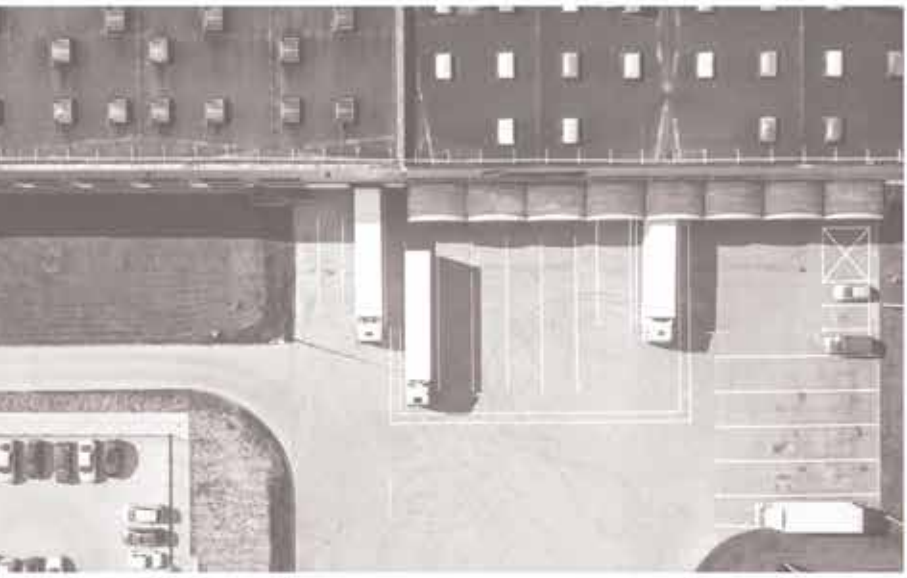
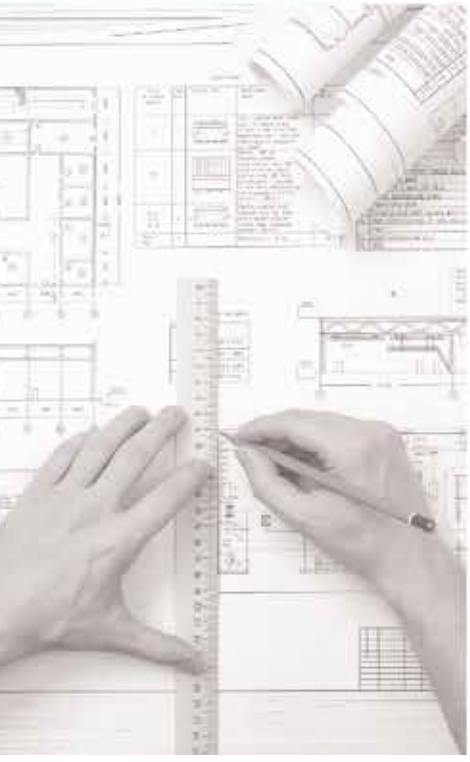
Appendix C

Detailed site investigation for DA 24/2017 at Lot 7 DP1065574





Douglas Partners
Geotechnics / Environment / Groundwater

Integrated Practical Solutions

Detailed Site Investigation

Proposed Residential Development
146 Newbridge Road, Moorebank

Prepared for
Benedict Industries Pty Ltd

Project 71459.03
March 2016

Douglas Partners
Geotechnics / Environment / Groundwater

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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature	Date
Author		16 March 2016
Reviewer		16 March 2016

bsi. ISO 9001 Quality Management

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Executive Summary

This report presents the results of a Detailed Site Investigation (DSI) undertaken by Douglas Partners Pty Ltd (DP) for a proposed residential development at 146 Newbridge Road, Moorebank (the "site", refer to Drawing 1, Appendix A). The work was commissioned by Ernest Dupere of Benedict Industries Pty Ltd (Benedict) and was undertaken with reference to DP's proposal SYD150814 dated 10 August 2015. The following is understood:

- The DSI and a subsequent Remediation Action Plan (RAP) will be required for submission as part of a development application (DA) for a proposed residential development at the site;
- The proposed development will involve retaining wall construction, bulk earthworks followed by construction of internal roads, associated infrastructure, residential lots and approximately 200 houses; and
- The site is being audited by Dr Ian Swane, a NSW Environment Protection Authority (EPA) accredited site auditor, to facilitate the issue of a site audit statement (SAS) Part B confirming the land can be made suitable for the proposed development.

The objective of this DSI is to fill existing data gaps in relation to site contamination issues and to document the site characterisation methods utilised to assess potential site contamination. The findings of this DSI will inform a RAP for the site in the context of the proposed development.

The site comprises part (generally the northern half) Lot 7 in Deposited Plan 1065574. The street address is 146 Newbridge Road, Moorebank and the site has a total area of approximately 9 ha. Large scale filling and dredging activity occurred at the site between 1991 and 2000. The wider site currently operates under two EPA licences issued under the POEO Act. Based on a review of the EPA information undertaken by Environmental Investigation Services (EIS) (EIS (2013), the scheduled activities at the site included:

- Crushing, grinding or separating; land-based extractive activity; and water-based extractive activity;
- Storage/transfer/separation of various waste streams;
- Importation of VENM and potential acid sulphate soil (PASS) for backfilling sand quarry (according to the site owner, only minor quantities of PASS was ever accepted at the site);
- Dredging activities;
- Landfilling activities; and
- Recovery, storage and processing (non-thermal treatment) of general waste including VENM; general solid waste (non-putrescible); general or specific exempted waste; wood waste; waste; paper or cardboard; gyprock; glass; building and demolition waste; asphalt waste (including asphalt resulting from road construction and waterproofing works); and waste tyres.

A number of previous geotechnical and environmental (contamination) investigations have been carried out at the site. The investigations have generally confirmed the presence of fill containing a component of construction and demolition waste of varying thickness of up to 11.5 m at the southern central portion of the site.

The scope of works for the DSI covering the further characterisation of soil, soil gas / landfill gas, groundwater and surface water was outlined in a sampling and analysis quality plan (SAQP) (DP,

2015b) and comprised the drilling of 26 boreholes, including three which intersect the water table for groundwater / gas monitoring well installation and seven to the target gas interval for landfill gas monitoring well installation. Two of the seven gas wells were located outside the proposed development boundary with shallow or no fill to assess 'background' gas concentrations. Five shallow landfill gas wells were also drilled and installed adjacent to deeper landfill gas wells to evaluate the vertical profile of gas concentration / flow rate.

Soil, soil gas (trace non-methane organic compounds (NMOC)), groundwater and surface water samples were collected and selected samples were submitted for analysis at an analytical laboratory for the contaminants of concern. Landfill gas monitoring using a handheld gas analyser was also conducted on four separate occasions to augment the existing landfill gas monitoring dataset.

Advice on the geotechnical considerations for the project is currently being provided to Benedict by Jeffery and Katauskas Pty Ltd (J&K).

Conclusions

The findings of the current investigation were generally consistent with previous investigations insofar as the drilling programme encountered uncontrolled filling with a component of construction and demolition waste to thicknesses of up to 9.2 m. Many boreholes met refusal on buried obstructions in the filling.

The contaminant concentrations in soil were generally consistent with previous investigations with the exception of the polychlorinated biphenyls (PCB) hotspot encountered at BH220. PCB has not previously been detected at the site, but this is most likely attributable to the heterogeneous nature of the waste filling.

Ongoing landfill gas monitoring has confirmed a characteristic gas situation (CGS) of 3 and thus the need to incorporate gas mitigation systems into the building design for proposed residential dwellings.

Suitability of the Site for the Proposed Development

Based on the findings of the current investigation it is considered that the site can be made suitable for the proposed residential development subject to the development of a suitable RAP and the implementation of appropriate site remediation as per the recommendations outlined below.

Recommendations

Requirements for Site Remediation

A RAP should be prepared with reference to NSW OEH (2011) that outlines the requirements for site remediation necessary in order to render the site suitable for the proposed residential development.

Soil

There are several 'hotspots' of soil contamination that will require remediation. The RAP should determine which 'hotspots' (if any) will need to be remediated and this will be determined based on the proposed final site levels and the thickness of imported virgin excavated natural material (VENM) that will be used to cap the site.

Landfill Gas

Based on the ongoing landfill gas monitoring at the site, gas mitigation systems will need to be incorporated into the building design for proposed dwellings.

Additional landfill gas monitoring wells should be installed at locations where existing wells have been damaged or destroyed. They should also be installed at previously inaccessible areas of the site when stockpiles have been moved. The additional monitoring data should be used to finalise the levels of gas mitigation that will be required.

The recent monitoring conducted as part of this DSI suggests that a CGS of 3 is likely to be appropriate for this site as opposed to the previously recommended CGS of 4. The historical worst case CGS of 4 appears to be an outlier in the overall monitoring dataset. With reference to NSW EPA (2012), a CGS of 3 is typical of "old inert waste landfill" which is consistent with the filling at this site. Ongoing monitoring will be required to confirm the CGS.

The RAP will need to outline the relevant measure or system element to achieve a score consistent with what is required based on the CGS.

Groundwater and Surface Water

Given that surface water data suggests that groundwater is unlikely to be having an adverse impact on adjacent surface water, in particular, the Georges River, and impacts on other possible receptors of groundwater are unlikely or implausible (e.g. abstraction for drinking water) it is considered that no groundwater or surface water remediation is required.

Integration of Site Remediation and Geotechnical Site Improvements

The site remediation will need to be integrated with the geotechnical site improvements. Notably, the J&K summary (Appendix J) item 4 whereby "the entire site is to be excavated, as appropriate, to final terrace level –3m." Whilst it is understood that these details are still subject to detailed design, the excavated material may involve the disturbance of contaminated soil 'hotspots'. This aspect of the geotechnical site improvements will need to be clearly integrated into the RAP and site remediation when these earthworks occur.

Additional Investigations to Finalise Site Remediation Strategy

All or some of the following additional soil investigations are required when stockpiles have been removed from the site and a decision is finalised on the thickness of imported VENM that will be used to cap the site to achieve final design levels:

- Targeted near surface sampling at the diesel above ground storage tank (AST) and the drum storage area following their decommissioning;
- Delineation testing in the area of the PCB, PAH and lead 'hotspots' (if required); and
- Grid based sampling across the site with a focus on previously inaccessible areas (i.e. beneath existing stockpiles) in order to meet the EPA (1995) *Sampling Design Guidelines* recommended sampling density.

Ongoing landfill gas monitoring should be undertaken including the installation of additional monitoring wells.

Long Term Environmental Management Plan

A long term Environmental Management Plan (EMP) will be required for the ongoing management of contamination remaining on site and landfill gas mitigation systems. The EMP should include:

- Procedures for the management and maintenance of cap and landfill gas mitigation systems; and
- Procedures for scenarios where the capping or landfill gas mitigation systems need to be penetrated and reinstated.

The EMP will require establishment of appropriate public notification under Section 149(2) of the EP&A Act or a covenant registered on the title to land under Section 88B of the Conveyancing Act 1919. The EMP would be prepared prior to or during remediation and finalised following validation of the remedial activities.

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Detailed Site Investigation
Proposed Residential Development
146 Newbridge Road, Moorebank

1. Introduction

This report presents the results of a Detailed Site Investigation (DSI) undertaken by Douglas Partners Pty Ltd (DP) for a proposed residential development at 146 Newbridge Road, Moorebank (the "site", refer to Drawing 1, Appendix A). The work was commissioned by Ernest Dupere of Benedict Industries Pty Ltd (Benedict) and was undertaken with reference to DP's proposal SYD150814 dated 10 August 2015. The following is understood:

- The DSI and a subsequent Remediation Action Plan (RAP) will be required for submission as part of a development application (DA) for a proposed residential development at the site;
- The proposed development will involve retaining wall construction, bulk earthworks followed by construction of internal roads, associated infrastructure, residential lots and houses; and
- The site is being audited by Dr Ian Swane, a NSW Environment Protection Authority (EPA) accredited site auditor, to facilitate the issue of a site audit statement (SAS) Part B confirming the land can be made suitable for the proposed development.

The objective of this DSI is to fill existing data gaps in relation to site contamination issues and to document the site characterisation methods utilised to assess potential site contamination. The findings of this DSI will inform a RAP for the site in the context of the proposed development.

2. Site Identification

The site comprises part (generally the northern half) Lot 7 in Deposited Plan 1065574. The street address is 146 Newbridge Road, Moorebank and the site has a total area of approximately 9 ha.

The site boundary is shown on Drawing 1, Appendix A. The drawing also shows land to the south of the 'site' which is the remainder of Lot 7 in Deposited Plan 1065574. It is understood that this southern portion is also proposed to be developed as a marina and that this development is the subject of a separate DA.

3. List of Previous Reports

A number of previous investigations have been undertaken at the site by DP, Dames and Moore Pty Ltd (D&M), Environmental Investigation Services (EIS) and Jeffery and Katauskas Pty Ltd (J&K) (EIS is a division of J&K).

A summary of the relevant reports that are known to DP is provided in Table 1, below. The summary is not an exhaustive list, however, indicates the site has been subject to several investigations in the past.

