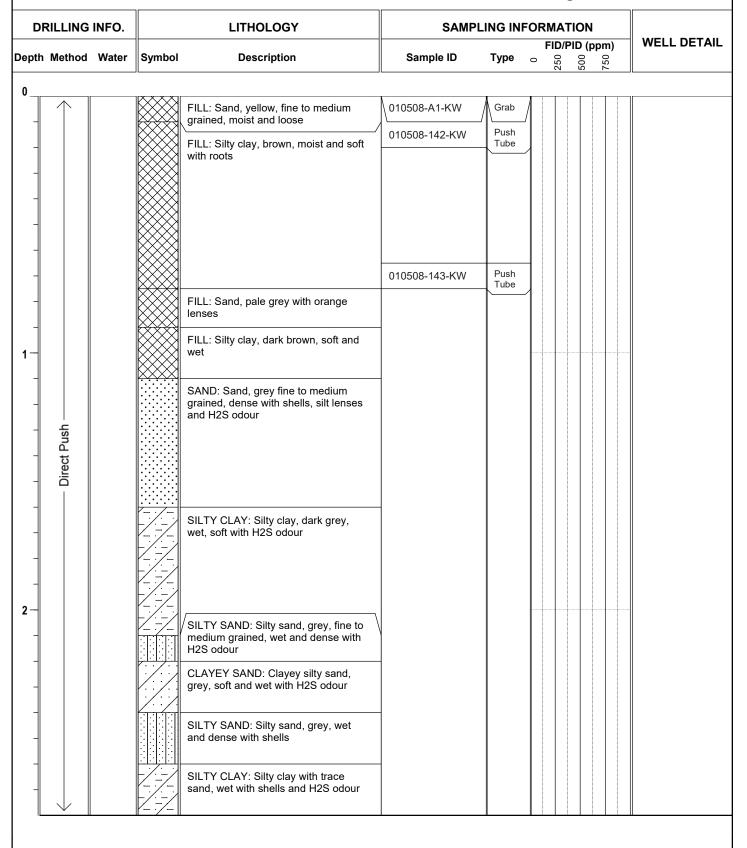
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

Project:

Client:

Environmental Log: BBH451



**Drill Company:** Macquarie Drilling

Drill Model:

Hole Diameter (mm):

**Date Commenced:** 01/05/2008

**Date Completed:** 01/05/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

Cooks Cove

**Easting:** 6242877.696

Project: Cooks Cove

Northing: 329916.604

**Elevation:** 

916.604



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Client:

Location:

Environmental Log: BBH452

**DRILLING INFO. LITHOLOGY SAMPLING INFORMATION WELL DETAIL** FID/PID (ppm) Depth Method Water Symbol Description Sample ID Type FILL: Grass over silty sand topsoil, dark brown, fine grained, loose, moist with rootlets and trace clays Push 300408-96-KW Tube FILL: Sandy clay, dark brown, fine grained, dense/stiff and moist Push FILL: Sand, pale grey, fine to medium 300408-97-KW Tube grained, loose and dense, moist with shells at 0.7-0.8m FILL: Silty clay, brown/dark grey mottles, stiff and moist FILL: Silty clay, dark brown, stiff, moist with organic odour. Soft layer at 1.4m Direct Push FILL: Sand, aple grey, wet, fine to medium grained, loose with shells SILTY CLAY: Silty clay, dark brown, soft and wet SILTY SAND: Silty sand with trace clay, dark grey, wet and soft with shells. Increasing clay content from

**Drill Company:** Macquarie Drilling

Drill Model:

Hole Diameter (mm):

**Date Commenced:** 01/05/2008

**Date Completed:** 01/05/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

**Easting:** 6242882.563

Cooks Cove

**Northing:** 329994.194

**Elevation:** 

94

CONSULTING EARTH SCIENTISTS

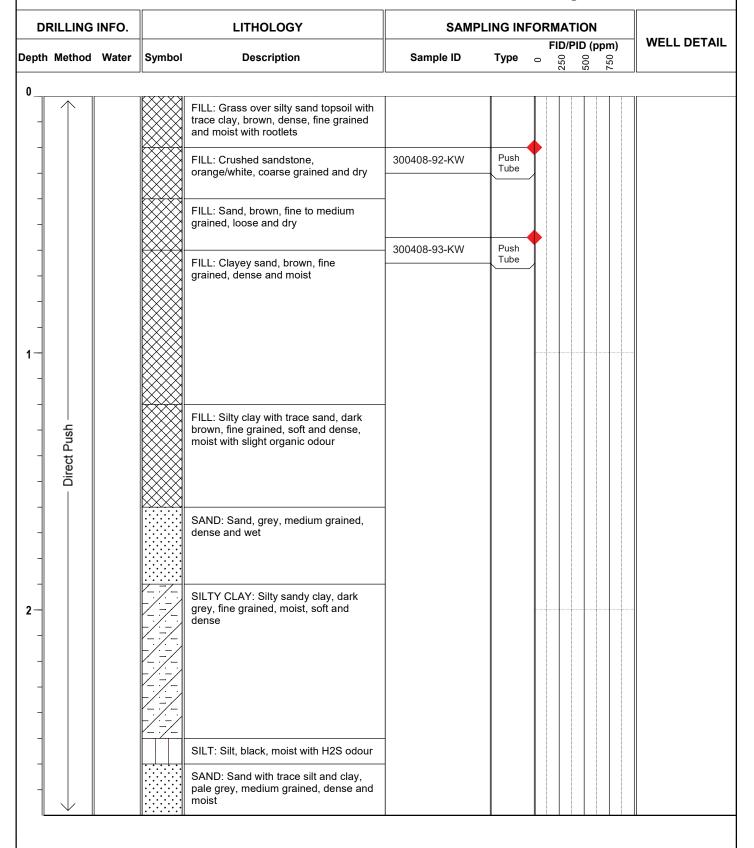
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove

Project:

Client:

Environmental Log: BBH453



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

**Date Commenced:** 01/05/2008

**Date Completed:** 01/05/2008

Logged/checked by: Jenkins/Weir

Easting:

6242816.885

Project:

Location:

Cooks Cove

Cooks Cove

Northing: 329876.016

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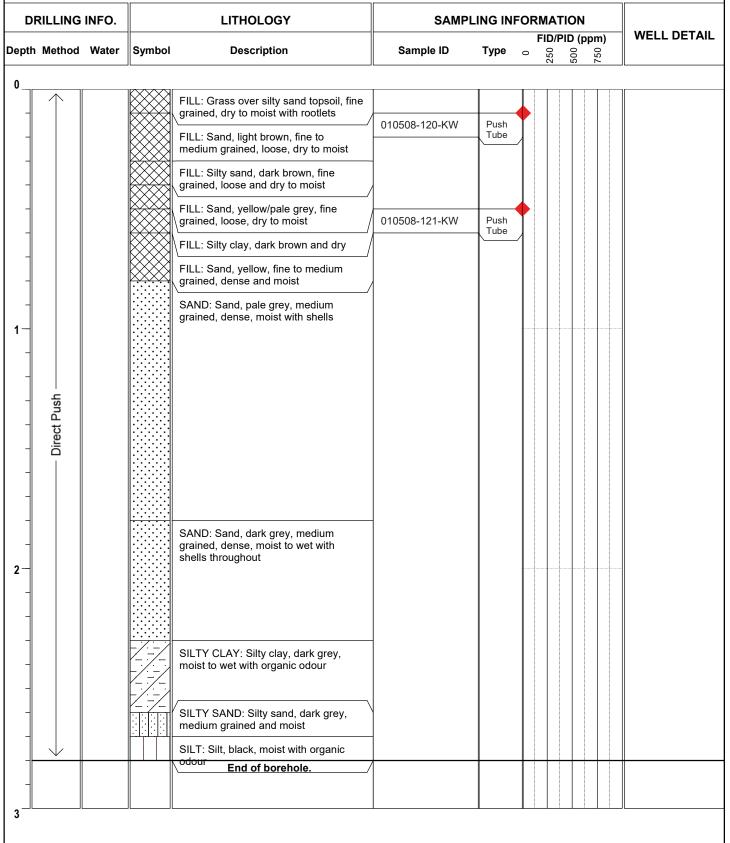
CONSULTING EARTH SCIENTISTS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Client: Boyd Cook Cove

Elevation:

Environmental Log: BBH455



**Drill Company:** Macquarie Drilling

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Hole Diameter (mm):

**Drill Model:** 

**Date Commenced:** 01/05/2008

**Date Completed:** 01/05/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

**Easting:** 

CONSULTING

Jones Bay Wharf 19-21, Lower Level Suite 121

SCIENTISTS

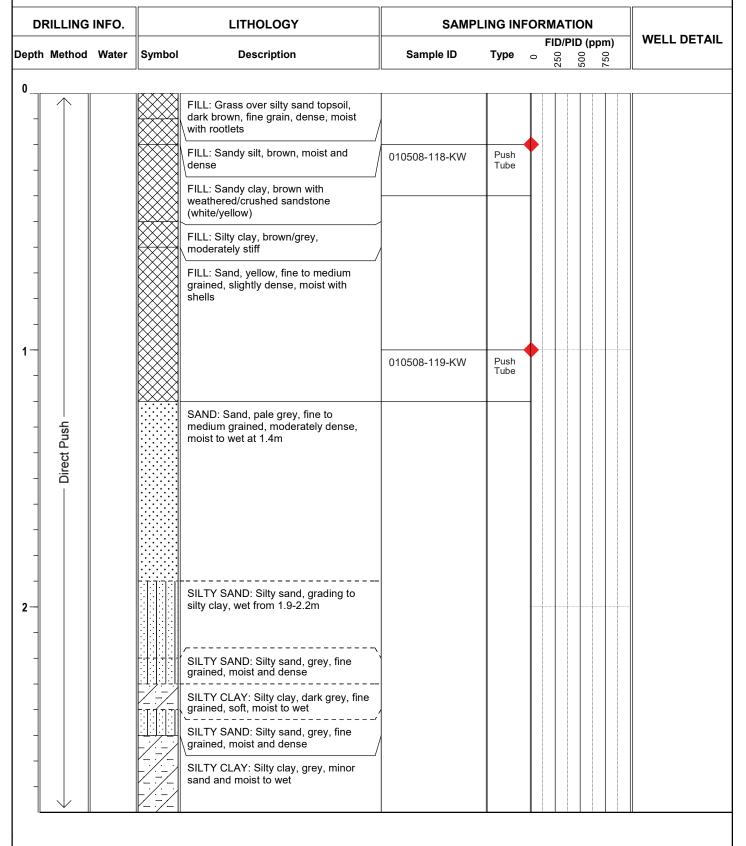
Project: Cooks Cove

Client:

Northing: **Elevation:** 

26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove **Environmental Log: BBH456** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

**Date Commenced:** 

01/05/2008

**Date Completed:** 

01/05/2008

Logged/checked by:

Jenkins/Weir

**Boyd Cook Cove** 

Easting: 6242838.899

Project: Cooks Cove

Client:

Northing:

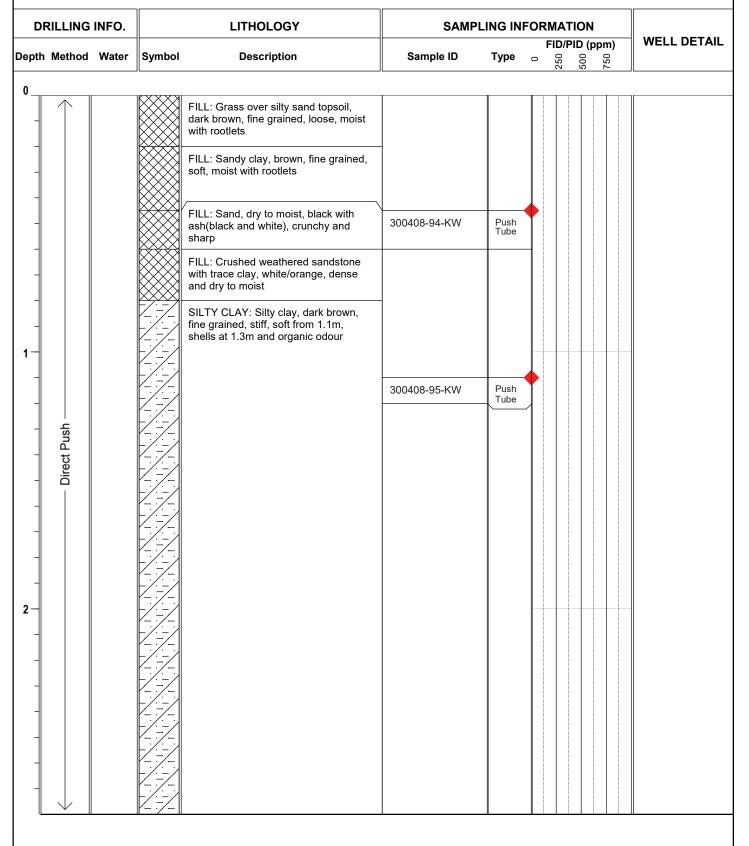
**Elevation:** 

329986.908



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove **Environmental Log: BBH457** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

30/04/2008 **Date Commenced:** 

**Date Completed:** 30/04/2008

Logged/checked by: Jenkins/Weir

Easting: 6242800.902

Project: Cooks Cove Northing: 329820.421

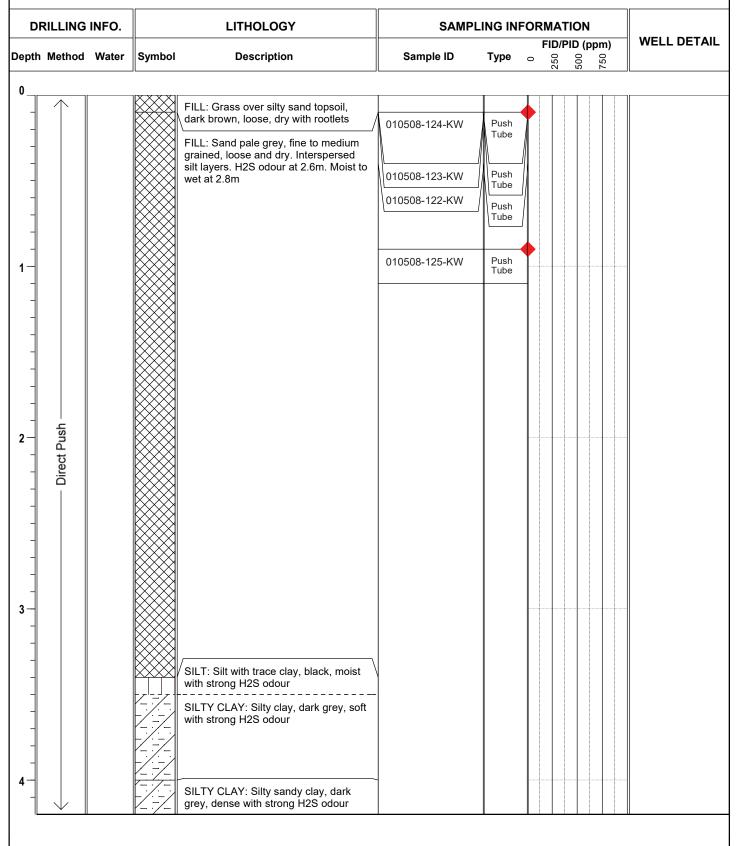


CONSULTING

**Boyd Cook Cove** Client:

**Elevation:** 

Location: Cooks Cove **Environmental Log: BBH458** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm):

01/05/2008 **Date Commenced:** 

**Date Completed:** 01/05/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

Project: Cooks Cove

Easting: Northing: CONSULTING EARTH SCIENTISTS

Client:

Elevation:

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Location:** Cooks Cove

Environmental Log: BBH460

DRILLING INFO.			LITHOLOGY		SAMPLING INFORMATION						
epth	Method	Water	Symbol	Description	Sample ID	Туре	• •	520 <b>TID</b> /F	200 <b>(p</b>	<b>ppm)</b>	WELL DETAIL
0											
				FILL: Grass over silty sand topsoil, dark brown, fine grained, moist with rootlets	010508-114-KW	Push Tube					
-				FILL: Sand, yellow, fine to medium grained, moderately dense, moist shells, silty clay, lenses at 0.8m							
-					010508-115-KW	Push	_				
1				FILL: Sand, pale grey, fine to medium	010000 110 1000	Tube	1				
_				grained, moderately dense and moist							
	Direct Push —			FILL: Silty clay, dark grey, soft, fine grained, moist to wet							
	- Direct			SAND: Sand, pale grey, fine to medium grained, wet at 1.5m and shells							
				SILTY SAND: Silty sand, dark grey, fine to medium grained, wet with shells							
			-//- -//- -//-	SILTY CLAY: Silty clay, dark grey, fine grained, soft to dense and wet							
				SILTY SAND: Silty sand, grey, medium grained, moist with shells							
				SANDY SILT: Sandy silt, black/dark grey, organic and H2S odour							

**Drill Company:** 

Macquarie Drilling

Drill Model:

Hole Diameter (mm):

**Date Commenced:** 01/05/2008

**Date Completed:** 01/05/2008

Logged/checked by: Jenkins/Weir

L3030700-BCC

**Easting:** 6243088.007

**Elevation:** 

Project: Cooks Cove

**Northing:** 329478.534

Client: Boyd Cook Cove

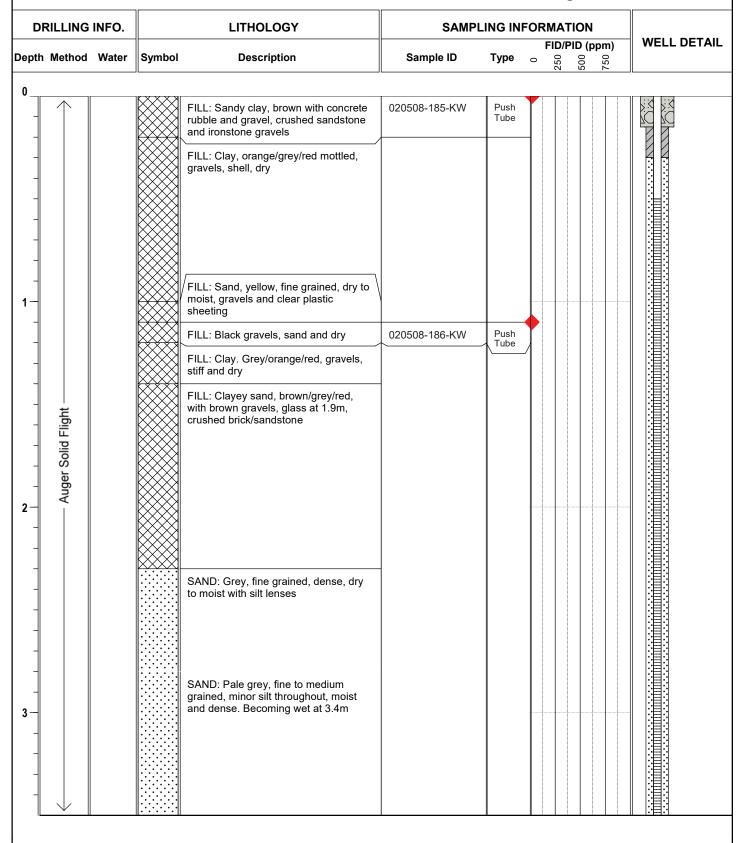
Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

SCIENTIS TS

**Location:** Cooks Cove

Environmental Log: BLG401



**Drill Company:** Macquarie Drilling

Drill Model:

Hole Diameter (mm): 75

**Date Commenced:** 02/05/2008

**Date Completed:** 02/05/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

Easting: 6243088.007

Cooks Cove

Northing:

**Elevation:** 

Project:

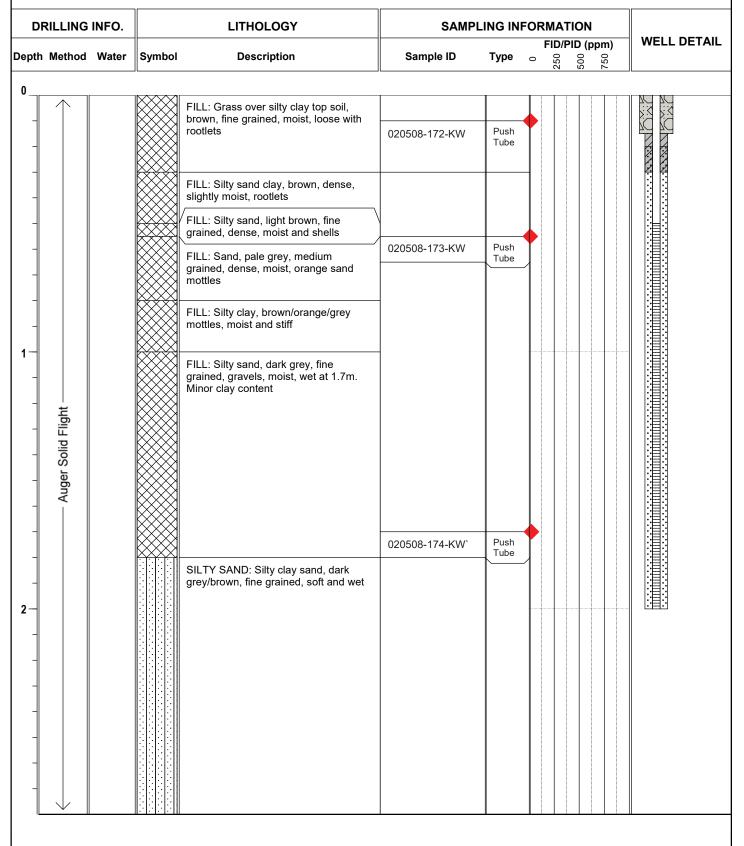
Client:

329478.534



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove **Environmental Log: BLG402** 



**Drill Company:** Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm): 75

02/05/2008 **Date Commenced:** 

**Date Completed:** 02/05/2008

Logged/checked by: Jenkins/Weir

**Boyd Cook Cove** 

Easting: 6243088.007

**Elevation:** 

Project: Cooks Cove

Client:

Northing: 329478.534

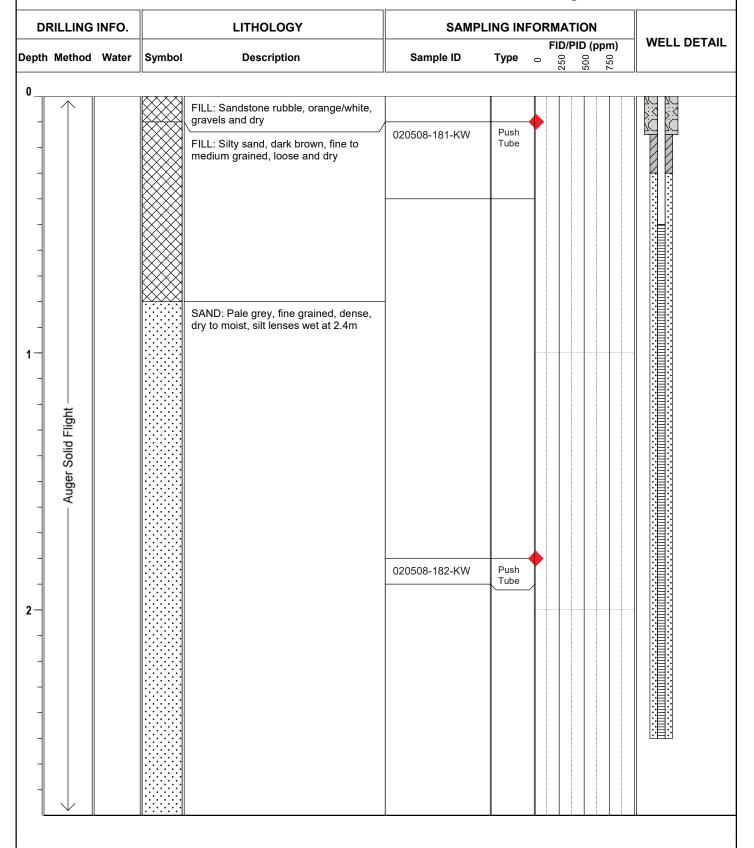


Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

CONSULTING

Location: Cooks Cove

**BLG403 Environmental Log:** 



**Drill Company:** 

Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm): 75

02/05/2008 **Date Commenced:** 

**Date Completed:** 02/05/2008

Logged/checked by: Jenkins/Weir

10700-BCC Ea

**Easting:** 6243088.007

Project: Cooks Cove

Northing: 329478.534

Client: Bo

Boyd Cook Cove

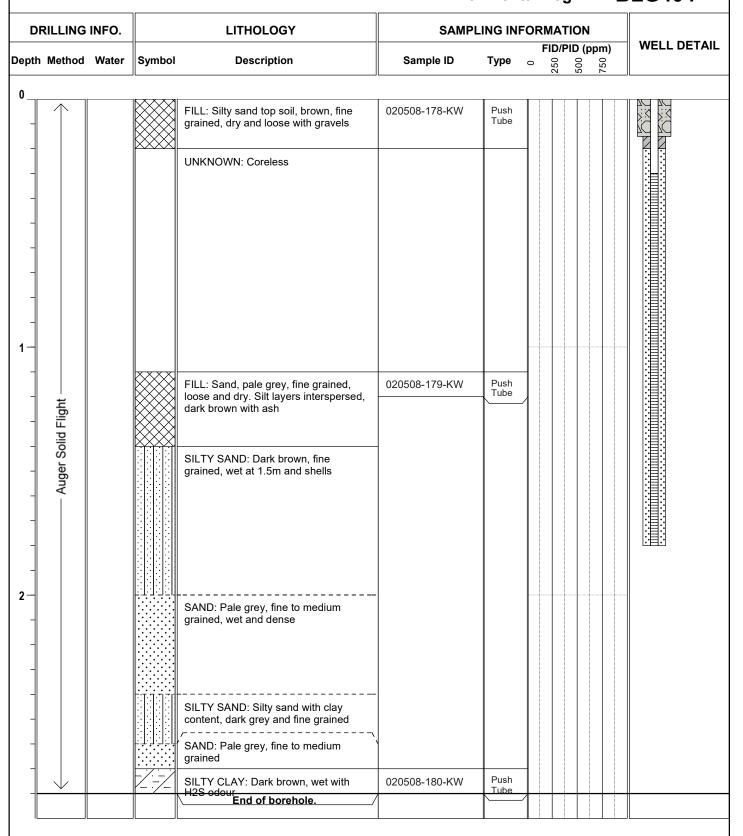
•

**Elevation:** 



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove Environmental Log: BLG404



**Drill Company:** Macquarie Drilling

Hole Diameter (mm): 75

**Drill Model:** 

**Date Commenced:** 02/05/2008

**Date Completed:** 02/05/2008

Logged/checked by: Jenkins/Weir

0 1 0

**Easting:** 6243174.979

J

Project: Cooks Cove

Client:

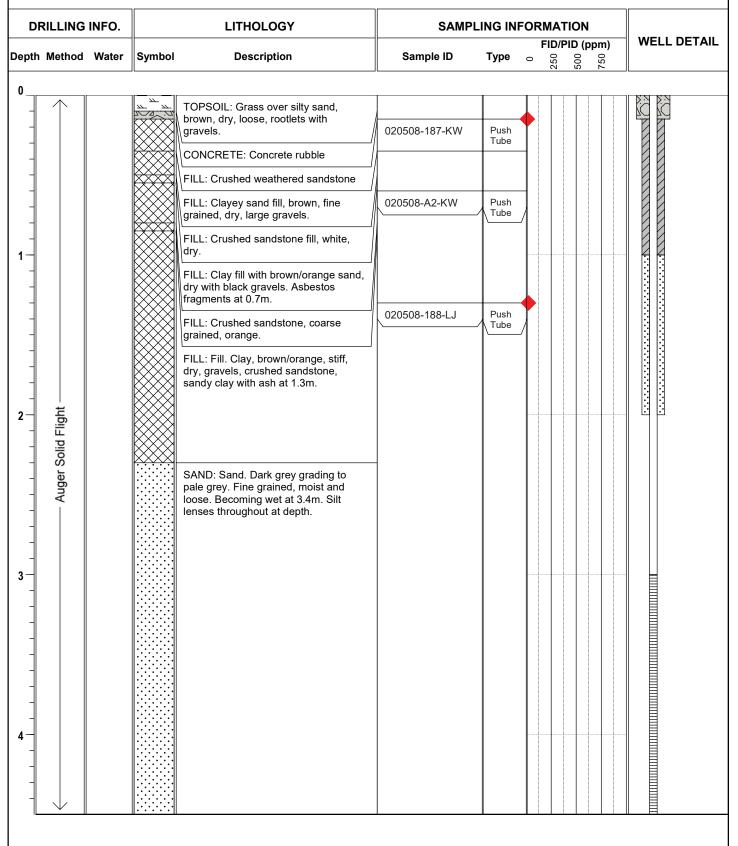
Northing: 329414.632

Boyd Cook Cove Elevation:



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

Location: Cooks Cove Environmental Log: BMW401



**Drill Company:** Macquarie Drilling

Drill Model:

Hole Diameter (mm): 75

**Date Commenced:** 02/05/2008

**Date Completed:** 02/05/2008

Logged/checked by: Jenkins/Weir

Project:

Cooks Cove

**Easting:** 6243090.111

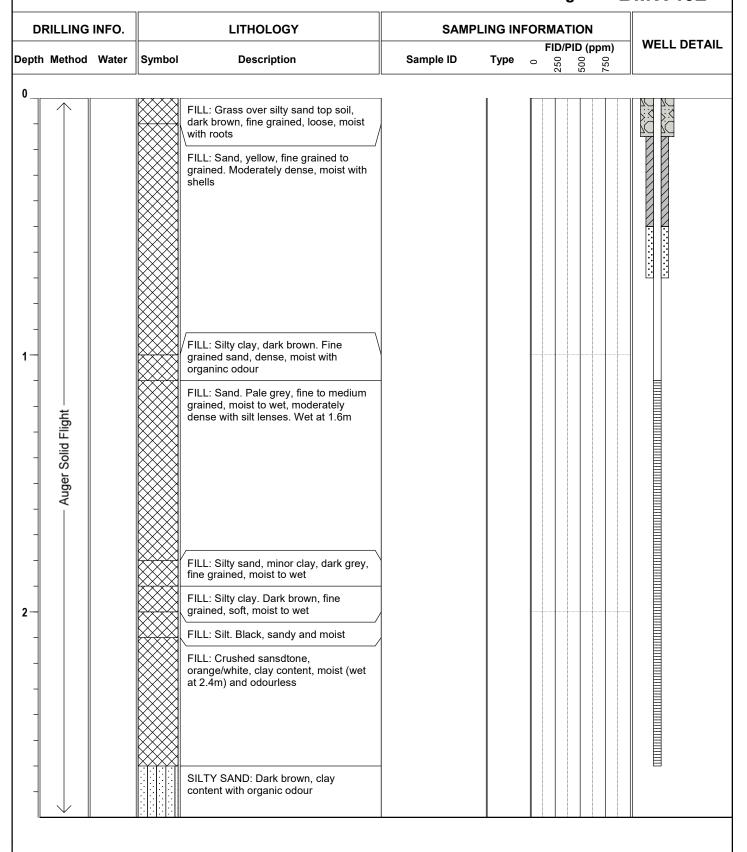
Northing: 329732.258 CONSULTING SCIENTIS TS

Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

**Boyd Cook Cove** Client:

**Elevation:** 

Location: Cooks Cove **BMW402 Environmental Log:** 



**Drill Company:** Macquarie Drilling

**Drill Model:** 

Hole Diameter (mm): 75

02/05/2008 **Date Commenced:** 

**Date Completed:** 02/05/2008

Logged/checked by: Jenkins/Weir

Project ID: CES050706-BCC

Cooks Cove

6-BCC **Easting**:

**Easting:** 6242940.504

329616.3



Jones Bay Wharf 19-21, Lower Level Suite 121 26-32 Pirrama Road Pyrmont 2009 PH: (02) 8569 2200 FAX: (02) 9552 4399

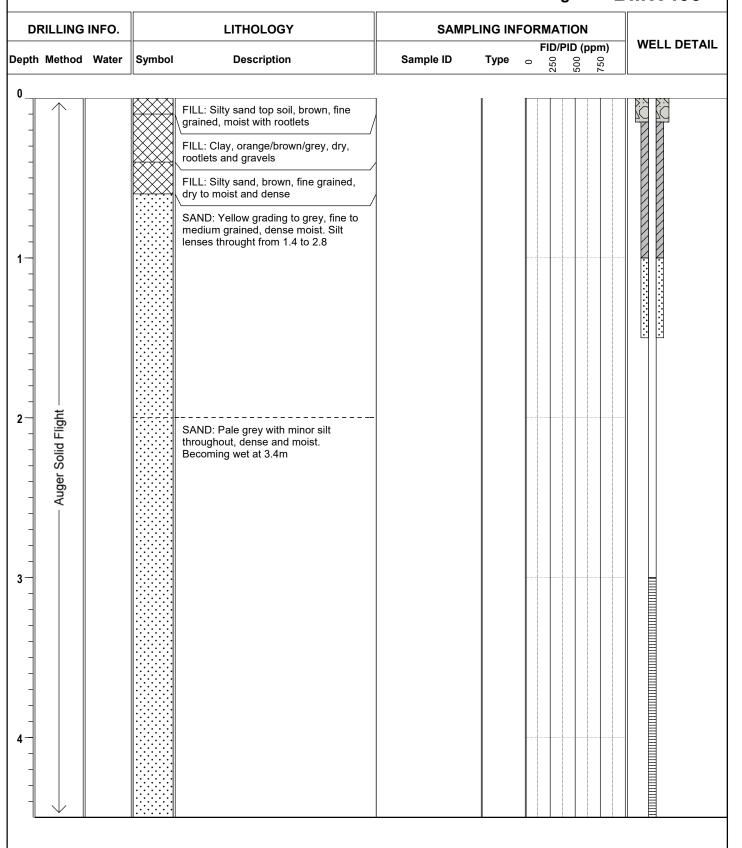
Client: Boyd Cook Cove

Project:

Elevation:

Northing:

Location: Cooks Cove Environmental Log: BMW403



**Drill Company:** Macquarie Drilling

Drill Model:

Hole Diameter (mm): 75

**Date Commenced:** 02/05/2008

**Date Completed:** 02/05/2008

Logged/checked by: Jenkins/Weir

Sheet: 1 of 1

Project ID:			Easti	ng:					ISULTING
Project:			North	ing:		⇉	₹		NTISTS
Client:			Eleva	tion:		26-3	2 Pirrar	ma Road Pyrmoi	wer Level Suite 121 nt 2009 (02) 9552 4399
Location:				Enviro	nmen	tal	Log	j:	
DRILLING	INFO.		LITHOLOGY	SAMPL	ING INI				WELL BETAIL
Depth Method	Water	Symbol	Description	Sample ID	Туре	0	FID/P 	ID (ppm) 092 120	WELL DETAIL
0			FILL: Grass over silty sand top soil, brown, dry, loose with roots  FILL: Crushed sandstone, white, coarse grained, gravels and ceramics  FILL: Sand, brown, fine grained, loose, dry, black gravels with silt inclusions  FILL: Sand, black, dry with black as gravels  UNKNOWN: Core loss  SAND: Sand, yellow, fine to medium grained, loose, dry to moist  UNKNOWN: Core loss  SAND: Sand, grey, fine to medium grained, silt lenses, dry to moist	020508-175-KW  020508-176-KW	Push Tube  Push Tube				
Drill Comp	-			Date Coi Date Coi			•		
Hole Diam		nm):		Logged/			oy:		
	(3-	,		- 33	<b></b>	-	•	SI	neet:



Appendix 6
Summary of 95% UCL Calculation

	А	В	С	D	E LICL Statio	F	G Sets with N	H on Dotoots	I	J	K	L
1					OCL Statis	ucs ioi Data	I Sets With IA	on-Detects				
2		User Sele	cted Options									
3	Dat	e/Time of Co	-		22/02/2023 6	6:05:32 PM						
4		0, 111110 01 01	From File	WorkSheet.								
5		Ful	Il Precision	OFF								
<u>6</u> 7		Confidence		95%								
8	Number o	f Bootstrap	Operations	2000								
9		· ·	'									
10												
11	B(a)P TEQ											
12												
13						General	Statistics					
14			Total	Number of C	bservations	86			Number	r of Distinct C	Observations	28
15									Number	r of Missing C	Observations	0
16					Minimum	0.244					Mean	0.636
17					Maximum	5.755					Median	0.244
18					SD	1.022				Std. E	rror of Mean	0.11
19				Coefficient	of Variation	1.607					Skewness	3.612
20												
21							GOF Test					
22				hapiro Wilk T		0.445			-	lk GOF Test		
23				5% Shapiro \		0		Data No		5% Significar	nce Level	
24					est Statistic	0.351				GOF Test		
25			5	% Lilliefors C		0.0957	.0/ 01 15		t Normal at t	5% Significar	nce Level	
26					Data Not	Normal at t	5% Significar	nce Level				
27					Λο.	ouming Nor	mal Distribut	ion				
28			95% Na	ormal UCL	Λ3	Sulling Non			LICLe (Adiu	sted for Ske	wneee)	
29			3570140		dent's-t UCL	0.82				ed-CLT UCL (		0.864
30						0.02			-	ed-t UCL (Jol		0.827
31												
33						Gamma	GOF Test					
34				A-D 1	Test Statistic	14.43		Andei	son-Darling	Gamma GO	F Test	
35				5% A-D C	Critical Value	0.779	D	ata Not Gam	ıma Distribut	ed at 5% Sig	nificance Lev	/el
36				K-S T	Test Statistic	0.309		Kolmog	orov-Smirno	ov Gamma G	OF Test	
37				5% K-S C	Critical Value	0.0989	D	ata Not Gam	ıma Distribut	ed at 5% Sig	nificance Lev	/el
38				Da	ta Not Gami	na Distribut	ed at 5% Sig	nificance Le	vel			
39												
40						Gamma	Statistics					
41					k hat (MLE)	1.155			k:	star (bias cor	rected MLE)	1.122
42					ta hat (MLE)	0.551			Theta	star (bias cor		0.567
43					nu hat (MLE)	198.6					s corrected)	193
44			MI	LE Mean (bia	s corrected)	0.636				•	s corrected)	0.601
45										Chi Square	, ,	161.9
46			Adjus	sted Level of	Significance	0.0472			Ad	djusted Chi S	quare Value	161.4
47												
48		F0/ A :		1101 /			nma Distribut				1 50	0.701
49	9	5% Approxir	nate Gamma	UCL (use w	nen n>=50))	0.759		95% Ad	ljusted Gamr	ma UCL (use	wnen n<50)	0.761
50						lame	LOOF T					
51				honiro Will.	Foot Ctotictic		I GOF Test	Ob	oino VA/III- I	marmal OOF	Toot	
52			S	hapiro Wilk T	est Statistic	0.649		Shap	DIFO WIIK LOG	normal GOF	est	

	Α	В	С	D	Е	F	G	Н	I	J	K	L		
53				5% Shapiro	Wilk P Value	0			•	ŭ				
54						0.315			•					
55			5	5% Lilliefors (					Lognormal a	t 5% Signific	ance Level			
56		5% Shapiro Wilk P Value 0 Data Not Lognormal at 5% Significance Level Lilliefors Test Statistic 0.315 Lilliefors Lognormal GOF Test 5% Lilliefors Critical Value 0.0957 Data Not Lognormal at 5% Significance Level  Data Not Lognormal at 5% Significance Level  Lognormal Statistics												
57		Lognormal Statistics  Minimum of Logged Data -1.411 Mean of logged Data Maximum of Logged Data 1.75 SD of logged Data  Maximum of Logged Data 1.75 SD of logged Data  Assuming Lognormal Distribution  95% H-UCL 0.637 90% Chebyshev (MVUE) UCL 95% Chebyshev (MVUE) UCL 0.754 97.5% Chebyshev (MVUE) UCL 99% Chebyshev (MVUE) UCL 1.041  Nonparametric Distribution Free UCL Statistics												
58							I Statistics							
59												-0.944		
60				Maximum of	Logged Data	1.75				SD of	logged Data	0.794		
61														
62							ormal Distribu	ution	222/	01 1 1	(1.D. (1.15) 1.161	0.005		
63			0.50/							-	. ,	0.685		
64				, ,	,				97.5%	Chebyshev	(MVUE) UCL	0.851		
65			99%	Chebyshev (	MVUE) UCL	1.041								
66					Management	ed Distribu	<b></b> 110	N 04-4'-4'						
67					-				•\					
68					Data do not r	ollow a Disc	ernible Distri	ibution (0.05	P)					
69					Nonno	romotrio Dio	tribution Ero	a LICI a						
70				QF				e OCLS		Ω5% Ισ	ockknifo LICI	0.82		
71			95%									0.82		
72									95%		•	0.832		
73									33701	- Crecitile De		0.002		
74									95% Ch	nehvshev(Me	an Sd) UCL	1.117		
75				nebyshev(Me	•	1.325				• •	ean, Sd) UCL	1.733		
76				,	,,					,	,,			
77						Suggested	UCL to Use							
78 79			95% Ch	ebyshev (Me	an, Sd) UCL	1.117								
80				<i>y</i> = - (	, ,									
81		Note: Sugge	stions regard	ding the selec	ction of a 95%	UCL are pr	ovided to hel	p the user to	select the m	nost appropri	iate 95% UCI			
82					ations are bas			·						
83		These reco			upon the resu						d Lee (2006).			
84	Но				/er all Real W						. ,			
85		<u> </u>												
၀၁														