Table 1: List of Previous Reports

Author	Year	Project No.	Report Title / Letter Report Title
D&M	1994	unknown	Report on Groundwater Sampling
DP	1999	27879	Proposed Environmental Monitoring Program, Sorting, Recovery and Transfer (SRT) Facility, 146 Newbridge Road, Moorebank
D&M	2000	unknown	Landfill Groundwater and Surface Water Monitoring and Assessment Program
DP	2002a	30410	Preliminary Geotechnical Assessment, 146 Newbridge Road, Moorebank
DP	2002b	30410	Report on Preliminary Contamination Assessment, Proposed Residential Development, 146 Newbridge Road, Moorebank
DP	2002c	30410	Geotechnical Assessment, 146 Newbridge Road, Moorebank
DP	2005	43479	Proposed Mixed Commercial / Residential Development, 146 Newbridge Road, Moorebank
DP	2008	45642.00	Preliminary Desktop Review, Benedict Sand and Gravel, Moorebank
DP	2009a	45642.01	Desktop Review, Benedict Sand and Gravel, Moorebank
DP	2009b	45642.02	Environmental and Geotechnical Advice, Benedict Sand and Gravel, 146 Newbridge Road, Moorebank
DP	2009c	45642.03	Review of Foundation Options, Proposed Residential Development, 146 Newbridge Road, Moorebank
DP	2009d	71459.00	Compaction and Grading, 146 Newbridge Road, Moorebank
EIS	2013	E26930KBrpt	Stage 1 Environmental Site Assessment for Proposed Residential Development at 146 Newbridge Road, Moorebank, NSW
J&K	2013	26930Zrpt	Geotechnical Investigation for Proposed Residential Development at 146 Newbridge Road, Moorebank, NSW
EIS	2014a	E26930KBrpt -HGG	Preliminary Hazardous Ground Gas Screening for the Proposed Residential Development at 146 Newbridge Road, Moorebank, NSW
EIS	2014b	E26930KBlet -HGGR2	Hazardous Ground Gas (HGG) Screening Results (Round 2), Proposed Residential Development at 146 Newbridge Road, Moorebank, NSW
EIS	2014c	E26930KBlet -HGGR3	Hazardous Ground Gas (HGG) Screening Results (Round 3), Proposed Residential Development at 146 Newbridge Road, Moorebank, NSW
EIS	2014d	E26930KBlet -HGGR4	Hazardous Ground Gas (HGG) Screening Results (Round 4), Proposed Residential Development at 146 Newbridge Road, Moorebank, NSW

Author	Year	Project No.	Report Title / Letter Report Title
EIS	2014e	E26930KBlet -HGGR5	Hazardous Ground Gas (HGG) Screening Results (Round 5), Proposed Residential Development at 146 Newbridge Road, Moorebank, NSW
DP	2014a	71459.01	Initial Comments on the Design of Landfill Gas Mitigation Measures 146 Newbridge Road, Moorebank Stage 1
DP	2014b	71459.01	Draft Concept Design for Landfill Gas Mitigation Measures 146 Newbridge Road, Moorebank Stage 1
DP	2015a	71459.02	Construction Environmental Management Plan, Proposed Retaining Wall, 146 Newbridge Road, Moorebank, NSW
DP	2015b	71459.02	Sampling and Analysis Quality Plan, Proposed Residential Subdivision, 146 Newbridge Road, Moorebank, NSW
DP	2015c	71459.04	Report on Geotechnical Investigation, Proposed Residential Subdivision, 146 Newbridge Road, Moorebank

4. Scope of Works

The scope of works for the DSI covering the further characterisation of soil, soil gas / landfill gas, groundwater and surface water was outlined in the SAQP (DP, 2015b) and comprised the following:

- Drilling of 26 boreholes (grid-based, where possible due to access constraints) to a depth of 0.5 m into natural soils (or prior refusal) including:
  - Three boreholes to depths intersecting the water table for soil sampling and groundwater / gas monitoring well installation including a replacement gas well for JK107 (replacement gas and groundwater well JKBH/MW107a);
  - Five boreholes to depths of 0.5 m into natural soils (or prior refusal), or to the target gas interval that was assessed whilst drilling for soil sampling and gas monitoring well installation including replacement wells for JK103 – partially damaged well (replacement well JK103a), and JK118 (replacement well JK118a);
- Drilling five shallow (~2.0 m) boreholes adjacent to five gas monitoring wells (including two within the initial remediation trial area of JK107) to establish five nested (paired) gas sampling locations to evaluate the vertical profile of gas concentration and flow rate;
- Collection of soil samples at regular intervals based on field observations, including from the near surface, from near the water table (if encountered) and upon any signs of obvious contamination such as odours or staining. Soil samples were collected using a standard penetration test (SPT) hammer where possible and from the auger spiral where the SPT was not feasible;
- Surveying of borehole coordinates and elevation using a differential GPS;
- Screening of all samples collected with a photoionisation detector (PID) to assess the likely presence or absence of volatile organic compounds (VOC);
- Submit 73 selected soil samples (including 10% QC samples) for analysis of a combination of the following common contaminants at a NATA accredited laboratory:
  - nine priority metals (arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, zinc);

  - total recoverable hydrocarbons (TRH);
  - monocyclic aromatic hydrocarbons (benzene, toluene, ethylbenzene and xylenes – BTEX);
  - polycyclic aromatic hydrocarbons (PAH);
  - organochlorine pesticides (OCP), organophosphorus pesticides (OPP);
  - polychlorinated biphenyls (PCB);
  - total phenols;
  - total cyanide (testing not actually requested by DP, however, results have been reported);
  - asbestos (up to 10 fragments, if encountered);
  - pH, cation exchange capacity (CEC);
- Installation of three groundwater monitoring wells;
- Developing the wells following installation;
- Allowing the well to stabilise for at least five days prior to sampling;
- Collection of groundwater samples from each monitoring well (including the two existing wells that were installed by J&K and remain serviceable);
- Submit six groundwater samples (including one QC sample plus one rinsate QC sample) to a NATA accredited laboratory for analysis of the following contaminants:
  - nine priority metals (arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, zinc);
  - TRH;
  - BTEX;
  - PAH;
  - total phenols;
  - OCP, OPP and PCB (trace level);
  - nutrients (nitrate, nitrite, ammonia and total phosphorous);
- Collection of a surface water sample from three locations – dredge ponds (south), Georges River (east) and drainage channel (west);
- Submitting four surface water samples (including one QC sample) to a NATA accredited laboratory for analysis of the following contaminants:
  - nine priority metals (arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, zinc);
  - TRH;
  - BTEX;
  - PAH;
  - OCP, OPP and PCB (trace level);
  - total phenols;
  - nutrients (nitrate, nitrite, ammonia and total phosphorous);
- Installation of seven landfill gas monitoring wells including two ‘background’ locations (BH224 and BH225) that were outside the proposed development area with shallow or no fill;

- Completion of four rounds of landfill gas testing using a GA 5000 landfill gas analyser to measure gas concentrations and flow rates at all landfill gas wells;
- Collection of three grab landfill gas samples (plus one intra-laboratory QC sample) using summa canisters and analysis at a NATA accredited laboratory for trace non-methane organic compounds (NMOC), including VOC, by USEPA TO-15 method;
- Field sampling and laboratory analysis in compliance with standard environmental protocols, including a Quality Assurance/Quality Control (QA/QC) plan consisting of 10% replicate sampling (intra and inter-laboratory replicate samples), trip spikes, trip blanks, rinsate, appropriate chain of custody procedures and in–house laboratory QA/QC testing; and
- Preparation of this DSI report detailing the methodology and results of the assessment with reference to EPA approved guidelines, including NEPC (2013).

The following table provides a summary of the purpose of each test location. Actual locations are shown on Drawing 2, Appendix A.

Table 2: Borehole Summary

Proposed Borehole ID	Soil Sampling	Landfill Gas Well [1]	Shallow Landfill Gas Well (Nested Pair)	Groundwater Monitoring Well
BH201	✓			
BH202	✓	✓		
BH203	✓			
BH204	✓			
BH205	✓			
BH206	✓			
BH207	✓			
BH208	✓			
BH209	✓			
BH210	✓			
BH211	✓	✓		
BH211b [2]			✓	
BH212	✓			
BH213	✓			
BH214	✓			
BH215	✓			
BH/MW216	✓	-		✓

Proposed Borehole ID	Soil Sampling	Landfill Gas Well [1]	Shallow Landfill Gas Well (Nested Pair)	Groundwater Monitoring Well
SS217*	✓			
BH/MW218	✓	-		✓
SS219*	✓			
BH220	✓			
BH221	✓			
BH222	✓			
BH223	✓	✓		
BH224		✓		
BH225		✓		
JK103a [3]	✓	✓		
JK103b [2,]			✓	
JKBH/MW107a [3, 4]	✓	-		✓
JK107b [2, 4]			✓	
JK114b [2]			✓	
JK118a [3]	✓	✓		
JK118b [2]			✓	

Notes to Table 2:

1. The three groundwater monitoring wells installed by DP were also utilised as landfill gas monitoring wells (denoted -).
2. 'b' denotes shallow gas well paired with deeper gas well.
3. 'a' denotes replacement gas well for destroyed wells JK103, JK107 and JK118.
4. Bore drilled in the footprint of the initial trial remediation excavation following backfilling.

* 'SS' denotes 'surface sample'. Excessive rubble in fill prevented drilling at this location.

5. Regional Geology, Acid Sulfate Soil Risk and Hydrogeology

A review summarised in EIS (2013) of the regional geological map of Penrith (1991) indicates that the site is underlain by the following formations:

- South and central sections – Quaternary aged deposits of medium grained sand and silty clay; and
- North, east and south-east sections – Tertiary aged deposits of clayey quartzose sand and clay.

Mapping and previous drilling indicates that the Tertiary and Quaternary deposits are underlain by shale bedrock.

A review summarised in EIS (2013) of the acid sulphate soil (ASS) risk map for Liverpool prepared by Department of Land and Water Conservation (1997) indicates that the site is located in the following ASS risk area:

- High Probability Risk Area – south and west sections of the site associated with low lying swamp areas. The depth of occurrence in this area is between 1 m and 3 m below ground level (bgl) associated with alluvial plains, alluvial swamps, alluvial levees and sand plains; and
- Disturbed Terrain – north, central and east sections of the site associated with the filled areas. The classification is adopted in large scale filled areas which often occur during reclamation of low lying swamps for urban development, in areas which may have been mined or dredged or have undergone heavy ground disturbance through general urban development or the construction of dams and levees.

A review summarised in EIS (2013) of groundwater bores registered with the NSW Office of Water (NOW) was undertaken. The search was limited to registered bores located within approximately 1 km radius of the site. The search indicated that two registered bores were located within this radius. The boreholes were registered for irrigation (GW024357) and domestic (GW023146) purposes. The irrigation bore is located approximately 800 m to the east of the site beyond Georges River. The domestic bore is located approximately 1.2 km to the north-east of the site. Both the bores are in close proximity of Georges River and the associated flood plain. Based on the distance of the bores and the regional topography, these bores were not considered to be potential receptors of any contamination that may be present at the site.

EIS (2013) noted that the stratigraphy of the site is expected to consist of relatively high permeability alluvial soils overlying deep shale bedrock. Based on these conditions and the results of the groundwater bore search, groundwater may be a potential resource in the vicinity of the site.

6. Summary of Site History

The detailed site history information is provided in DP (2002b) and EIS (2013). A summary of the site history information extracted from the EIS (2013) report is provided in Table 3, below.

Table 3: Summary of Site History (EIS, 2013)

Timeline	Details / Summary	Source of Information
1884 to 1924	The site was owned by private citizens and The Church of England Property Trust Diocese of Sydney. A portion of the land was owned by Perpetual Trustee Company Limited between 1920 and 1923. Based on a review of the 1930 aerial photograph, it is assumed that the site was predominantly vacant prior to 1930.	Land Title Records & Aerial Photos
1923 to 1947	The site was owned by New Bankstown Limited and The Greenacre Park Limited. A section of the site was also owned by private citizens between 1924 and 1965. A review of the 1943 historical aerial photograph indicates that cattle raising and grazing activity had commenced at the site after 1930. Sections of the site had been cleared of vegetation during this period.	Land Title Records & Aerial Photos

Timeline	Details / Summary	Source of Information
1947 to 1997	The site was owned by Echo Dairies Pty Ltd and a few private individuals including Anthony Francis Brady (a dairyman). A review of the historical aerial photographs indicates that large sections of the site were cleared during this period for cattle grazing. Warehouses were constructed at the site and low lying areas in some sections were filled to achieve level ground. A dam was created in the north section of the site which was subsequently filled. A storm water channel/drain was created along the west site boundary. The aerial photos indicate that the dairy activity at the site appeared to have ceased some time prior to 1982. Large sections of the site were filled between 1982 and 1991. Stockpiles were visible at the site in the 1991 aerial photograph which indicates the commencement of waste processing/dredging activity at the wider site (i.e. to the south of the proposed development area).	Land Title Records & Aerial Photos
1997 to present	The site as at 2013 was owned by Tanlane Pty Ltd. Large scale filling and dredging activity has occurred between 1991 and 2000. The site Land Title Records started to appear similar to the present layout from at least 2005. Council records indicate that a DA was submitted for the construction of a new road bridge at the subject site. A statement of environmental effects was prepared and submitted to council for the proposed development. The EPA has issued two licences (No. 4612, dated 2000 and 10490, dated 2001) under the POEO Act for the wider site. A number of variation notices were subsequently issued under s.58 of the Act between 2002 and 2013. Based on a review of the EPA information, the scheduled activities at the site included: • Crushing, grinding or separating; land-based extractive activity; and water-based extractive activity; • Storage/transfer/separation of various waste streams; • Importation of VENM and potential acid sulphate soil (PASS) for backfilling sand quarry (according to the site owner, only minor quantities of PASS was ever accepted at the site); • Dredging activities; • Landfilling activities; • Recovery, storage and processing (non-thermal treatment) of general waste including VENM; general solid waste (non-putrescible); general or specific exempted waste; wood waste; waste; paper or cardboard; gyprock; glass; building and demolition waste; asphalt waste (including asphalt resulting from road construction and waterproofing works); and waste tyres. A clean up notice (No. 1051596) was issued under s.91 of the Act to Benedict Reclamations in October 2005. The notice was for the clean-up of bonded asbestos containing material (bonded ACM) – fibro encountered in some stockpiles at the site.	Historical Aerial Photos, Council and NSW EPA records

7. Summary of Relevant Previous Investigations

The following subsections provide a brief summary of the conclusions and/or recommendations of those reports most relevant to the known site contamination issues.