	А	В	С	D	E	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with No	on-Detects				
2				ı								
3			cted Options		10010000 10							
4	Date	e/Time of Co	-	ProUCL 5.17		0:01:13 AM						
5		F. 1	From File	WorkSheet.x	IS							
6		Confidence	l Precision	OFF 95%								
7				2000								
8	Number o	f Bootstrap (	Operations	2000								
9												
10	B(a)P											
11	-(4).											
12						General	Statistics					
13			Total	Number of Ob	oservations	88			Numbe	er of Distinct C	bservations	16
14										r of Missing C		0
15					Minimum	0.05					Mean	0.249
16 17					Maximum	1.4					Median	0.205
18					SD	0.233				Std. E	rror of Mean	0.0248
19				Coefficient		0.936					Skewness	3.292
20												
21						Normal (	GOF Test					
22			S	hapiro Wilk Te	est Statistic	0.573			Shapiro W	ilk GOF Test		
23			!	5% Shapiro W	/ilk P Value	0		Data N	ot Normal at	5% Significar	ice Level	
24				Lilliefors Te	est Statistic	0.37			Lilliefors	GOF Test		
25			5	% Lilliefors Cr	itical Value	0.0946		Data N	ot Normal at	5% Significar	ice Level	
26					Data Not	Normal at 5	% Significan	ce Level				
27												
28					As	suming Nor	mal Distributi	on				
29			95% No	ormal UCL				95%	6 UCLs (Adju	usted for Ske	wness)	
30				95% Stud	ent's-t UCL	0.29			_	ed-CLT UCL		0.299
31									95% Modifi	ied-t UCL (Jol	nnson-1978)	0.291
32												
33							GOF Test					
34					est Statistic	7.781				Gamma GO		
35					ritical Value	0.763	Da			ted at 5% Sig		el
36					est Statistic	0.315	_		<del>-</del>	ov Gamma G		
37					itical Value	0.0964				ted at 5% Sig	niticance Lev	el
38				Dat	a INOT Gami	na Distribut	ed at 5% Sigr	inicance L	evei			
39						Gamma	Statistics					
40				1	k hat (MLE)	2.221	Statistics		l,	star (bias cor	rected MI EV	2.153
41					a hat (MLE)	0.112				star (bias cor	,	0.115
42					u hat (MLE)				Illeta		s corrected)	379
43			MI	_E Mean (bias	, ,	0.249				MLE Sd (bia	·	0.169
44			1911	(bidd	33.100104)	3.210			Approximate	e Chi Square	· ·	334.9
45			Adius	sted Level of S	Significance	0.0473				djusted Chi S		334.2
46					3					, <u></u>	,	
47					Ass	suming Gan	nma Distributi	ion				
48	95	5% Approxin	nate Gamma	UCL (use wh		0.281			djusted Gam	ma UCL (use	when n<50)	0.282
49	-	F F		(- >	//				,	- (3.30	/	
50	<u> </u>											

П	Α	В	С	D	E	F	G	Н	I	J	K	Т	L
51		•	•	•		Lognorma	GOF Test			•	•	•	
52			;	Shapiro Wilk	Test Statistic	0.852		Shap	iro Wilk Lo	gnormal GC	F Test		
53				5% Shapiro	Wilk P Value	2.222E-12		Data Not I	_ognormal a	at 5% Signifi	cance Leve		
54				Lilliefors	Test Statistic	0.276		Lill	iefors Logn	ormal GOF	Test		
55				5% Lilliefors	Critical Value	0.0946		Data Not I	_ognormal a	at 5% Signifi	cance Leve		
56					Data Not	Lognormal at	5% Signific	ance Level					
57													
58							l Statistics						
59					Logged Data						of logged Da		-1.633
60				Maximum of	Logged Data	0.336				SD c	of logged Da	ta	0.647
61													
62					Ass	uming Logno	ormal Distrib	ution					
63					95% H-UCL	0.276				Chebyshev	, ,		0.294
64				•	(MVUE) UCL				97.5%	Chebyshev	(MVUE) UC	CL	0.353
65			99%	Chebyshev	(MVUE) UCL	0.419							
66													
67						etric Distribu							
68					Data do not	follow a Disc	ernible Distr	ibution (0.05	5)				
69													
70					-	rametric Dis	tribution Fre	e UCLs					
71					95% CLT UCL						ackknife UC		0.29
72					ootstrap UCL	0.289					otstrap-t UC		0.307
73					Sootstrap UCL				95%	Percentile E	Bootstrap UC	CL	0.293
74					ootstrap UCL								
75				` `	ean, Sd) UCL					hebyshev(M			0.357
76			97.5% C	hebyshev(M	ean, Sd) UCL	0.404			99% C	hebyshev(M	ean, Sd) U0	CL	0.496
77													
78							UCL to Use						
79			95% Cr	nebyshev (M	ean, Sd) UCL	0.357							
80					6 050							0.1	
81		Note: Sugge			ection of a 95%			·			rıate 95% U	CL.	
82		T.			lations are ba	'					(000	0)	
83					upon the resu							-	
84	Нс	wever, simu	ulations resu	Its will not co	over all Real V	Vorld data se	ts; for additio	nal insight th	e user may	want to con	sult a statis	ician	
85													

	Α	В	С	D	E	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with No	on-Detects	l			
2			-11-01	T								
3	Dete		cted Options omputation		6/03/2023 5:2	22.1C DM						
4	Date	e/Time of Co	From File	WorkSheet.		23: 16 PIVI						
5		Eu	Il Precision	OFF	XIS							
6	(		Coefficient	95%								
7			Operations	2000								
8	14dilliber of	Воотопар	Орстанопо	2000								
9	Cu											
10 11												
12						General	Statistics					
13			Total	Number of C	bservations	156			Numbe	er of Distinct C	bservations	90
14				Numbe	er of Detects	141				Number of	Non-Detects	15
15			Nı	umber of Dist	inct Detects	89			Numb	er of Distinct	Non-Detects	2
16				Mini	mum Detect	1.1				Minimum	Non-Detect	1
17				Maxi	mum Detect	260				Maximum	Non-Detect	5
18				Varia	nce Detects	1531				Percent	Non-Detects	9.615%
19				М	ean Detects	22.62					SD Detects	39.13
20				Med	dian Detects	9.9					CV Detects	1.73
21					ess Detects	3.925					osis Detects	17.87
22				Mean of Log	ged Detects	2.365				SD of Log	ged Detects	1.16
23												
24							t on Detects					
25				hapiro Wilk T							rvations Only	
26			,	5% Shapiro \		0		Detected Da			ificance Level	
27					est Statistic			N. 1 1 1. D.		GOF Test	· · · · · · · · · · · · · · · · · · ·	
28			5	% Lilliefors C		0.075	l at 5% Signi			al at 5% Sign	ificance Level	1
29					elected Data	1 NOL NOTTIA	ıı at 5% Sığı ii	ilicance Le	vei			
30			Kanlan.	Meier (KM) S	Statietice usi	ng Normal C	critical Values	and other	Nonnarame	tric UCI s		
31			Rapian	INICIOI (IXIVI) C	KM Mean		Titical values			M Standard E	rror of Mean	3.022
32					KM SD	37.61			10		1 (BCA) UCL	25.84
33				95%	KM (t) UCL	25.55			95% KM (F	Percentile Boo	` ′	25.68
34					KM (z) UCL	25.52				95% KM Boo	. ,	27.51
35 36			g	90% KM Che	byshev UCL	29.62				95% KM Che		33.73
37			97	.5% KM Che	byshev UCL	39.43				99% KM Che		50.62
38							1					
39				G	amma GOF	Tests on De	etected Obse	rvations O	nly			
40				A-D T	est Statistic	5.291			Anderson-Da	arling GOF Te	est	
41				5% A-D C	Critical Value	0.794	Detecte	ed Data No	t Gamma Dis	stributed at 5%	6 Significance	Level
42					est Statistic				•	-Smirnov GO		
43					Critical Value	0.0819				stributed at 5%	6 Significance	Level
44				Detecte	d Data Not C	3amma Dist	ributed at 5%	Significar	nce Level			
45								_				
46							Detected Da	ata Only				
47					k hat (MLE)					star (bias cor	*	0.777
48					ta hat (MLE)	28.68			Theta	star (bias cor	· ·	29.13
49					nu hat (MLE)					nu star (bia	as corrected)	219.1
50				Me	ean (detects)	22.62						

	Α	В	С	Π	D	Т	E	F	G	$\top$	Н	Т	ı	J		K	$\neg$	
51										•							_	
52						Gam	ma ROS	Statistics	using Impu	ed No	n-Dete	ects						
53			GROS may	not	be use	d whe	en data s	set has > 50	% NDs with	many	tied ob	oser	vations at	t multiple	DLs			
54		GROS may	y not be used	d wh	en kstar	of de	etects is	small such	as <1.0, es <sub>l</sub>	ecially	when	the	sample s	size is sn	nall (e	.g., <15-	20)	
55			Fo	or su	ch situa	tions	GROS	method may	yield inco	rect va	lues o	of UC	CLs and B	BTVs				
56						This	is espec	ially true wh	en the sam	ple siz	e is sm	nall.						
57		For gar	nma distribu	ted c	letected	l data	, BTVs a	and UCLs m	ay be comp	uted u	sing g	amn	na distribu	ution on	KM e	stimates		
58						٨	/linimum	0.01								Me	ean	20.45
59						M	aximum	260								Med	lian	8.5
60							SD	37.79									CV	1.848
61						k ha	at (MLE)	0.483					k	star (bia	s cor	rected M	LE)	0.478
62					The	eta ha	at (MLE)	42.36					Theta	star (bia	s cor	rected M	LE)	42.8
63						nu ha	at (MLE)	150.6						nu sta	ar (bia	s correct	ted)	149.1
64			Adjusted	l Lev	el of Si	gnific	ance (β)	0.0485										
65		Appr	oximate Chi	Squ	are Valu	ie (14	19.06, α)	121.8				Adj	usted Chi	i Square	Value	e (149.06	5, β)	121.6
66		95% Gamma	Approximat	e U0	CL (use	wher	n>=50)	25.02			95% (	Gam	ma Adjus	ted UCL	(use	when n<	50)	25.06
67									1									
68					Е	stima	ates of C	amma Para	ameters us	ng KM	Estim	nate	S					
69						Ме	an (KM)	20.55								SD (ł	KM)	37.61
70					V	'arian	ce (KM)	1415							SE o	f Mean (Ł	(M)	3.022
71						k l	nat (KM)	0.299								k star (ł	(M)	0.297
72						nu l	nat (KM)	93.17								nu star (ł	KM)	92.71
73				t	heta l	nat (KM)	68.82							the	eta star (k	(M)	69.16	
74			80%	ercent	tile (KM)	31.45					90	% gamm	a per	centile (k	(M)	60.69		
75			95%	ercent	tile (KM)	94.31					99	% gamm	a per	centile (k	KM)	181.8		
76																		
77							Gamr	na Kaplan-N	leier (KM)	Statisti	cs							
78		Арр	roximate Ch	i Sq	uare Va	lue (9	92.71, α)	71.51				A	djusted Cl	hi Square	e Valu	ue (92.71	, β)	71.34
79	959	% Gamma App	proximate KN	N-UC	CL (use	when	n>=50)	26.65		95%	Gam	ma	Adjusted	KM-UCL	(use	when n<	50)	26.71
80									-1									
81					L	.ogno	rmal G	OF Test on I	Detected O	bserva	tions	Only	/					
82		Sł	napiro Wilk A	ppro	ximate	Test	Statistic	0.967				S	hapiro W	/ilk GOF	Test			
83				5% :	Shapiro	Wilk	P Value	0.03		Detect	ed Dat	ta N	ot Lognor	mal at 5°	% Sig	nificance	e Lev	rel
84				L	illiefors	Test	Statistic	0.0841					Lilliefors	GOF T	est			
85			5	% L	lliefors	Critic	al Value	0.075		Detect	ed Dat	ta N	ot Lognor	mal at 5°	% Sig	nificance	e Lev	/el
86					D	etect	ed Data	Not Lognor	mal at 5%	Signific	ance	Lev	el					
87																		
88					L	ogno	rmal RC	S Statistics	Using Imp	uted N	on-De	tect	s					
89				М	ean in C	Drigin	al Scale	20.53						N	/lean	in Log Sc	cale	2.113
90					SD in 0	Drigin	al Scale	37.74							SD	in Log Sc	cale	1.356
91		95% t L	JCL (assume	es no	rmality	of RC	OS data)	25.53					95%	Percent	ile Bo	otstrap L	JCL	25.7
92	95% BCA Bootstra							26.95						95%	6 Boo	tstrap t L	JCL	27.59
93	95% H-UCL (Log							27.45										
94								1	II.									
95	Statistics using KM estima							on Logged	Data and A	Ssumi	ng Lo	gnoi	rmal Distr	ribution				
96					KM N	lean	(logged)	2.142							KI	// Geo M	ean	8.517
97					KN	1 SD	(logged)	1.296					95%	Critical I	H Val	ue (KM-L	.og)	2.498
98			KM Standa	rd E	rror of M	lean	(logged)	0.104						95%	H-UC	L (KM -L	.og)	25.58
99					KN	1 SD	(logged)	1.296					95%	Critical I	H Val	ue (KM-L	.og)	2.498
100			KM Standa	rd E	rror of M	lean	(logged)	0.104									$\dashv$	
100								1	1								$\longrightarrow$	

	Α	В	С	D	Е	F	G	Н	I	J	K	L		
101														
102						DL/2 S	tatistics							
103			DL/2 I	Normal					DL/2 Log-T	ransformed				
104				Mean in O	riginal Scale	20.51				Mean	in Log Scale	2.081		
105				SD in O	riginal Scale	37.75				SD	in Log Scale	1.411		
106			95% t L	JCL (Assume	es normality)	25.51				95%	H-Stat UCL	29.22		
107		DL/2 is not a recommended method, provided for comparisons and historical reasons												
108														
109	Nonparametric Distribution Free UCL Statistics													
110				Data do n	ot follow a D	iscernible D	istribution at	5% Significa	ance Level					
111														
112						Suggested	UCL to Use							
113			95	% KM (Chel	yshev) UCL	33.73								
114														
115	1	Note: Sugges	stions regard	ing the selec	tion of a 95%	UCL are pr	ovided to hel	p the user to	select the m	nost appropri	ate 95% UCL			
116			F	Recommenda	ations are bas	sed upon dat	a size, data	distribution, a	and skewnes	S.				
117		These recor	mmendations	are based u	ipon the resu	Its of the sin	nulation studi	es summariz	ed in Singh,	Maichle, and	d Lee (2006).			
118	Но	wever, simul	lations result	s will not cov	er all Real W	orld data se	ts; for additio	nal insight th	ne user may	want to cons	ult a statistici	an.		
119														

	Α	В	С	D	Е	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with No	on-Detects				
2												
3			ected Options									
4	Dat	e/Time of C	Computation	ProUCL 5.12		3:45:06 PM						
5			From File	WorkSheet.>	ds							
6			ıll Precision	OFF								
7			Coefficient	95%								
8	Number o	of Bootstrap	Operations	2000								
9												
10	Lead											
11												
12							Statistics					
13			Total	Number of O		157			Numb		Observations	
14					r of Detects						Non-Detects	-
15			N	umber of Dist		89			Numb		Non-Detects	
16					mum Detect						m Non-Detect	
17					mum Detect						m Non-Detect	
18					nce Detects					Percent	Non-Detects	
19					ean Detects	63.45					SD Detects	
20					lian Detects	26					CV Detects	
21					ess Detects	5.963					rtosis Detects	
22				Mean of Logg	ged Detects	3.158				SD of Lo	gged Detects	1.441
23												
24							t on Detects					
25				Shapiro Wilk T		0.422					ervations Onl	•
26				5% Shapiro V		0	D	etected Da			nificance Leve	el .
27					est Statistic	0.327				s GOF Test		
28			5	% Lilliefors C		0.0725				nal at 5% Sigr	nificance Leve	əl
29				D	etected Data	a Not Norma	l at 5% Signi	ficance Le	vel			
30												
31			Kaplan-	Meier (KM) S		•	ritical Values	and other				
32					KM Mean				K		Error of Mean	
33					KM SD	136.9					M (BCA) UCL	
34					KM (t) UCL	79.22			95% KM (	Percentile Bo	• •	79.91
35					KM (z) UCL	79.11					otstrap t UCL	
36				90% KM Cheb	_	93.97					ebyshev UCL	108.9
37			97	7.5% KM Cheb	ysnev UCL	129.5				99% KM Che	ebyshev UCL	170.2
38						Toots s: D	tooted Ot-	m.coti ^	mls r			
39					est Statistic		etected Obse		•	ading OOF T	·	
40						3.062	Dates			arling GOF T		
41					ritical Value	0.808	Detecte				% Significand	e Level
42					est Statistic	0.119	Detect			v-Smirnov GC		
43					ritical Value	0.08				stributed at 5	% Significano	e Level
44				Detecte	u Data Not (	aamma Dist	ributed at 5%	olgnificar	ice Level			
45					Ca	Otatiotics ::	Detected D	nto Ombr				
46							Detected Da	ata Uniy		r atom /lata = :	recoted AALE	0.040
47					k hat (MLE)					•	orrected MLE)	
48					a hat (MLE)				i heta	star (bias co		103.7
49					u hat (MLE)					nu star (bi	as corrected)	184.7
50				Mea	an (detects)	63.45						
51						Otatiati	alma lararete 1	Nor Det	-1-			
52				G	amma ROS	Statistics u	sing Imputed	Non-Dete	CIS			

	A B C D E	F	G H I J K I	1
53		et has > 50%	NDs with many tied observations at multiple DLs	
54	GROS may not be used when kstar of detects is s	small such as	s <1.0, especially when the sample size is small (e.g., <15-20)	
55	For such situations, GROS r	method may	yield incorrect values of UCLs and BTVs	
56	This is especia	ally true whe	n the sample size is small.	
57	For gamma distributed detected data, BTVs a	nd UCLs ma	y be computed using gamma distribution on KM estimates	
58	Minimum	0.01	Mean	61.03
59	Maximum	1200	Median	25
60	SD	137.4	CV	2.251
61	k hat (MLE)	0.507	k star (bias corrected MLE)	0.502
62	Theta hat (MLE)	120.4	Theta star (bias corrected MLE)	121.7
63	nu hat (MLE)	159.2	nu star (bias corrected)	157.5
64	Adjusted Level of Significance (β)	0.0485		
65	Approximate Chi Square Value (157.48, α)	129.5	Adjusted Chi Square Value (157.48, β)	129.2
66	95% Gamma Approximate UCL (use when n>=50)	74.23	95% Gamma Adjusted UCL (use when n<50)	74.36
67				
68	Estimates of G	amma Parar	meters using KM Estimates	
69	Mean (KM)	61.08	SD (KM)	136.9
70	Variance (KM)	18744	SE of Mean (KM)	10.96
71	k hat (KM)	0.199	k star (KM)	0.199
72	nu hat (KM)	62.5	nu star (KM)	62.64
73	theta hat (KM)	306.9	theta star (KM)	306.2
74	80% gamma percentile (KM)	80.38	90% gamma percentile (KM)	184.7
75	95% gamma percentile (KM)	314.9	99% gamma percentile (KM)	673.5
76			l l	
77	Gamm	a Kaplan-Mo	eier (KM) Statistics	
78	Approximate Chi Square Value (62.64, α)	45.43	Adjusted Chi Square Value (62.64, β)	45.3
79	95% Gamma Approximate KM-UCL (use when n>=50)	84.21	95% Gamma Adjusted KM-UCL (use when n<50)	84.46
80			'	
81	Lognormal GO	F Test on D	etected Observations Only	
82	Shapiro Wilk Approximate Test Statistic	0.972	Shapiro Wilk GOF Test	
83	5% Shapiro Wilk P Value	0.0863	Detected Data appear Lognormal at 5% Significance Le	evel
84	Lilliefors Test Statistic	0.0711	Lilliefors GOF Test	
85	5% Lilliefors Critical Value	0.0725	Detected Data appear Lognormal at 5% Significance Le	evel
86	Detected Data ap	pear Lognoi	rmal at 5% Significance Level	
87				
88	Lognormal ROS	S Statistics U	Jsing Imputed Non-Detects	
89	Mean in Original Scale	61.08	Mean in Log Scale	3.037
90	SD in Original Scale	137.3	SD in Log Scale	1.546
91	95% t UCL (assumes normality of ROS data)	79.22	95% Percentile Bootstrap UCL	81.09
92	95% BCA Bootstrap UCL	86.5	95% Bootstrap t UCL	93.25
93	95% H-UCL (Log ROS)	96.96		
94				
95			Data and Assuming Lognormal Distribution	
96	KM Mean (logged)	3.046	KM Geo Mean	21.03
97	KM SD (logged)	1.519	95% Critical H Value (KM-Log)	2.741
98	KM Standard Error of Mean (logged)	0.122	95% H-UCL (KM -Log)	93.01
99	KM SD (logged)	1.519	95% Critical H Value (KM-Log)	2.741
100	KM Standard Error of Mean (logged)	0.122		
101		DL/2 St	tatietice	
101		DD2 31		
	DL/2 Normal  Mean in Original Scale	61.07	DL/2 Log-Transformed  Mean in Log Scale	3.031