7.1 DP (2002b)

DP was commissioned to undertake a Preliminary Contamination Assessment (PCA) for the proposed residential development at the site in 2002. The PCA was confined to the subject site which was formerly identified as Lot 1 in DP515738. The PCA was undertaken in conjunction with a geotechnical investigation commissioned for the proposed development. The objectives of the PCA were to:

- Determine the general level of potential contamination;
- Identify the potential for off-site migration of contamination; and
- Provide a preliminary view of the suitability of the site for the proposed development.

The investigation included:

- Drilling 12 boreholes in selected areas across the site; and
- Sampling the fill and natural soil profiles; and analysis of selected samples for a range of organic and inorganic contaminants.

The results of the investigation are summarised below:

- The boreholes encountered fill material ranging in depth from approximately 3.7 m to 8.7 m bgl. The fill contained inclusions of gravel and sand with some concrete, bricks, wood and clay;
- Natural alluvial soil comprising clay and sand was encountered beneath the fill;
- Groundwater seepage was encountered in the boreholes at depths of approximately 3.5m to 5.8m bgl;
- The majority of the analytical results were below the adopted site assessment criteria (SAC) which included the former Health Investigation Levels (HILs) Category A 'Residential Sites with Gardens and Accessible Soil' and the threshold concentrations for sensitive sites outlined in the NEPC (1999) *National Environment Protection (Assessment of Site Contamination) Measure 1999*, which has recently been superseded by NEPC (2013) *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended 2013;
- Elevations of lead above the SAC were encountered in four samples. However, the statistical analysis undertaken on the lead results indicated that the results were below the SAC;
- An elevated concentration of benzo(a)pyrene (B(a)P) above the SAC was encountered in one sample. However, the statistical analysis undertaken on the B(a)P results indicated that the results were below the SAC;
- The exceedances were not considered to pose a significant risk to human health; and
- Elevations above the provisional phyto-toxicity based guidelines levels (PPILs) (now superseded by EILs in NEPC (2013)) were encountered for cadmium and zinc in two samples. These samples were obtained from depths of approximately 2 m and 4 m below ground level and were

not considered to pose a risk to the shallow plant root zone (particularly in the context of a proposed cap at the site).

Based on the findings of the PCA, DP concluded that the site may be suitable for the proposed residential development provided further testing is undertaken to adequately characterise the groundwater and soil gas quality at the site.

7.2 EIS (2013)

The EIS (2013) investigation was limited to the subsurface soil profile, with the stockpile located on site at the time not being subject to the investigation. The objectives of the Stage 1 Environmental Site Assessment (ESA) were to identify the key areas of environmental concern (AEC) and to prepare a preliminary conceptual site model (PCSM) for the site. The objectives also included identifying widespread soil and groundwater contamination issues and the potential for the occurrence of acid sulfate soil (ASS) and hazardous ground gases (HGG) at the site.

The results of laboratory chemical analysis on the selected soil samples indicated the following:

- Monocyclic aromatic hydrocarbons (benzene, toluene, ethylbenzene and xylenes – BTEX), volatile organic compounds (VOC), organochlorine pesticides (OCP), organophosphorus pesticides (OPP) and polychlorinated biphenyls (PCB) were below the adopted SAC;
- The majority of the results for metals were below the HIL-A SAC. One fill sample JK16/0.0-0.2 had an elevated concentration of lead of 350 mg/kg above the SAC of 300 mg/kg. The elevated lead result was less than 250% of the SAC and the 95% upper confidence limit (UCL) of the arithmetic mean was calculated using the lead data from the fill soil samples. The 95% UCL for lead was 107 mg/kg which was below the HIL-A of 300 mg/kg. The Standard Deviation (SD) was less than 50% of the SAC;
- One fill sample JK7/2.7-3.0 recorded a total chromium concentration of 2800 mg/kg which was above the adopted Environmental Investigation Level (EIL) of 413 mg/kg;
- The majority of the results were below the Health Screening Level (HSL) A SAC. One surficial fill sample JK13/0.0-0.2 encountered an elevated concentration of total recoverable hydrocarbons (TRH) >C_{10}-C_{16} (TRH F2) of 190 mg/kg above the SAC of 110 mg/kg. The elevated TRH F2 result was less than 250% of the SAC and within the acceptance criteria outlined in Section 3. The 95% UCL was calculated using the TRH F2 data from the fill soil samples. The 95% UCL for TRH F2 was 43.94 mg/kg which is below the HSL-A of 110 mg/kg. The SD was less than 50% of the SAC. Seven individual fill samples encountered mid to heavy fraction TRH concentrations which were above the adopted Environmental Screening Levels (ESLs);
- The majority of the results for polycyclic aromatic hydrocarbons (PAH) were below the HIL-A SAC. One fill sample JK12/1.3-1.5 encountered an elevated concentration of B(a)P toxicity equivalency quotient (TEQ) of 13 mg/kg above the SAC of 3 mg/kg. The elevated B(a)P TEQ result was greater than 250% of the SAC (i.e. is a 'hotspot'). Twelve fill samples had elevated B(a)P concentrations which were above the adopted ESL criteria;
- Asbestos was encountered in JK10/7.3-7.5, no other asbestos was detected in any of the other boreholes. Seven fibre cement fragments from the surface of the site were tested for asbestos with six pieces confirmed to be bonded asbestos containing materials (ACM); and

- Acid sulphate soil results indicated that the majority of the results (eight samples only, five of fill, three of natural) were within the acidic to very acidic range. The adopted S_{POS} criterion of 0.03% was exceeded for samples of both fill and natural soils, suggesting that some potential acid sulphate soils may have been used to fill the site. The calculated preliminary liming rate required for neutralisation ranged from 2 kg Ca_3/tonne to 15 kg Ca_3/tonne.

The results of laboratory chemical analysis on the groundwater samples collected from the four groundwater monitoring wells by EIS indicated the following:

- TRH, BTEX, OCP, VOC and PCB were all below the adopted groundwater investigation levels (GILs);
- Detectable concentrations of OCP (DDE, DDT and dieldrin) were recorded at some monitoring wells, however, at concentrations below the GIL;
- Elevated concentrations of individual metals were recorded above the ANZECC (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* GILs as follows:
    - Arsenic at MW9 recorded a concentration of 33 µg/L which exceeded the GIL of 24 µg/L;
    - Copper at MW9 and MW16 recorded a concentration of 12 µg/L and 2 µg/L, respectively, which exceeded the GIL of 1.4 µg/L;
    - Lead at MW9 recorded a concentration of 4 µg/L which exceeded the GIL of 3.4 µg/L;
    - Nickel at MW9 and MW16 recorded a concentration of 120 µg/L and 26 µg/L, respectively, which exceeded the GIL of 11 µg/L;
    - Zinc at MW9 and MW12 recorded a concentration of 200 µg/L and 39 µg/L, respectively, which exceeded the GIL of 8 µg/L;
- The majority of results for PAH were below the GILs. MW16 recorded a detectable concentration of naphthalene at 0.2 µg/L, which exceeded the USEPA criterion for tap water of 0.14 µg/L but below the ANZECC 2000 GIL; and
- Detectable concentrations of chlorpyrifos were recorded in the majority of the groundwater samples. The concentrations were above ANZECC 2000 GIL of 0.01µg/L. However, all of the results were below the NHMRC (2011) *Australian Drinking Water Guidelines* GILs.

The main areas of environmental concern (AEC) identified by EIS are summarised as follows:

- Uncontrolled large scale filling activity has been historically undertaken at the site associated with the commercial land uses. This has occurred since at least the 1950s and was not regulated during the initial years;
- The preliminary screening has indicated the presence of HGG at the site. The main source of HGG is considered to be the organic inclusions in the deeper filled areas. However, there may also be a potential for HGG generation to be associated with the swampy alluvial soils;
- The site has formerly been used as a dairy and for cattle grazing purposes. Some sections of the site were filled during this land use;
- Commercial activities associated with the current use of the site for resource recovery and waste processing could have a potential impact on the site; and
- Hazardous building material associated with the demolition of built structures can result in site contamination.

Data gaps identified by EIS include:

- Specific point sources of potential contamination associated with the AEC have not been adequately investigated;
- Deep fill at the site has not been adequately charactered;
- Large sections of the site have not been investigated (the EPA sampling design guidelines recommend 107 evenly spaced sampling points);
- The occurrence of HGG has not been adequately characterised; and
- Inaccessible areas (buildings and densely vegetated areas along the east west site boundaries) have not been investigated.

Based on the scope of works undertaken, EIS were of the opinion that the AEC at the site pose a risk to the identified receptors. EIS considered that the site can be made suitable for the proposed residential land use provided that suitable measures are untaken to address the data gaps and risks identified at the site. EIS recommended undertaking the following additional work:

- A preliminary HGG assessment should be undertaken to better characterise the risk associated with HGG. The assessment should include a PCSM for HGG; and
- A Stage 2 ESA should be undertaken to meet the EPA recommended sampling density. The Stage 2 ESA should target the data gaps identified in their report.

Based on the findings of the above investigations, EIS noted that consideration should be made to address the following:

- A remediation strategy to render the site suitable for the proposed residential land use;
- Assess the requirement for a Quantitative Health Risk Assessment (in accordance with enHealth and Appendix VII of the Guidelines for the NSW Site Auditor Scheme, 2006) for HGG and other remnant contamination that may remain on site; and
- Assess the requirements for an Environmental Management Plan (EMP) for the ongoing management of contamination remaining on site.

7.3 EIS (2014a)

The EIS (2014a) investigation involved the design and implementation of a field sampling program which included installation of monitoring wells to assess HGG. The initial sampling plan proposed 19 HGG sampling locations, but due to site access constraints, only 13 locations were drilled with four existing groundwater monitoring wells utilised as HGG sampling locations. The spacing of the wells varies and is generally in the order of 30 m to >60 m apart.

The HGG monitoring data in EIS (2014a) is summarised as follows:

- Methane concentrations ranged from 0.01 %v/v to 30 %v/v. The majority of the higher CH_4 concentrations were associated with the deep fill areas;
- Carbon dioxide concentrations ranged from 0.05 %v/v to 31.2 %v/v. The higher CO_2 concentrations were generally associated with the higher CH_4;

- Oxygen concentrations ranged from 0 %v/v to 30.6 %v/v. The O_2 concentrations generally decreased with higher CH_4 concentrations in the deeper fill areas;
- Carbon monoxide[1] concentrations ranged from 0 ppm to 117 ppm. There was no major trend observed in the CO concentrations;
- Hydrogen sulphide concentrations ranged from 0 ppm to 40 ppm. Higher values of H_2S were recorded in the boreholes during drilling when compared to readings obtained from monitoring wells on completion of drilling; and
- Atmospheric pressure readings ranged from 1013 hPa to 1024 hPa.

Based on the scope of works undertaken, EIS were of the opinion that the HGG encountered at the subject site poses a risk to the receptors and future development of the site. Prior to remediation/management of the site, EIS recommended undertaking the following additional work to better characterise the risks:

- "Long term monitoring of HGG should be undertaken at the site. Considering the end land use for residential with gardens, the CIRIA (2007) *C665 Assessing Risks Posed by Hazardous Ground Gases to Buildings* recommends a minimum monitoring period of 24 months;
- Additional HGG monitoring wells should be installed when site access becomes available to better assess the source and generation of HGG. The CIRIA C665 guideline recommends a grid spacing of <25 m for sensitive sites such as residential houses with gardens;
- A Stage 2 ESA should be undertaken to meet the EPA (1995) *Sampling Design Guidelines* recommended sampling density;
- A Quantitative Health Risk Assessment (in accordance with enHealth guidelines and Appendix VII of the DEC (2006) *Guidelines for the NSW Site Auditor Scheme*) should be undertaken by a suitability qualified risk assessor for the contamination remaining on site;
- In the event site remediation is chosen (either excavation and removal of fill or capping and passive / active gas venting), a Remediation Action Plan (RAP) should be prepared for the site;
- In the event the capping / management options are chosen, a Construction Management Plan (CMP) should be prepared to document the gas mitigation / management measures required to be implemented during construction;
- A Validation Assessment (VA) report should be prepared to document the remediation action undertaken at the site;
- An Environmental Management Plan (EMP) should be prepared for the ongoing management of contamination remaining on site. The EMP will require establishment of appropriate public notification under Section 149(2) of the *Environmental Planning and Assessment Act* NSW 1979 or a covenant registered on the title to land under Section 88B of the *Conveyancing Act* NSW 1919;
- Prepare an appropriate work, health and safety plan (WHS) for the contaminants encountered at this site; and

[1] Carbon monoxide and hydrogen sulphide are both reported in EIS reports as percent, however, DP assumes that this unit should be in parts per million (ppm) which is the common unit on landfill gas analysers and we have changed it accordingly.