	Α	В	С	D	Е	F	G	Н		J	K	L
105				SD in O	riginal Scale	137.4				SD	in Log Scale	1.558
106			95% t l	JCL (Assume	es normality)	79.21				95%	H-Stat UCL	98.64
107			DL/2	s not a reco	mmended m	ethod, provi	ded for comp	parisons and	l historical re	easons		
108												
109					Nonparame	etric Distribu	tion Free UC	CL Statistics				
110				Detected [	Data appear	Lognormal [	Distributed a	t 5% Signific	ance Level			
111												
112						Suggested	UCL to Use					
113					KM H-UCL	93.01						
114												
115		Note: Sugge	stions regard	ing the selec	tion of a 95%	UCL are pr	ovided to he	lp the user to	select the m	nost appropri	ate 95% UCL	
116			F	Recommenda	tions are bas	sed upon dat	a size, data	distribution,	and skewnes	SS.		
117		These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).										
118	However, simulations require will not opyer all Deal World data acts, for additional insight the upper may want to consult a statisticia											
119												

	Α	В	С	D	E	F	G	Н	I	J	K	L
1					UCL Statis	tics for Data	Sets with No	on-Detects	<u> </u>			
2		Haar Cala										
3	Doto		ected Options computation		6/03/2023 1:4	12.E1 DM						
4	Date	# Time or Co	From File	WorkSheet.		43.31 PW						
5		Fu	III Precision	OFF	X12							
6	(		Coefficient	95%								
7				2000								
8	Trainibor of	Dooloudp										
9	Ni											
10 11												
12						General	Statistics					
13			Total	Number of C	Observations	155			Numbe	er of Distinct C	bservations	63
14				Numbe	er of Detects	125				Number of I	Non-Detects	30
15			Nı	umber of Dis	tinct Detects	62			Numb	er of Distinct I	Non-Detects	3
16				Mini	imum Detect	1				Minimum	Non-Detect	1
17				Maxi	imum Detect	59				Maximum	Non-Detect	5
18				Varia	ance Detects	77.61				Percent I	Non-Detects	19.35%
19				M	lean Detects	6.552					SD Detects	8.81
20				Me	dian Detects	3.4					CV Detects	1.345
21				Skewr	ness Detects	3.574				Kurt	osis Detects	15.55
22				Mean of Log	ged Detects	1.37				SD of Log	ged Detects	0.949
23												
24							t on Detects					
25					Test Statistic					etected Obser		
26				5% Shapiro \				Detected Da		al at 5% Sign	ificance Leve	l 
27					Test Statistic		<u> </u>			GOF Test		
28			5	% Lilliefors C						al at 5% Signi	ificance Leve	<u> </u>
29					etected Data	a Not Norma	al at 5% Signi	ificance Le	vel			
30			Vanlan	Major (KM) (	Ctatiatias val	na Namal C	Critical Values		- Nonnovomo	trio IIOI o		
31				Meier (Kivi)	KM Mean		Titical values	and other		M Standard E	rror of Moon	0.659
32					KM SD				N		I (BCA) UCL	6.695
33				95%	6 KM (t) UCL				95% KM (I	Percentile Boo	` '	6.62
34					KM (z) UCL				•	95% KM Boo	. ,	7.018
35			<u> </u>		byshev UCL		-			95% KM Che	· ·	8.364
36					byshev UCL					99% KM Che	-	12.05
37 38							<u> </u>				• • • •	
38				•	amma GOF	Tests on De	etected Obse	ervations O	nly			
40					Test Statistic					arling GOF Te	est	
41				5% A-D C	Critical Value	0.78	Detecte	ed Data No	t Gamma Dis	stributed at 5%	6 Significance	Level
42				K-S T	Test Statistic	0.137			Kolmogorov	-Smirnov GO	F	
43				5% K-S C	Critical Value	0.0853	Detecte	ed Data No	t Gamma Dis	stributed at 5%	Significance	Level
44				Detecte	d Data Not	Gamma Dist	tributed at 5%	6 Significar	nce Level			
45												
46					Gamma	Statistics or	n Detected Da	ata Only				
47					k hat (MLE)	1.118				star (bias cor	,	1.097
48				The	ta hat (MLE)				Theta	star (bias cor	rected MLE)	5.973
49					nu hat (MLE)					nu star (bia	s corrected)	274.2
43					ean (detects)	6.552						

	Α	В	С		D	Т	E	F	G	Н	Т	ı	J	K	L	
51																
52	Gamma ROS Statistics using Imputed Non-Detects															
53			GROS may	not b	oe used	d whe	n data s	set has > 50°	% NDs with r	nany tied o	obse	rvations at	multiple DLs			
54		GROS may	not be used	l whe	n kstar	of de	tects is	small such a	ıs <1.0, espe	cially whe	n the	sample s	ize is small (	e.g., <15-20)		
55			Fo	r suc	h situa	tions,	GROS	method may	yield incorre	ect values	of U	CLs and B	TVs			
56	This is especially true when the sample size is small.															
57		For gar	nma distribut	ted de	etected	data	, BTVs a	and UCLs ma	ay be compu	ted using	gamı	ma distribu	ıtion on KM e	stimates		
58	Minimum 0.01 Mean											5.286				
59						М	aximum	59						Median	2.4	
60							SD	8.32						CV	1.574	
61						k ha	at (MLE)	0.446				k	star (bias co	rrected MLE)	0.441	
62					The	eta ha	at (MLE)	11.86				Theta	star (bias co	rrected MLE)	11.98	
63							at (MLE)	1					nu star (bia	as corrected)	136.8	
64			Adjusted	Leve	el of Sig	gnifica	ance (β)	0.0485								
65			oximate Chi			•	,	1				-	Square Valu		110.6	
66		95% Gamma	Approximat	e UC	L (use	when	n>=50)	6.528		95%	Gan	nma Adjus	ted UCL (use	when n<50)	6.54	
67																
68	Estimates of Gamma Parameters using KM Estimates															
69							an (KM)							SD (KM)	8.174	
70					ce (KM)						SE d	of Mean (KM)	0.659			
71	k hat (KM)													k star (KM)	0.447	
72	nu hat (KM)													nu star (KM)	138.5	
73	theta hat (KM)								theta star (KM)					12.29		
74							ile (KM)						% gamma pe	, ,	15.19	
75			95%	6 gan	nma pe	rcent	ile (KM)	21.95				99	% gamma pe	rcentile (KM)	38.74	
76																
77								na Kaplan-N	leier (KM) S	tatistics					112.1	
78			oximate Chi	•		` `	. ,			Adjusted Chi Square Value (138.49, β) 95% Gamma Adjusted KM-UCL (use when n<50)						
79	95%	Gamma App	oroximate KN	/I-UC	L (use	when	n>=50)	6.771		95% Gar	nma	Adjusted I	KM-UCL (use	when n<50)	6.784	
80																
81								OF Test on D	Detected Ob	servations		-				
82		Sr	napiro Wilk A					1				•	ilk GOF Test			
83					•		Statistic	4.3615E-6	L	etected D	ata N	_		gnificance Le	√ei ————	
84											-1- h		GOF Test	····'.C' 1		
85			5	% LII			al Value						mai at 5% Si	gnificance Le	√ei ————	
86					De	elecie	eu Data	Not Lognorr	nai at 5% Si	gnincance	Lev	ei				
87					1.	ana.	mal DO	S Statistics	Heina Impo	ted Non D	otec	te				
88				Ma			al Scale			ieu NUII-D	GIGC		Moon	in Log Soolo	0.973	
89							al Scale			Mean in Log Scale						
90		95% +1	JCL (assume			_				SD in Log Scale						
91		33/0 LC					ap UCL			95% Percentile Bootstrap UCL 95% Bootstrap t UCL						
92							g ROS)						33 /0 1300	Jouap i OOL	6.782	
93				JJ /	011-00	, L (LC	,g 1 (OO)	0.302								
94			Statio	stice :	usina k	(M 🕰	timates	on Logged	Data and As	sumina I a	Oano	rmal Dietr	ibution			
95			Statis	,uo3 (	_		(logged)		Lata alla As	Juliniy L	JAIIO	וופוט וטוווי.		M Geo Mean	3.045	
96							(logged)					95%	Critical H Va		2.208	
97			KM Standa	rd Fr								3370		CL (KM -Log)	5.999	
98			otanaa				(logged)					95%	Critical H Va		2.208	
99			KM Standa	rd Fr								5570	- Industry a	(. (. (. Log)	2.200	
100			Aw Glanda		J1 U1 1V	.can	(.oggeu)	0.0000								