- Inspections during demolition and excavation work to assess any unexpected conditions or subsurface facilities that may be discovered between investigation locations. This should facilitate appropriate adjustment of the works program and schedule in relation to the changed site conditions. Inspections should be undertaken by experienced environmental personnel."

7.4 EIS (2014b)

The EIS (2014b) investigation involved a continuation (Round 2) of the monitoring to assess HGG. The monitoring was undertaken on 21 February 2014.

The HGG monitoring data in EIS (2014b) was summarised by EIS as follows:

- The CH_4 concentrations ranged from 0 %v/v to 28.4 %v/v. The majority of the higher concentrations were associated with the deep fill areas;
- The CO_2 concentrations ranged from 0.5 %v/v to 31.3 %v/v. The high CO_2 concentrations were generally associated with the high CH_4 concentrations in the deeper fill areas of the site;
- The O_2 concentrations ranged from 0 %v/v to 18.7 %v/v. The O_2 concentrations generally decreased with higher CH_4 concentrations in the deeper fill areas of the site;
- The CO concentrations ranged from 0 ppm to 2 ppm. There was no major trend observed by EIS in the CO concentrations;
- The H_2S concentrations ranged from 0 ppm to 4 ppm. Higher values of H_2S were noted in the boreholes during drilling (see (EIS, 2014a) report) when compared to readings obtained during this screening;
- The atmospheric pressure reading during the screening ranged from 1016 hPa to 1019 hPa. A difference of 3 hPa was recorded; and
- The peak flow ranged from 0 L/hr to 4.7 L/hr over the monitoring duration of three minutes at each location.

A preliminary qualitative risk assessment (PQRA) was presented in EIS (2014a). The report recommended reviewing the PQRA based on the results of subsequent monitoring. EIS used the additional flow data obtained during the second round of screening to calculate the Gas Screening Value (GSV) and the Characteristic Gas Situation (CGS) in order to comment on the level of protection required for future development of the site.

The GSV for the site was calculated by EIS to be 2.82 L/hr. The GSV was used to calculate a CGS of 3 using the modified Wilson and Card classification which is in the moderate risk category. EIS concluded that for the proposed low density residential development with a CGS3, protection measures should be adopted to achieve a protection score of four or higher.

7.5 EIS (2014c)

The EIS (2014c) investigation involved a continuation (Round 3) of the monitoring to assess HGG. The monitoring was undertaken on 7 March 2014.

The HGG monitoring data in EIS (2014c) was summarised by EIS as follows:

- The CH_4 concentrations ranged from 0 %v/v to 35 %v/v. The majority of the higher concentrations were associated with the deep fill areas;
- The CO_2 concentrations ranged from 0.1 %v/v to 33.1 %v/v. The high CO_2 concentrations were generally associated with the high CH_4 concentrations in the deeper fill areas of the site;
- The O_2 concentrations ranged from 0 %v/v to 20.2 %v/v. The O_2 concentrations generally decreased with higher CH_4 concentrations in the deeper fill areas of the site;
- The CO concentrations ranged from 0 ppm to 2 ppm. There was no major trend observed by EIS in the CO concentrations;
- The H_2S concentrations ranged from 0 ppm to 18 ppm. Higher values of H_2S were noted in the boreholes during drilling (see EIS HGG (2014a) report) when compared to readings obtained during this screening;
- The atmospheric pressure reading during the screening ranged from 1018 hPa to 1021 hPa. A difference of 3 hPa was recorded; and
- The peak flow ranged from -0.1 L/hr to 7.3 L/hr over the monitoring duration of three minutes at each location.

The GSV for the site was calculated by EIS to be 5.11 L/hr (with EIS noting the uncertainty relating to the sampling device). The GSV was used to calculate a CGS of 4 using the modified Wilson and Card classification which is in the moderate to high risk category.

EIS concluded that for the proposed low density residential development with a CGS4, protection measures should be adopted to achieve a protection score of six or higher. EIS also noted that NSW EPA guidelines recommend adopting pathway intervention and a high level of management for residential development at CGS4 and above and that consideration should also be made to undertaking a Level 2 risk assessment.

7.6 EIS (2014d)

The EIS (2014d) investigation involved a continuation (Round 4) of the monitoring to assess HGG. The monitoring was undertaken on 1 April 2014.

The HGG monitoring data in EIS (2014d) was summarised by EIS as follows:

- The CH_4 concentrations ranged from 0.1 %v/v to 37.2 %v/v. The majority of the higher concentrations were associated with the deep fill areas. There was a general increase in the concentrations when compared to the previous rounds;
- The CO_2 concentrations ranged from 0.3 %v/v to 35.2 %v/v. The high CO_2 concentrations were generally associated with the high CH_4 concentrations in the deeper fill areas of the site. There was a general increase in the concentrations when compared to the previous rounds;
- The O_2 concentrations ranged from 0 %v/v to 5 %v/v. The O_2 concentrations generally decreased with higher CH_4 concentrations in the deeper fill areas of the site. There was a general decrease in the concentrations when compared to the previous rounds;

- The CO concentrations ranged from 0 ppm to 1 ppm. There was no major trend observed by EIS in the CO concentrations;
- The H_2S concentrations ranged from 0 ppm to 177 ppm. Higher values of H_2S were noted in the boreholes during drilling (see EIS HGG 2014a report) when compared to readings obtained during this screening. Monitoring well JK118 encountered a very high concentration of H2S of 177 ppm. The previous maximum concentration encountered in this monitoring well was 21 ppm during drilling on 28 January 2014;
- The atmospheric pressure reading during the screening was 1020 hPa; and
- The peak flow recorded using the GA5000 ranged from 0.1 L/hr to 4.5 L/hr over the monitoring duration of 3 minutes at each location. The peak flow recorded using the GFM unit ranged from 0 L/hr to 3.6 L/hr at selected locations. The peak flow recorded using the Risiteck unit ranged from 0.13 L/hr to 1.65 L/hr at selected locations.

The comparison of the flow rates in monitoring wells JK104, JK107 and JK119 indicated that the readings recorded by the GA5000 and the GFM units were generally within the same range. The results obtained from the Risiteck unit were not considered to be sufficiently accurate for further consideration.

The GSV for the site was calculated by EIS to be 2.72 L/hr. The GSV was used to calculate a CGS of 3 using the modified Wilson and Card classification which is in the moderate risk category. EIS concluded that for the proposed low density residential development with a CGS of 3, protection measures should be adopted to achieve a protection score of four or higher.

7.7 EIS (2014e)

The EIS (2014e) investigation involved a continuation (Round 5) of the monitoring to assess HGG. The monitoring was undertaken on 11 April 2014.

The HGG monitoring data in EIS (2014e) was summarised by EIS as follows:

- The CH_4 concentrations ranged from 0 %v/v to 65.4 %v/v. Monitoring well JK103 encountered a very high reading of 65.4 %v/v. The concentrations were rechecked at separate intervals during the monitoring event to validate the reading. The repeat monitoring results from JK103 were 58 %v/v and 63.6 %v/v. The majority of the higher concentrations were associated with the deep fill areas;
- The CO_2 concentrations ranged from 0.4 %v/v to 21.2 %v/v;
- The O_2 concentrations ranged from 0 %v/v to 21.2 %v/v. The O_2 concentrations generally decreased with higher CH_4 concentrations in the deeper fill areas of the site;
- The CO concentrations ranged from 0 ppm to 6 ppm. There was no major trend observed by EIS in the CO concentrations;
- The H_2S concentrations ranged from 0 ppm to 206 ppm. Higher values of H_2S were noted in the boreholes during drilling (see EIS HGG 2014a report) when compared to readings obtained during this screening. Monitoring well JK118 encountered a very high concentration of H_2S of 206 ppm. The previous maximum concentration encountered in this monitoring well was 177 ppm during the fourth round;

- The atmospheric pressure reading during the screening was 1003 hPa. The atmospheric pressure had been falling steadily from a high of 1025 hPa recorded at the BOM weather station at Bankstown Airport on Monday 7 April 2014; and
- The peak flow ranged from -5.4 L/hr to 2.3 L/hr over the monitoring duration of 3 minutes at each location.

The GSV for the site was calculated by EIS to be 4.77 L/hr. The GSV was used to calculate a CGS of 4 using the modified Wilson and Card classification which is in the moderate to high risk category. EIS concluded that for the proposed low density residential development with a CGS4, protection measures should be adopted to achieve a protection score of six or higher.

A summary of the five HGG monitoring rounds extracted from EIS (2014e) is shown on Figure 1, below.

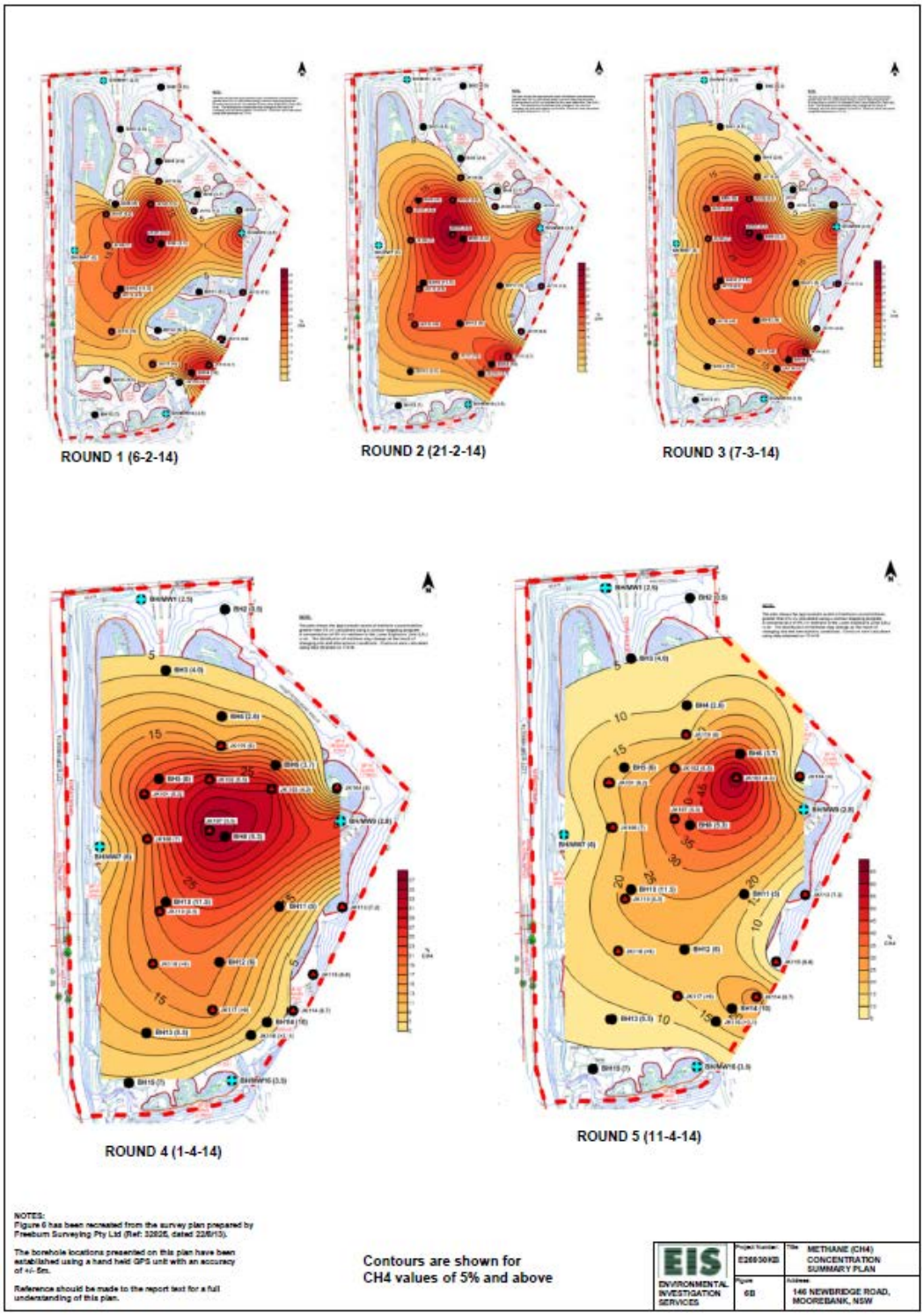

Figure 1: Methane Concentration Summary Plan (EIS, 2014e)

7.8 DP (2014a)

DP initially proposed four tasks namely:

- Review of the site investigation reports by EIS particularly the EIS (2014a);
- Provision of concept landfill gas mitigation design for low - medium density residential development including the likely development scenarios (e.g. residential house with slab, external services and public open space);
- Preliminary discussions with the builder (Mirvac Group) to discuss the build-ability of the concept landfill gas mitigation system(s) and initial discussions with the site auditor (yet to be confirmed at the time) to confirm in principal agreement; and
- Provision of a Stage 1 report for auditor review.

The DP (2014a) review concluded that, given the data to date it should be assumed that a minimum of three levels of gas mitigation is required. DP recommended that further monitoring works are undertaken to avoid overly conservative design requirements. In this regard, it was also recommended that a review of the earthworks requirements are undertaken with a view to establishing if the earthworks can be incorporated into the mitigation design (e.g. low permeable capping layer).

7.9 DP (2014b)

The scope of DP (2014b) was to provide the concept landfill gas mitigation design as discussed in Section 7.8 above.

The DP (2014b) draft concept design concluded that monitoring by EIS has indicated a CGS of 4 requiring a gas mitigation system design with a score of at least six. A passive landfill gas mitigation system design comprising at least three (and likely four) levels of protection was therefore required. The proposed concept design comprised several main elements as outlined in the report including: a clay cap, a gas drainage (collection and dispersal system) layer, a gas protective membrane and sealed concrete slab.

DP concluded that combined these should afford a score of >6 points as required by NSW EPA (2012) *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases*.

The report also noted that final design, specifications and suppliers can be provided once the initial concept design is reviewed and agreed by the site auditor and is demonstrably buildable.

8. Conceptual Site Model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors (linkages). The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e. it enables an assessment of the potential source – pathway – receptor linkages. A preliminary CSM was developed

by EIS in EIS, 2013 and several investigations have been undertaken since that time. The refined CSM based on those investigations (i.e. prior to the current DSI) is reproduced herein.

The potential sources of contamination and contaminants of concern within the site have been identified and summarised in the Table 4, below.

Table 4: Potential Contamination Sources and Contaminants of Concern

Potential Source	Description of Potential Contaminating Activity	Contaminants of Concern
1. Large scale filling	Filling activity has occurred at the site since the use of the site for agricultural/commercial purposes (from at least 1950s). During the early years, due to lack of regulation, uncontrolled filling could have occurred. Filling of low lying swamps/vegetation could result in the generation of ground gasses. The site drainage has been significantly altered and artificial drainage including dams, channels/drains etc. have been created. Large scale filling at the site appeared to have occurred between 1982 and 1991 associated with the commercial use for waste processing / dredging and recycling activities. A review of the EPA records indicate that various waste streams including wood, tyres, general solid waste (non-putrescible) etc. were permitted to be imported onto the site. The boreholes drilled for previous investigations encountered deep fill in the central and south sections of the site where the majority of the filling has occurred. The batters along the subject site boundary provide an indication of the level of filling.	Metals, TRH, BTEX, VOC, PAH, OCP, OPP, PCB, asbestos, nutrients (nitrate, nitrite and phosphorous) and HGG including methane, carbon dioxide, carbon monoxide and hydrogen sulphide, trace NMOC
2. Past agricultural activities	Prior to commercial operations the site was used for dairy and cattle grazing. Potential contamination during this period could have occurred with the use of pesticides and herbicides.	Metals, OCP and OPP
3. Current site use for Resource Recovery and Processing	The site is licenced to receive various waste streams, including general solid waste (non-putrescible), wood, tyres, asphaltic gravel etc. The site is also licenced to carry out extractive activities, with various metals used in the extraction process. Petroleum hydrocarbons including oil, diesel etc. are used and kept on site along with car batteries. Asbestos (typically bonded ACM) has previously been found in stockpiles, in fill and at the ground surface within the site.	Metals, TRH/BTEX, PAH, OCP, OPP, PCB, oil and grease, sulphuric acid (associated with batteries) and asbestos

Potential Source	Description of Potential Contaminating Activity	Contaminants of Concern
4. Hazardous building materials	Former buildings within the site may have contained hazardous building materials (e.g. bonded ACM). A single storey cottage located within the site may contain hazardous building materials.	Asbestos, SMF, lead and PCB

Notes to Table 4:
TRH – Total recoverable hydrocarbons including light, mid and heavy fractions
BTEX – Monocyclic aromatic hydrocarbons – benzene, toluene, ethylbenzene and xylenes
VOC – Volatile organic compounds includes BTEX compounds
PAHs – Polycyclic aromatic hydrocarbons
OCPs – Organochlorine pesticides
OPPs – Organophosphorus pesticides
PCBs – Polychlorinated Biphenyls
SMF – Synthetic mineral fibres

The potential contamination sources (S) on the site are therefore:

- S1 – Large scale filling;
- S2 – Past agricultural activities which may have used pesticides or herbicides;
- S3 – Current site activities which may contribute to contaminants entering the soil; and
- S4 – Buildings that could have been constructed using asbestos, or other hazardous building materials.

The following potential human receptors (R) have been identified:

- R1 – Current site users;
- R2 – Construction workers (during site redevelopment);
- R3 – Future site users (including occupants) following construction of the proposed residential development; and
- R4 – Residents and users of surrounding lands.

The following potential ecological receptors (ER) have been identified:

- ER1 – Local ecology (upper 2.0 m of the proposed final landform);
- ER2 – Open drainage channel located on along the western boundary of the site;
- ER3 – Dredge ponds and associated aquatic ecosystem located to the south of the site; and
- ER4 – Georges River located approximately 120 m to the east of the site.

Potentially complete exposure pathways (P) for contamination to impact on the identified receptors include the following:

Primarily relevant to human receptors:

- P1 – Ingestion and dermal contact;
- P2 – Inhalation of dust and/or vapours including HGG;

- P3 – Explosion and/or asphyxiation due to the accumulation of HGG in structures (existing or proposed); and
- P4 – Abstraction and use (e.g. for drinking or irrigation) of contaminated groundwater.

Primarily relevant to ecological receptors:

- P5 – Direct contact with local ecology (upper 2.0 m of the proposed final landform);
- P6 – Surface water run-off;
- P7 – Leaching of contaminants from soil / fill and vertical migration to groundwater; and
- P8 – Lateral migration of contaminants in groundwater which provides base flow to water bodies (e.g. lateral transport of chlorpyrifos or zinc via groundwater which discharges to the Georges River or open drainage channel).

A 'source–pathway–receptor' approach has been used to assess the potential risks of harm being caused to human, water or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways. The possible pathways between the above sources (S1, S2, S3 and S4) and receptors (R1-R4, ER1-ER4) are provided in the table below.

Table 5: Conceptual Site Model

Source	Exposure Pathway	Receptor	Comment
S1: Large scale filling S2: Past agricultural activities S3: Current site uses S4: Hazardous building material	P1 – Ingestion and dermal contact.	R1/R2/R3: Current site users, construction workers, and future site users.	- Complete exposure pathway considered to exist. - Can be managed by adoption of appropriate work health and safety procedures during remediation. The remediation strategy can render the exposure pathway incomplete for future site users (including occupants).
	P2 – Inhalation of dust and/or vapours including HGG.	R1/R2/R3/R4: Current site users, construction workers, future site users, users of adjacent lands.	- Complete exposure pathway considered to exist for inhalation of dust. - Incomplete exposure pathway considered to exist for vapours given the general absence of structures at the site. - Can be managed by adoption of appropriate work health and safety procedures during remediation. The remediation strategy to be adopted will render the exposure pathway incomplete for future site users (including occupants) when structures in which gas can accumulate will be present at the site and also to adjacent land users.
	P3 – Explosion and/or asphyxiation due to the accumulation of HGG in structures (existing or proposed).	R1/R2/R3: Current site users, construction workers, and future site users.	- Incomplete exposure pathway considered to exist for HGG given the general absence of structures at the site. - Can be managed by adoption of appropriate work health and safety procedures during remediation. The remediation strategy can render the exposure pathway incomplete for future site users (including occupants).
	P4 – Abstraction and use (e.g. for drinking or irrigation) of contaminated groundwater.	R1/R3/R4: Current site users, future site users, and adjacent site users.	- Incomplete exposure pathway considered to exist given the general absence of groundwater abstraction at the site. - No known groundwater abstraction in the immediate vicinity of the site. - The remediation strategy to be adopted will render the exposure pathway incomplete for future site users (including occupants) by imposing restrictions on groundwater abstraction.
	P5 – Direct contact with local ecology (upper 2.0 m of the proposed final landform).	ER1 – Local ecology.	- Complete exposure pathway considered to exist, however, the environmental value of the current ecology is likely to be very low. - The remediation strategy can render the exposure pathway incomplete for the upper 2.0 m of the proposed final landform.

Source	Exposure Pathway	Receptor	Comment
	P6 – Surface water run-off.	ER1/ER2/ER3/ER4 – Local ecology, open drainage channel (west), dredge ponds (south), Georges River (east).	- Complete exposure pathway considered to exist, however, further investigations would be required to evaluate any adverse impacts to the receptors.
	P7 – Leaching of contaminants from soil / fill and vertical migration to groundwater.	ER2/ER3/ER4 – Open drainage channel (west), dredge ponds (south), Georges River (east).	- Complete exposure pathway dependent on P8 discussed below.
	P8 – Lateral migration of contaminants in groundwater which provides base flow to water bodies.	ER1/ER2/ER3/ER4 – Local ecology, open drainage channel (west), dredge ponds (south), Georges River (east).	- Potentially complete exposure pathway considered to exist, however, further investigations would be required to confirm whether lateral migration is occurring and to evaluate any adverse impacts to the receptors.

Notes to Table 5:

S2, S3 and S4 are generally considered comparably insignificant to S1 and generally indistinguishable to the release and transport of contaminants which may have occurred due to S1

Based on the CSM summarised above, the identified sources of contamination can be appropriately managed in the interim, during construction and post-construction/post-remediation such that sensitive ecological and human receptors are not adversely affected.

9. Data Quality Objectives

9.1 Introduction

The DSI with limited sampling was devised with reference to the seven step data quality objective (DQO) process which is provided in Appendix B, Schedule B2 of NEPC (2013). The DQO process is outlined as follows:

9.1.1 State the Problem

The site is proposed to be redeveloped as a residential subdivision. Previous investigations have identified potential sources of soil contamination, groundwater contamination and landfill gas issues associated with the sites history as a landfill. The "problem" to be addressed is that the extent and nature of potential contamination on site is not fully understood; it is unclear whether the site is suitable for the proposed redevelopment and if contamination poses a risk to human health or the environment during and after the redevelopment works. The objective of the investigation is therefore to further characterise the nature and extent of contamination at the site and make recommendations for further targeted investigations and remediation to render the site suitable for the proposed redevelopment works.

The site is close to low-density residential developments and the design of the project will consider minimising noise and dust impacts from the proposed works. The project is also located close to sensitive environmental receptors such as the Georges River. A primary constraint for the project is the timeline for the preparation of the site ready for construction of the development. The site is within the Local Government Area (LGA) of Liverpool. DP's proposed project team includes a Principal, Project Manager (Associate), field engineers / scientists and drilling subcontractor. The decision makers are the DP Principal, Project Manager (Associate) and the site auditor in their capacity as auditor.

9.1.2 Identify the Decision / Goal of the Study

Based on the site history of landfilling, it is considered that the contaminants of concern are various organic and inorganic compounds (refer to the CSM in Section 8) for various media including soil, soil gas, groundwater and surface water. As such, the analysis focused on those contaminants relevant to the identified media.

The analytical data for soil was compared to relevant SAC including HIL, HSL, EIL and ESL for residential land use land use as per Tables 1A and 1B in Schedule B1, NEPC (2013). The analytical data for groundwater / surface water was compared to GIL relevant to the particular receptors including HSL (petroleum hydrocarbons) and aquatic ecosystems as per Table 1C in Schedule B1, NEPC (2013). The analytical data for soil gas was compared to relevant GSV, CGS, HSL and interim HIL for trace NMOC as per EPA (2012) and NEPC (2013) or other relevant guidance, as appropriate.

The suitability of the site for the proposed residential development was based on a comparison of the analytical results for all contaminants of concern to the adopted SAC and, if necessary, compared to the 95% UCL of the mean concentrations (relevant to soil contamination under certain circumstances).

The following specific decisions were made, as appropriate:

- What is the conceptual site model (i.e. sources, receptors, migration pathways, exposure)?
- Do the existing fill materials and/or natural soils pose a potential risk to identified receptors?
- Does the existing groundwater beneath the site pose a potential risk to identified receptors?
- Does the existing soil gas beneath the site pose a potential risk (toxic, explosion or asphyxiation) to identified receptors?
- Is the data sufficient to make a decision regarding the abovementioned risks, the compatibility of the site for the proposed development or are additional investigations required?
- Does contamination at the site, if encountered, trigger the Duty to Report requirements under the *Contaminated Land Management Act* 1997 (NSW)?
- Are there any off-site migration issues that need to be considered?
- Is the data sufficient to enable the preparation of a RAP and/or Environmental Management Plan (EMP) should the data suggest these are required?

9.1.3 Identify Inputs to the Decision

Inputs into the decisions were as follows:

- Collection and review of site history information including information regarding previous and current activities undertaken on the site and the surrounding areas;
- Review of previous investigations undertaken as summarised in Section 7;
- Regional geology, topography, ASS risk mapping and hydrogeology;
- Soil, soil gas, groundwater and surface water samples were collected at a combination of targeted and grid-based sampling patterns and analysed for the relevant contaminants of concern;
- The lithology of the site as described in the bore logs;
- If site conditions suggest additional contaminants of concern e.g. if the condition of subsurface material encountered whilst drilling encounter particular odours, further analysis was undertaken;
- Field and laboratory QA/QC data to assess the suitability of the environmental data for the assessment;
- All analysis was undertaken at a NATA accredited laboratory; and
- The results were compared with the SAC, GIL, GSV, CGS, HSL and interim HIL criteria discussed in Section 9.1.2.