	Α	В	С	D	Е	F	G	Н	I	J	K	L		
101														
102		DL/2 Statistics												
103			DL/2	Vormal				DL/2 Log-T	ransformed					
104				Mean in C	riginal Scale				Mean	in Log Scale	0.999			
105				SD in C	riginal Scale	8.248				SD	in Log Scale	1.152		
106			95% t l	JCL (Assum	es normality)	6.503				95%	H-Stat UCL	6.562		
107	DL/2 is not a recommended method, provided for comparisons and historical reasons													
108														
109	Nannarametria Distribution Eras LICL Statistics													
110				Data do n	ot follow a D	iscernible D	istribution at	5% Signific	ance Level					
111														
112						Suggested	UCL to Use							
113			95	5% KM (Chel	byshev) UCL	8.364								
114														
115		Note: Sugge:	stions regard	ing the selec	ction of a 95%	UCL are pr	ovided to he	lp the user to	select the m	nost appropria	ate 95% UCL			
116			F	Recommenda	ations are bas	sed upon dat	a size, data	distribution,	and skewnes	S.				
117		These recor	mmendations	are based i	upon the resu	Its of the sim	nulation studi	es summariz	zed in Singh,	Maichle, and	d Lee (2006).			
118	Но	wever, simu	lations result	s will not cov	ver all Real W	orld data se	ts; for additio	onal insight th	ne user may	want to consi	ult a statistici	an.		
119														

	A B C	D E	F	G	Н	I	J	K	L			
1		UCL Stat	istics for Data	Sets with No	on-Detects							
2	Hear Oak at al Oak are	Т										
3	User Selected Options  Date/Time of Computation	ProUCL 5.16/03/2023 1	11.50.11 AM									
4	From File	WorkSheet.xls	1.50.11 AW									
5	Full Precision	OFF OFF										
6	Confidence Coefficient	95%										
7	Number of Bootstrap Operations	2000										
8	Number of Bootstrap Operations	2000										
9	Zn											
10	<del>-</del>											
11			General	Statistics								
12	Total	Number of Observation				Numbe	r of Distinct Ob	servations	94			
13		Number of Detect	s 153				Number of N	on-Detects	3			
14	N	umber of Distinct Detect	s 93			Numbe	er of Distinct N	on-Detects	1			
15 16		Minimum Detec	t 2.1				Minimum N	Non-Detect	1			
17		Maximum Detec	t 540				Maximum N	Von-Detect	1			
18		Variance Detect	s 5913				Percent N	on-Detects	1.923%			
19		Mean Detect	s 55.95				(	SD Detects	76.9			
20		Median Detect	s 32				(	CV Detects	1.374			
21		Skewness Detect	s 3.362				Kurtos	sis Detects	14.41			
22		Mean of Logged Detect	s 3.373				SD of Logg	ed Detects	1.186			
23												
24		Nor	mal GOF Tes	t on Detects	Only							
25	S	Shapiro Wilk Test Statisti										
26		5% Shapiro Wilk P Value	e 0	0 Detected Data Not Normal at 5% Significance Level								
27		Lilliefors Test Statisti	c 0.242			Lilliefors	GOF Test					
28	5	% Lilliefors Critical Value	e 0.072		Detected Da	ta Not Norma	al at 5% Signifi	cance Leve	A.			
29		Detected Da	ita Not Norma	al at 5% Signi	ificance Lev	'el						
30												
31	Kaplan-	Meier (KM) Statistics us		critical Values	s and other	<u> </u>						
32		KM Mea				KI	M Standard Err		6.127			
33		KM SI			95% KM (BCA) UCL 95% KM (Percentile Bootstrap) UCL							
34		95% KM (t) UC			65.12							
35		95% KM (z) UC					95% KM Boots		68.26 81.6			
36		90% KM Chebyshev UC		-								
37	97	7.5% KM Chebyshev UC	L 93.16				99% KM Cheb	snev UCL	115.9			
38			F Tests on De	atomical Ohr -	motion= O	.h.z						
39				sieciea Obse		•	rling COF To-	•				
40		A-D Test Statisti 5% A-D Critical Value		Dotoct			rling GOF Tes tributed at 5%		a Levol			
41		K-S Test Statisti		Detecte			Smirnov GOF		- FEAGI			
42		5% K-S Critical Value		Detecto		_	tributed at 5%		a l evel			
43		Detected Data Not					batca at 5 /0		, 20101			
44						JO E0401						
45		Gamm	a Statistics or	n Detected Da	ata Only							
46		k hat (MLE		. 20.00.60 2	a.a Oiny	k	star (bias corre	ected MI FI	0.885			
47		Theta hat (MLE					star (bias corre	<i>'</i>	63.25			
48		nu hat (MLE	<u> </u>				nu star (bias	ŕ	270.7			
49		Mean (detects	·				(2.00					
50			<u>/</u>									

	A	В	С		D	$\overline{}$	E	F	G	Тн	Т		J	K	L		
51										•					<u>I</u>		
52	Gamma ROS Statistics using Imputed Non-Detects																
53			GROS may	not b	oe used	d whe	n data s	set has > 50°	% NDs with	many tied o	obse	rvations at	multiple DLs	1			
54		GROS may	not be used	whe	n kstar	of de	tects is	small such a	as <1.0, esp	ecially whe	n the	sample s	ize is small (	e.g., <15-20)			
55			Fo	r suc	h situa	tions,	GROS	method may	yield incorr	ect values	of U	CLs and B	TVs				
56	This is especially true when the sample size is small.																
57		For gar	nma distribut	ted de	etected	data	, BTVs a	and UCLs m	ay be comp	ited using	gamı	ma distribu	ution on KM e	estimates			
58		Minimum 0.01 Mean											54.88				
59						M	aximum	540						Median	32		
60							SD	76.54						CV	1.395		
61						k ha	at (MLE)	0.761				k	star (bias co	rrected MLE)	0.75		
62					The	eta ha	at (MLE)	72.13				Theta	star (bias co	rrected MLE)	73.13		
63						nu ha	at (MLE)	237.4					nu star (bi	as corrected)	234.1		
64			Adjusted	Leve	el of Sig	gnific	ance (β)	0.0485									
65		Appro	oximate Chi	Squa	re Valu	ie (23	4.12, α)	199.7			Ad	justed Chi	Square Valu	e (234.12, β)	199.4		
66		95% Gamma	Approximat	e UCI	L (use	when	n>=50)	64.33		95%	Gan	nma Adjus	ted UCL (use	when n<50)	64.43		
67																	
68	Estimates of Gamma Parameters using KM Estimates																
69							an (KM)							SD (KM)	76.28		
70					ce (KM)						SE o	of Mean (KM)	6.127				
71	k hat (KM)													k star (KM)	0.512		
72	nu hat (KM)													nu star (KM)	159.8 107.2		
73	theta hat (KM)									theta star (KM)							
74							tile (KM)						% gamma pe	, ,	147.8		
75			95%	6 gan	nma pe	rcent	tile (KM)	209.1				999	% gamma pe	rcentile (KM)	359.5		
76																	
77				_				na Kaplan-M	leier (KM) S	tatistics					131.3		
78			oximate Chi			` .					Adjusted Chi Square Value (159.81, β) 95% Gamma Adjusted KM-UCL (use when n<50)						
79	95%	Gamma App	oroximate KN	/I-UCI	L (use	when	n>=50)	66.67		95% Gar	nma	Adjusted I	KM-UCL (use	when n<50)	66.79		
80								DE T	> - + + + OI-		01						
81		01	' \A/'II - A					OF Test on I	Jetected Ob	servations							
82		Sr	napiro Wilk A						D-	44-d D-4		•	ilk GOF Tes	t Significance L			
83					-		P Value Statistic		De	lected Dat	а ар		GOF Test	Significance L	.evei		
84							al Value		De	taatad Dat				Significance L	ovel.		
85				70 LIII				ppear Logno					Ulliai at 5% v	Significance L	.evei		
86					Dell	BUIGU	Data a	ppear Logic	Jillai at 370	Significan	CG L						
87					17	ano	mal R∩	S Statistics	Usina Impu	ted Non-D	etec	ts					
88				Me			al Scale			.54 14011-0	J.650		Mean	in Log Scale	3.314		
89							al Scale							in Log Scale			
90		95% t l	JCL (assume			_						95%			65.75		
91		307010					rap UCL			95% Percentile Bootstrap UCL 95% Bootstrap t UCL							
92							ng ROS)								67.18		
93						,											
94			Statis	stics ı	usina K	(M es	stimates	on Logged	Data and A	ssumina L	ogno	rmal Distr	ibution				
95			3.200				(logged)				J			M Geo Mean	27.34		
96							(logged)					95%	Critical H Va		2.46		
97			KM Standa	rd Err										CL (KM -Log)	77.44		
98							(logged)					95%	Critical H Va		2.46		
99			KM Standa	rd Err										. 3/			
100						'	. 55/										

	Α	В	С	D	Е	F	G	Н	I	J	K	L		
101														
102		DL/2 Statistics												
103			DL/2	Normal			DL/2 Log-Transformed							
104				Mean in C	riginal Scale	54.88				Mean	in Log Scale	3.295		
105				SD in C	riginal Scale	76.53				SD	in Log Scale	1.301		
106			95% t l	JCL (Assum	es normality)	65.02				95%	H-Stat UCL	81.7		
107	DL/2 is not a recommended method, provided for comparisons and historical reasons													
108														
109					Nonparame	etric Distribu	tion Free UC	CL Statistics						
110				Detected	Data appear	Lognormal [	Distributed a	t 5% Signific	ance Level					
111														
112						Suggested	UCL to Use							
113					KM H-UCL	77.44								
114														
115		Note: Sugge	stions regard	ing the sele	ction of a 95%	UCL are pr	ovided to he	lp the user to	select the m	nost appropria	ate 95% UCL			
116			F	Recommend	ations are bas	sed upon da	a size, data	distribution,	and skewnes	SS.				
117		These reco	mmendations	are based	upon the resu	Its of the sin	nulation studi	ies summariz	zed in Singh,	Maichle, and	I Lee (2006).			
118	Но	wever, simu	lations result	s will not co	er all Real W	orld data se	ts; for addition	onal insight th	ne user may	want to consi	ult a statistici	an.		
119														