9.1.4 Define the Study Boundaries

The site is identified as part (generally the northern half) Lot 7 in Deposited Plan 1065574 and is located approximately 23 km from the Sydney CBD. The site is shown on Drawing 1, Appendix A.

The site covers an irregularly shaped area which occupies a total area of approximately 9 ha. The lateral site boundaries are shown on Drawing 1. The investigation was undertaken to the potential depth of contamination which is currently understood to be the lower of the base of the fill and upper portion of the unconfined aquifer beneath the site.

The investigation of the site was constrained by the presence of existing stockpiles and the timing constraints of the project. It is noted that the stockpiles will be removed from the site and additional testing within the stockpile footprints can be undertaken at such time to confirm subsurface conditions at these portions of the site.

9.1.5 Develop an Analytical Approach (or Decision Rule)

The information obtained during the assessment has been used to characterise the site in terms of contamination issues and risk to human health and/or the environment. The decision rules used in characterising the site were as follows:

- Laboratory test results for fill/soil were assessed individually or statistically, if considered appropriate, to determine the 95% UCL of the mean concentration for each analyte or analyte group (of like materials);
- Laboratory test results for targeted locations (and identified 'hotspots') were assessed individually;
- The adopted SAC, GIL, GSV, CGS, HSL and interim HIL are from EPA endorsed guidelines;
- Where such criteria are not available, other recognised national or international standards were used;
- The contaminant concentrations in fill/soil should meet the following criteria, or further investigation or remedial action is required if:
    - The concentration of the contaminant in soil is more than 2.5 times the SAC. Any location more than 2.5 times the adopted site criteria is classified as a 'hotspot', requiring further assessment / management;
    - The calculated 95% UCL for a relevant area and discrete impacted fill/soil stratum (excluding any 'hotspot' concentrations) exceeds the adopted SAC;
    - The standard deviation of the results is greater than 50% of the SAC;
- The groundwater was not considered significantly impacted by a particular contaminant unless there was no notable or significant increase in background concentrations and/or there were no analyte concentrations in the groundwater samples significantly exceeding the adopted GIL;
- Further investigation, remediation and/or management has been recommended where the site was found to be contaminated or containing contamination 'hotspots' or significantly impacted groundwater; and

- The landfill gas data has been evaluated in the context of relevant GSV, CGS, HSL and interim HIL and the degree of impact will inform the proposed gas mitigations are to be incorporated into the proposed RAP.

Field and laboratory test results was considered useable for the assessment after evaluation against the following data quality indicators (DQIs):

- Precision – a measure of variability or reproducibility of data;
- Accuracy – a measure of closeness of the data to the 'true' value;
- Representativeness – the confidence (qualitative) of data representativeness of media present on site;
- Completeness – a measure of the amount of usable data from a data collection activity; and
- Comparability – the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event.

9.1.6 Specify Limits on the Decision Error

Considering that the future site use/development will involve residential land use, decision errors for the respective contaminants of concern for fill/soil were:

1. Deciding that the site's fill/soil exceeds the SAC when they truly do not; and
2. Deciding that the site's fill/soils are within the SAC when they are truly not.

Considering that the assessment of groundwater is intended to determine if the site is impacting negatively on groundwater quality, the decision errors for the contaminants of concern are:

3. Deciding that the groundwater quality exceeds the GIL when it truly does not; and
4. Deciding that the groundwater quality is within the GIL, when it truly is not.

Decision errors for the proposed assessment were minimised and measured by the following:

- Compare new data with available previous investigations to determine the possible range of the parameters of interest;
- The sampling regime targeted key strata identified to account for site variability;
- Sample collection and handling techniques was with reference to DP's *Field Procedures Manual*;
- Samples were prepared and analysed by a NATA accredited laboratory with the acceptance limits for laboratory QA/QC parameters based on the laboratory reported acceptance limits and those stated in NEPC (2013);
- The analyte selection was based on the available site history, past site activities, site features and the findings of the previous investigations. The potential for contaminants other than those proposed to be analysed is currently considered to be low based on the current CSM;
- The SAC, GIL, GSV, CGS, HSL and interim HIL were adopted from established and EPA endorsed guidelines where available. The SAC, GIL, GSV, CGS, HSL and interim HIL have risk probabilities already incorporated;

- A significance level of 0.05 has been adopted for data with statistical analysis of 95% UCL of average concentrations; and
- Only NATA accredited laboratories using NATA endorsed methods were used to perform laboratory analysis. Where NATA endorsed methods are not used, the reasons have been stated. The effect of using non-NATA methods (if relevant) on the decision making process has been explained.

9.1.7 Optimise the Design for Obtaining Data

Sampling design and procedures that were implemented to optimise data collection for achieving the DQOs included the following:

- Only NATA accredited laboratories using NATA endorsed methods were used to perform laboratory analysis whenever possible;
- Grid based soil sampling (within access constraints) was generally used to provide representative coverage of the site;
- Where possible, targeted samples were incorporated into the grid based sampling and selected boreholes for soil sampling were utilised for installation of groundwater and/or landfill gas monitoring wells to provide a more resource and cost effective sampling program;
- To optimise the selection of soil samples for chemical analysis, all samples collected were screened using a PID allowing for site assessment and sample selection. In addition, additional soil samples were collected but kept 'on hold' pending details of initial analysis and were analysed if further delineation was required;
- Adequately experienced environmental scientists/engineers conducted fieldwork and sample analysis interpretation;
- Targeted groundwater and surface water sampling was used to target areas of interest (groundwater) and sensitive ecological receptors (surface water); and
- An SAQP was prepared and the scope was undertaken with reference to the SAQP (DP, 2015b) which took all previous data into account.

10. Rationale and Methodology

10.1 Soil Sampling Rationale

Table A of NSW EPA (1995) recommends a minimum of 99 sampling points for a site of 9 ha for site characterisation based on the detection of circular hot spots using a systemic grid sampling pattern. Samples for DP (2002b) and EIS (2013) were obtained from 12 and 16 locations, respectively, which is approximately 25% of the recommended minimum density. On this basis, and given that access to certain parts of the site remains obstructed by stockpiles, 26 additional bores were drilled and sampled to augment the existing soil contamination dataset. Further sampling may be required following removal of the existing stockpiles.

The total number of test locations (including DP (2002b) and EIS (2013)) is approximately 50% of the recommended minimum density. The proposed density is considered appropriate to inform an overall

site remediation strategy noting that some additional testing may be required during bulk earthworks / site remediation. The sampling density is also considered appropriate in the context of the adopted soil remediation strategy most likely being to cap any existing soil contamination. In this regard, DP also understands that a >1.5 m thick layer of VENM is required across the site in order to raise it above the local flood levels and this layer could essentially comprise an engineered cap.

Targeted near surface sampling should also be undertaken at the diesel above ground storage tank (AST) and the drum storage area following their decommissioning.

10.2 Landfill Gas Sampling Rationale

A remediation trial is currently underway at the site with a view to exploring whether landfill gas concentrations and flow rates can be reduced in the vicinity of two gas wells (JK102 and JK107) which have historically recorded high methane concentrations. The trial has involved the excavation of fill in the vicinity of the two locations. The fill removed has been screened and timber (a contributing source of landfill gas) has been removed from the fill, as far as is practicable, prior to using the screened fill to backfill the excavations. Landfill gas readings have been taken following reinstatement of the ground to evaluate the success of the trial (refer to Section 14.2.4).

Benedict intends to repeat this process where ongoing landfill gas monitoring indicates elevated concentrations of methane and/or flow rates.

Seventeen landfill gas monitoring wells were installed at the site by EIS at 30 m to >60 m spacing (nominally 50 m x 50 m as reported in EIS (2014a)). Some of the EIS wells have subsequently been damaged or destroyed and will be replaced.

CIRIA (2007) recommends gas well spacing that is close / very close (<25 m to 50 m) for moderate risk older domestic landfills (this site is an inert waste landfill) where 'high' sensitivity land use (e.g. residential) is proposed. In the context of the site requiring a significant amount of additional fill (understood to be >1.5 m), a post-fill landfill gas investigation is also likely to be required to confirm the post capping CGS and associated additional gas mitigation measures that will be necessary. It is also noted that full site access at the time of the investigation was limited by the presence of stockpiles. On this basis, ten additional gas monitoring wells (in addition to five shallow nested pair wells) were installed to augment the existing monitoring well network. This included one replacement well (JKBH/MW107a) at one of the backfilled remediation trial excavations and two replacement wells for destroyed (JK118) and partially damaged (JK103) wells. The ten wells included the three proposed groundwater monitoring wells discussed in Section 10.3 below as the groundwater wells can also be utilised for landfill gas testing.

10.3 Groundwater Sampling Rationale

The groundwater monitoring well network at the site currently comprises four monitoring wells placed around the perimeter of the site and two of these (JKBH/MW7 and JKBH/MW9) have been damaged. Three additional monitoring wells (JKBH/MW107, BH/MW216 and BH/MW218) were installed at the central portion of the site with a view to better understand the extent of the elevated concentrations of certain metals and/or pesticides which have been detected at the perimeter wells.

10.4 Surface Water Sampling Rationale

Routine surface water sampling is undertaken at the facility and the data has been briefly reviewed by DP. Surface water sampling was undertaken by DP at the dredge ponds (south), Georges River (east) and drainage channel (west) for an expanded suite of analytes in order to assess whether groundwater from the site is adversely impacting the aforementioned surface water bodies.

11. Site Assessment Criteria

11.1 Soil

The proposed use for the site after development is residential. The relevant SAC have been selected accordingly.

The analytical results from the laboratory testing have been assessed (as a Tier 1 assessment) against the investigation and screening levels in Schedule B1 of NEPC (2013). This guideline has been endorsed by the NSW EPA under the *Contaminated Land Management* Act 1997. The Schedule provides investigation and screening levels for commonly encountered contaminants which are applicable to generic land uses and include consideration of, where relevant, the soil type and the depth of contamination.

11.1.1 Health Investigation and Screening Levels

The HILs and HSLs are scientifically-based, generic assessment criteria designed to be used in the first stage (Tier 1) of an assessment of potential risks to human health from chronic exposure to contaminants. HILs are applicable to assessing health risks arising from direct contact to a range of contaminants. HSLs are used to assess selected petroleum compounds and fractions to assess the risk to human health via inhalation and direct contact with affected soils and groundwater.

HSLs have been developed for a range of petroleum hydrocarbons as either petrol or diesel mixtures, and for different land uses, media, pathways, soil types and depths to contamination.

The investigation and screening levels are not intended to be used as clean up levels. They establish concentrations above which further appropriate investigation (e.g. Tier 2) should be undertaken. They are intentionally conservative and are based on a reasonable worst-case scenario for four generic land uses.

Potential exposure pathways considered were:

- Soil vapour intrusion (for hydrocarbon contamination); and
- Direct contact.

Soil types considered were:

- Sand (conservative), given the general variability of soil types at the site.

Depth to contamination considered was:

- 0 to <1 m for soil HSLs have been adopted as an initial conservative screen; and

- HILs apply generally to the top 3 m of soil for residential land use.

Relevant land use criteria considered were:

- **HIL-A** – Residential with garden/accessible soils; and
- **HSL-A** – Residential with garden/accessible soils.

For petroleum hydrocarbons, the exposure scenario for an intrusive maintenance worker has also been considered and these criteria are extracted from the CRC CARE Technical Reports on which the NEPC (2013) HSLs are based.

Only those contaminants common to both Table 1A(1) (NEPC, 2013) and the list of potential contaminants applied to samples from the proposed analyte list have been included. The adopted soil HILs and HSLs are shown on the following table.

Table 6: Health Investigation and Screening Levels (HILs/HSLs) in mg/kg

Contaminants		Direct Contact		Vapour Intrusion	
		Resident /Site user HIL/HSL-A	Intrusive Worker	Resident /Site user (sand) HSL-A	Intrusive Worker
Heavy Metals	Arsenic	100	-	-	-
	Cadmium	20	-	-	-
	Chromium (VI)	100	-	-	-
	Copper	6000	-	-	-
	Lead	300	-	-	-
	Mercury (inorganic)	40	-	-	-
	Nickel	400	-	-	-
	Zinc	7400	-	-	-
	Manganese	3800	-	-	-
PAH	Benzo(a)pyrene TEQ [1]	3	-	-	-
	Total PAH	300	-	-	-
	Naphthalene	1400	29,000	3	NL
TRH	C_6 – C_{10} (less BTEX) [F1]	4,400	82,000	40 (silt)	NL
	$>C_{10}$-C_{16} (less Naphthalene) [F2]	3300	62,000	110	NL
	$>C_{16}$-C_{34}	4500	85,000	-	-
	$>C_{34}$-C_{40}	6300	120,000	-	-

Contaminants		Direct Contact		Vapour Intrusion	
		Resident /Site user HIL/HSL-A	Intrusive Worker	Resident /Site user (sand) HSL-A	Intrusive Worker
BTEX	Benzene	100	1100	0.5	77
	Toluene	14,000	120,000	160	NL
	Ethyl Benzene	4500	85,000	55	NL
	Xylene	12,000	130,000	40	NL
OCP/ OPP	Aldrin + Dieldrin	6	-	-	-
	Chlordane	50	-	-	-
	DDT+DDE+DDD	240	-	-	-
	Endosulfan	270	-	-	-
	Endrin	10	-	-	-
	Heptachlor	6	-	-	-
	HCB	10	-	-	-
	Methoxychlor	300	-	-	-
	Chlorpyrifos	160	-	-	-
PCB		1	-	-	-
Phenols		3000	-	-	-
Cyanide		250	-	-	-

Notes to Table 6:

1 - sum of carcinogenic PAH

NL - The soil saturation concentration (Csat) is defined as the soil concentration at which the pore water phase cannot dissolve any more of an individual chemical. The soil vapour that is in equilibrium with the pore water will be at its maximum. If the derived soil HSL exceeds Csat, a soil vapour source concentration for a petroleum mixture could not exceed a level that would results in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limited' or 'NL'.

The summary results tables presented in Appendix B provide a broader number of criteria for hydrocarbon HSLs based on soil types and depth to contamination in order to assist with interpretation of the dataset.

11.1.2 Ecological Investigation and Screening Levels

Ecological Investigation Levels (EILs) have been developed and discussed in NEPC (2013) for selected metals and organic compounds and are applicable for assessing risk to terrestrial ecosystems. EILs depend on specific soil physiochemical properties and land use scenarios and generally apply to the top 2 m of soil, which essentially corresponds to the root zone and habitation zone of many species. The EIL is determined for a contaminant using the following formula:

EIL = ABC + ACL, where

ABC = Ambient Background Concentration
ACL = Added Contaminant Limit

The ABC of a contaminant is the soil concentration in a specific locality that is the sum of naturally occurring background levels and the contaminants levels that have been introduced from diffuse or non-point sources (e.g. motor vehicle emissions). The ABC is determined through direct measurement at an appropriate reference site (preferred) or through the use of methods defined by Olszowy et al. (1995) or Hamon et al. (2004) (NEPC, 2013).

ACLs are based on the soil characteristics of estimated pH, CEC and clay content.

EILs (and ACLs where appropriate) have been derived for only a short list of contaminants including As, Cu, Cr (III), DDT, naphthalene, Ni, Pb and Zn. An *Interactive (Excel) Calculation Spreadsheet* may be used for calculating site-specific EILs, and has been provided in the ASC NEPM Toolbox.

The relevant EILs have been selected using average pH and CEC of the site soils based on the current and EIS (2013) testing as follows:

- Average pH 9 (range 7.1 to 10.7) based on 15 soil pH sample results within the upper 2.0 m of the soil profile;
- Average CEC 23 (range 4.3 to 39) based on 14 soil CEC sample results within the upper 2.0 m of the soil profile;
- Clay content 14% (EIS, 2013); and
- NSW traffic and 'low' traffic volume.

Table 7: Ecological Investigation Levels (EILs) in mg/kg

Analyte		EIL
Metals	Arsenic	100
	Cadmium	NC
	Chromium (III)	450
	Copper	230
	Lead	1100
	Mercury (inorganic)	NC
	Nickel	300
	Zinc	850
	Manganese	NC
OCP	DDT	180
PAH	Naphthalene	170

Notes to Table 7:
NC - No Criteria

Ecological Screening Levels (ESLs) are used to assess the risk of selected petroleum hydrocarbon compounds, BTEX and benzo(a)pyrene to terrestrial ecosystems. ESLs apply to the top 2 m of the soil profile, which essentially corresponds to the root zone and habitation zone of many species.

ESLs have been derived in NEPC (2013) for the same four petroleum fractions as the HSLs (F1 to F4) as well as BTEX and Benzo(a)pyrene. The ESLs are shown on the following table. The following site specific data and assumptions have been used to determine the ESLs:

- The ESLs will apply to the top 2 m of the soil profile;
- The ESLs for urban residential and public open space apply; and
- A "coarse" soil texture (conservative) has been adopted as an initial screen given the general variability of soil types at the site.

Table 8: Ecological Screening Levels (ESLs) in mg/kg

Analyte		ESL	Comments
TRH	$C_6 – C_{10}$ (less BTEX) [F1]	180*	All ESLs are low reliability apart from those marked with * which are moderate reliability
	$>C_{10}$-C_{16} (less Naphthalene) [F2]	120*	
	$>C_{16}$-C_{34} (F3)	300	
	$>C_{34}$-C_{40} (F4)	2800	
BTEX	Benzene	50	
	Toluene	85	
	Ethyl Benzene	70	
	Xylenes	105	
PAH	B(a)P	0.7	

The summary results tables presented in Appendix B provide a broader number of criteria for hydrocarbon Management Limits based on soil type in order to assist with interpretation of the dataset.

11.1.3 Management Limits for Petroleum Hydrocarbons

In addition to appropriate consideration and application of the HSLs, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formation of observable light non-aqueous phase liquids (LNAPL);
- Fire and explosion hazards; and
- Effects on buried infrastructure e.g. penetration of, or damage to, in-ground services.

Management Limits to avoid or minimise these potential effects have been adopted in NEPC (2013) as interim Tier 1 guidance. Management Limits have been derived for the same four petroleum fractions as the HSLs (F1 to F4). The adopted Management Limits are shown on the following table. The following site specific data and assumptions have been used to determine the Management Limits:

- The Management Limits will apply to any depth within the soil profile;

- The Management Limits for residential, parkland and open space apply; and
- A "coarse" soil texture (conservative) has been adopted as an initial screen given the general variability of soil types at the site.

Table 9: Management Limits in mg/kg

Analyte		Management Limit
TRH	$C_6 - C_{10}$ (F1)	700
	$>C_{10}$-C_{16} (F2)	1000
	$>C_{16}$-C_{34} (F3)	2500
	$>C_{34}$-C_{40} (F4)	10,000

Notes to Table 9:

Separate management limits for BTEX and naphthalene are not available hence these should not be subtracted from the relevant fractions to obtain F1 and F2

The summary results tables presented in Appendix B provide a broader number of criteria for hydrocarbon Management Limits based on soil type in order to assist with interpretation of the dataset.

11.2 Landfill Gas / Trace Non-Methane Organic Compounds

According to the NSW EPA (2012), methane (CH_4) is a flammable gas that is explosive in the concentration range 5% to 15% v/v in air (somewhat different ranges may apply in atmospheres with enhanced or reduced oxygen concentrations). It is also potentially an asphyxiant if its presence displaces oxygen thereby resulting in an environment with low oxygen concentration. It is less dense than air.

Carbon dioxide (CO_2) is an asphyxiant and toxic gas that is significantly denser than air. Carbon monoxide (CO) is an acutely toxic gas that is also flammable and potentially explosive. It has neutral buoyancy in air. Hydrogen is a flammable, potentially explosive gas that is much less dense than air. Hydrogen sulphide (H_2S) is a flammable and acutely toxic gas that is denser than air. It is highly odorous, and a nuisance, at low concentrations.

Trace gases may also be present depending on the nature of the source material, particularly if landfilled wastes are involved, including volatile organic compounds.

SAC from CIRIA (2007) and as adopted by NSW EPA (2012) (originally modified from Wilson and Card (2007)) for the GSV and CGS have been used to evaluate landfill gas. The GSV and CGS are summarised in the table reproduced from NSW EPA (2012), below.

Table 10: Modified Wilson and Card classification (NSW EPA, 2012)

	Gas screening value threshold (L/hr)	Characteristic gas situation	Risk classification	Additional factors	Typical sources
	<0.07	1	Very low risk	Typically methane <1% v/v and/or carbon dioxide <5% v/v, otherwise consider increase to Situation 2	Natural soils with low organic content Typical fill
	<0.7	2	Low risk	Borehole flow rate not to exceed 70 L/hr, otherwise consider increase to Situation 3	Natural soils with high organic content Fill
	<3.5	3	Moderate risk		Old inert waste landfill Flooded mine workings
	<15	4	Moderate to high risk	Consider need for Level 3 risk assessment	Mine workings susceptible to flooding Closed putrescible waste landfill
	<70	5	High risk	Level 3 risk assessment required	Shallow, un-flooded abandoned mine workings
	>70	6	Very high risk		Recent putrescible waste landfill

Notes:

1. Site characterisation should be based on gas monitoring of concentrations and borehole flow rates for the minimum periods defined in Section 3.4.
2. Source of gas and generation potential must be identified in the conceptual site model.
3. Soil gas investigation should be in accordance with the guidance provided in Section 3.4.
4. Where there is no detectable flow, the lower measurement limit of the instrument should be used.
5. To determine a GSV of <0.07, instruments capable of making accurate concentration measurement to 0.5% v/v and flow measurement to 0.1 L/hr are recommended.

With regard to trace NMOC, the interim HIL-A-B for residential sites provided in NEPC (2013) has been adopted as the SAC for chlorinated hydrocarbons in soil vapour. The screening levels for chlorinated hydrocarbons are presented in the table below.

Table 11: Interim Soil Vapour HIL for Volatile Organic Chlorinated Compounds (µg/m^3)

Chemical	HIL-A-B Residential
TCE	20
1,1,1 – TCA	60 000
PCE	2000
Cis, 1,2, -DCE	80
Vinyl chloride (VC)	30

For petroleum hydrocarbons the soil vapour HSLs for vapour intrusion have been adopted as the SAC. Based on the variable soil conditions encountered at the site the threshold levels for HSL-A-B sand (conservative) were adopted as the appropriate screening levels. The screening levels for petroleum hydrocarbons adopted for the monitoring are presented in the table below.

Table 12: Soil Vapour HSLs for Vapour Intrusion (µg/m^3)

Chemical	HSL-A-B
	0 to 1m
Toluene	1 300 000
Ethylbenzene	330 000
Xylenes	220 000
Naphthalene	800
Benzene	1000
C6 – C10 (less BTEX) [F1]	18 0000
>C10-C16 (less Naphthalene) [F2]	13 0000

The relevant criteria are also shown in the summary results table in Appendix C.

11.3 Groundwater

The SAC used for interpretation of the groundwater data are based on the potential uses, or risk posed by contaminated groundwater, at or down-gradient of the site. Potential uses at or down-gradient of the site may include:

- Groundwater discharge to water bodies sustaining aquatic ecosystems, such as the Georges River, which is the most likely receptor of groundwater from the site;

- Groundwater discharge to recreational water bodies, i.e. the Georges River, which is the most likely receptor of groundwater from the site; and
- Potential potable use (however, this is considered unlikely as scheme water is plumbed to sites in this area).

The potential risk posed by contaminated groundwater, at or down-gradient of the site is exposure to VOC via the vapour intrusion pathway.

Therefore, the concentrations of contaminants in groundwater were assessed against groundwater investigation levels (GILs) adopted from the following applicable documents:

- Protection of aquatic ecosystems:
  - ANZECC (2000) – criteria adopted for the protection of aquatic ecosystems are for slightly to moderately disturbed marine systems (marine water guidelines (MWG)), consistent with the expected discharge point of the brackish Georges River. Criteria adopted for the protection of aquatic ecosystems are for slightly to moderately disturbed freshwater systems (freshwater guidelines (FWG)) have also been included for reference purposes. In the absence of 'high reliability' criteria, 'low reliability' criteria are used where available for some compounds (e.g. ethylbenzene);
- Protection of human health:
  - NEPC (2013) – HSL-A-B for evaluating vapour intrusion risks for hydrocarbon-contaminated groundwater. The HSL-A-B is groundwater depth and soil type dependant. Given the variability of soil types and depths to groundwater, the HSL-A-B for a sand soil profile and depth to groundwater of 2.0 m to 4.0 m has been adopted as an initial conservative screen;
  - ANZECC (2000) – criteria adopted for recreational water (RWG) consistent with the expected discharge point of the Georges River; and
  - NHMRC (2016) – drinking water guidelines, health-based and aesthetic (DWGH, DWGA).

The relevant criteria are shown in the summary results table in Appendix D.

11.4 Surface Water

The SAC used for interpretation of the surface water data are based on the surface water bodies adjacent to the site sustaining aquatic ecosystems, such as the Georges River, drain along the western site boundary and ponds to the south of the site which are the most likely receptor of groundwater from the site. Therefore, the concentrations of contaminants in surface water were assessed against ANZECC (2000) – MWG, FWG and recreational water (refer to details in Section 11.3).

The relevant criteria are shown in the summary results table in Appendix D.

12. Fieldwork

12.1 Drilling and Soil Sampling

An experienced DP Environmental Scientist conducted the field work. A Scout drilling rig utilising solid flight augers was used for the drilling. Soil samples were retrieved (where possible) using an SPT hammer. The surface level at each test location was surveyed using a dGPS.

Samples were generally collected at nominal depth intervals of 1.0 m and based on observed changes in strata, PID response and upon obvious sign of contamination such as strong hydrocarbon odour or staining / discolouration.

Environmental sampling was performed according to standard operating procedures outlined in the DP *Field Procedures Manual*. All sampling data was recorded on DP chain of custody sheets. The general sampling and sample management procedures comprised:

- Collection of samples from the SPT into laboratory-prepared glass jars with Teflon lined lids by hand, capping immediately and ensuring headspace within the sample jar is minimised;
- Collection of a replicate sample in a zip-lock bag for PID screening;
- A new disposable nitrile glove was worn by the field scientist / engineer for each sample collected thereby precluding potential cross-contamination;
- Collection of 10% replicate samples for QC purposes;
- Labelling of sample containers with individual and unique identification details, including project number, sample location and sample depth (where applicable); and
- Placement of the sample jars into a cooled, insulated and sealed container for transport to the laboratory.

The headspace in the zip-lock bag sample was allowed to equilibrate and was screened using the PID. The PID had a 10.6eV lamp and was calibrated with isobutylene gas at 100 ppm and with fresh air prior to commencement of each successive day's field work.

Test locations are shown on Drawing 2, Appendix A.

12.2 Drilling and Installation of Landfill Gas and Groundwater Monitoring Wells

Wells were constructed using class 18 uPVC machine slotted screen and blank sections. The joints were screw threaded in order to prevent the use of glues, which may contaminate the well. The screened section of each well was backfilled with a washed sand filter pack to approximately 0.5 m above the screened interval. Confirmation of the filter pack was achieved by probing. Each well was completed with a hydrated bentonite plug generally 1.0 m thick and concrete at the surface with a steel lockable monument.

Each groundwater monitoring well was developed following installation by removing a minimum of three well volumes, or until dry. The purpose of well development was to remove as far as practicable sediment introduced via drilling and to facilitate connection of the well to the local groundwater regime.

Monitoring well locations are shown on Drawing 2, Appendix A.

12.3 Landfill Gas Sampling

Monitoring of gas concentrations and flow rates was undertaken using a calibrated GA5000. The monitoring was conducted according to the following procedure:

- Atmospheric pressure was recorded prior to monitoring;
- The inlet hose of a GAG000 was connected to the well gas cap; and
- Peak and stabilised readings of carbon dioxide, methane, hydrogen sulphide, carbon monoxide and oxygen were recorded upon stabilisation of parameters or at the end of five minutes of monitoring.

12.3.1 Sampling Trace Non-Methane Organic Compounds

The trace gas NMOC analysis was undertaken using summa canisters. The summa canisters were decontaminated by the laboratory and prepared with a vacuum of between -29 mm Hg to -30 mm Hg. The canisters were connected to the gas sampling cap and opened for the required amount of time such that a vacuum of -5 mm Hg was retained after sample collection.

A duplicate QC sample was also taken from BH/MW216 using a manifold between the primary and duplicate canister for QA/QC purposes.

12.4 Groundwater Sampling

Groundwater sampling was performed according to standard operating procedures outlined in the DP *Field Procedures Manual*. Groundwater samples were collected using a positive displacement low flow bladder pump in order to minimise aeration of the sample and disturbance to the water column thereby enhancing the quality of results for oxygen sensitive volatile analytes, DO and redox. The sampling method is described as follows:

- Measure the static water level using an electronic interface probe and record the thickness of any LNAPL (if encountered);
- Fit the bladder pump with a bore dedicated disposable bladder (and bore dedicated disposable tubing). Lower the pump into the bore and taped off at a level estimated to be 1m below the top of the water column provided it was within screened section of the monitoring well;
- Set the pump at the lowest rate possible that could produce laminar flow out of the bore and measure the drawdown with the interface probe to confirm minimal drawdown;
- Physical parameters (pH, temperature, dissolved oxygen, electrical conductivity and redox) were measured by continuously by passing the purged water through a flow cell; and
- Following stabilisation of the field parameters the appropriate laboratory prepared sample bottles were filled.

The pump and cable were decontaminated between bores by rinsing in a diluted Decon-90 solution and then rinsing in demineralised water.

The following sample handling and transport were employed:

- Laboratory prepared sample bottles were labelled with individual and unique identification, including project number and sample number;
- Samples were placed in insulated coolers and maintained at a temperature of approximately 4^0C until transported to the analytical laboratory;
- Chain of custody documentation was maintained at all times and countersigned by the receiving laboratories on transfer of samples; and
- NATA accredited laboratories were engaged to complete the analyses.

13. Results

13.1 Sub-Surface Conditions

The borehole logs are included in Appendix E and should be read in conjunction with the accompanying standard notes defining classification methods and descriptive terms. Boreholes denoted 'a' are replacement wells for some wells that have been destroyed. Boreholes denoted 'b' are shallow landfill gas wells.

The subsurface conditions are broadly summarised as follows:

- FILLING – sand, clay, silty clay, clayey sand, sandy clay, crushed sandstone, gravel, crushed glass (fine sand to silt particle size), in filling to depths of 0.7 m to 9.2 m and to borehole termination (typically refusal on buried obstructions in the filling) in BH201 at 3.8 m, BH202 at 6.1 m, BH203 at 4.5 m, BH205 at 4.9 m, BH209 at 5.4 m, BH210 at 4.05 m, BH212 at 6.0 m, BH213 at 3.8 m, BH215 at 3.7, BH218 at 8.35, BH220 at 2.6 m, BH221 at 4.9 m, BH222 at 2.9 m and BH118a at 6.4 m. Anthropogenic materials (typically construction and demolition waste including concrete, timber, glass, brick, asphalt, steel, plastic, terracotta and cotton / fabric) were observed throughout the filling at the majority of boreholes consistent with the known history of burial of demolition waste at the site; and
- SILTY CLAY / SAND / CLAYEY SAND – silty clay, sand and sandy clay from depths of 9.2 m at BH204, 6.1 m at BH206, 4.05 m at BH207, 4.0 at BH208, 3.1 m at BH211, 3.8 m at BH5.1, 7.35 m at BH216, 3.75 m at BH233, 5.1 m at JK103a, 9.2 m at JK107a, 0.7 m at BH224 and 0.7 m at BH225 to the depth of borehole termination at depths of between 2.3 m and 10.4 m.

Free groundwater was observed at some boreholes whilst drilling. Some of the observations were consistent with water likely perched on low permeability strata / items (e.g. buried concrete boulders) in the filling.

Surface samples were collected at locations SS217 and SS219 as excessive rubble in fill prevented drilling at these locations. The soil description for each of these samples is:

- SS217: Light brown sandy clay filling with traces of sub-angular and angular igneous gravel; and
- SS219: Light brown sandy clay filling with traces of sub-angular and angular igneous gravel.

No fragments of ACM were observed in drill cuttings whilst drilling.

Selected photographs taken during the various components of fieldwork are included in Appendix A.

13.2 Field Screening Results for Soil

Replicate soil samples collected in zip-lock plastic bags were allowed to equilibrate under ambient temperatures before screening for total photoionisable compounds (i.e. VOC) using a calibrated PID. Results of sample screening are shown on borehole logs presented in Appendix E. The PID readings were all generally low ranging between <5 ppm to 11 ppm. The screening results suggest the general absence of gross VOC contamination. The PID calibration certificate is presented in Appendix F.

13.3 Landfill Gas Sampling Results

Landfill gas monitoring was undertaken on 19 August 2015, 1 October 2015, 27 October 2015 and 10 February 2016. The results, along with the CSV and CGS are summarised in the following tables.

Table 13: Landfill Gas Sampling Results for 19/08/15

Well ID	Flow Rate Peak	Methane Peak %	GSV	CO_2 Peak %	GSV	CGS [1, 2]
JKBH/MW1	0.2	1.3	<0.01	1.7	<0.01	2
JKBH/MW16	0.2	22	0.04	6.7	0.01	3
JKBH/MW7	0.2	14	0.03	9.6	0.02	2
JKBH/MW9	0.3	20.9	0.06	6.1	0.02	3
JK101	0.2	14	0.03	7.7	0.02	2
JK102	0.1	13.2	0.01	7.8	0.01	2
JK103	0.1	0.8	<0.01	1.9	<0.01	1
JK104	0.1	0.5	<0.01	3.1	<0.01	1
JK106	0.2	16.1	0.03	4.2	0.01	2
JK110	0.4	23.2	0.09	6.3	0.03	3
JK113	0.1	9.9	0.01	15.9	0.02	2
JK114	0.2	24.6	0.05	8	0.02	3
JK115	0.2	8.6	0.02	11.1	0.02	2
JK119	0.9	10.5	0.09	6.7	0.06	2
Max Value	**0.9**	**24.6**	**0.22**	**15.9**	**0.14**	**3**

Notes to table:

1. Where methane >1% or CO_2 >5% CGS has been increased to Situation 2 as per Table 6 of NSW EPA (2012)
2. Where methane >20% CGS has been increased to Situation 3 as per Table 7 of NSW EPA (2012)

Atmospheric pressure start 1024 mb end 1024 mb – pressure steady

Table 14: Landfill Gas Sampling Results for 1/10/15

Well ID	Flow Rate Peak	Methane Peak %	GSV	CO_2 Peak %	GSV	CGS [1, 2]
BH/MW216	0.2	16	0.03	6.3	0.01	2
BH/MW218	0.2	24.2	0.05	10.2	0.02	3
BH202	0.2	1.1	<0.01	12.4	0.02	2
BH211	0.3	0	<0.01	1.5	<0.01	1
BH211b	-	0	-	3.7	-	-
BH223	0.2	1.1	<0.01	3.4	0.01	2
JKBH/MW1	0.2	0	<0.01	2	<0.01	1
JKBH/MW7	0.2	4.1	0.01	7	0.01	2
JKBH/MW9	0.1	0	<0.01	2.9	<0.01	1
JK101	0.3	14.3	0.04	7.3	0.02	2
JK102	0.3	12	0.04	6.4	0.02	2
JK103a	0.7	0.7	<0.01	3.1	0.02	1
JK103b	0.3	1.4	<0.01	1.2	<0.01	2
JK104	0.2	0	<0.01	4	0.01	1
JK106	0.4	13.2	0.05	4.5	0.02	2
JKBH/MW107a	0.4	3	0.01	0.2	<0.01	2
JK107b	0.2	10.2	0.02	5.6	0.01	2
JK110	0.5	19	0.1	6.3	0.03	2
JK113	0.4	6	0.02	14.5	0.06	2
JK114	0.2	22.2	0.04	5.3	0.01	3
JK114b	0.2	20.2	0.04	7.2	0.01	3
JK115	0.2	0.6	<0.01	9.1	0.02	1
JKBH/MW16	0.3	8.5	0.03	6.5	0.02	2
JK118a	0.3	17.3	0.05	5.7	0.02	2
JK118b	0.2	12.9	0.03	4.5	0.01	2
JK119	0.7	11.9	0.08	3.1	0.02	2
Max Value	**0.7**	**24.2**	**0.17**	**14.5**	**0.10**	**3**

Notes to table:

1. Where methane >1% or CO_2 >5% CGS has been increased to Situation 2 as per Table 6 of NSW EPA (2012)
2. Where methane >20% CGS has been increased to Situation 3 as per Table 7 of NSW EPA (2012)

Atmospheric pressure start 1023 end1032 mb – pressure increasing

Table 15: Landfill Gas Sampling Results for 27/10/15

Well ID	Flow Rate Peak	Methane Peak %	GSV	CO_2 Peak %	GSV	CGS [1, 2]
BH/MW216	0.1	14.7	0.01	6.7	0.01	2
BH/MW218	-0.2	32.5	<0.01	13.8	<0.01	3
BH202	0.4	0.8	<0.01	13.2	0.05	2
BH211	0.4	0	<0.01	1.7	0.01	1
BH211b	0.3	0	<0.01	3.9	0.01	1
BH223	0.6	3.7	0.02	8.2	0.05	2
BH224	0.4	0	<0.01	10.3	0.04	2

Well ID	Flow Rate Peak	Methane Peak %	GSV	CO_2 Peak %	GSV	CGS [1, 2]
BH225	0.2	0	<0.01	9.6	0.02	2
JKBH/MW1	0.2	0	<0.01	2.2	<0.01	1
JKBH/MW7	0.3	8.5	0.03	3.2	0.01	2
JKBH/MW9	0.2	0	<0.01	3.2	0.01	1
JKBH/MW16	0.2	2.8	0.01	8.3	0.02	2
JK101	0.3	14.1	0.04	10.2	0.03	2
JK102	0.2	13.2	0.03	6.6	0.01	2
JK103a	0.4	0	<0.01	1.7	0.01	1
JK103b	0.6	1.1	0.01	0.7	<0.01	2
JK104	0.5	0	<0.01	1.7	0.01	1
JK106	0.4	10	0.04	3.3	0.01	2
JKBH/MW107a	0.1	15	0.02	5.2	0.01	2
JK107b	0.2	14.4	0.03	2.9	0.01	2
JK110	0.1	25	0.03	6.4	0.01	3
JK113	0.2	1	<0.01	4.5	0.01	1
JK114	0.1	21.2	0.02	6.4	0.01	3
JK114b	0.3	19.1	0.06	7.5	0.02	2
JK115	0.3	7.2	0.02	7	0.02	2
JK118a	0.3	15.2	0.05	5.1	0.02	2
JK118b	0.3	14.5	0.04	4.8	0.01	2
JK119	0.6	16.2	0.1	5.8	0.03	2
Max Value	**0.6**	**32.5**	**0.20**	**13.8**	**0.08**	**3**

Notes to table:

1. Where methane >1% or CO_2 >5% CGS has been increased to Situation 2 as per Table 6 of NSW EPA (2012)
2. Where methane >20% CGS has been increased to Situation 3 as per Table 7 of NSW EPA (2012)

Atmospheric pressure start 1022 mb to 1026 mb – pressure increasing

Table 16: Landfill Gas Sampling Results for 10/02/16

Well ID	Flow Rate Peak	Methane Peak %	GSV	CO_2 Peak %	GSV	CGS [1, 2]
BH/MW216	0.3	16.1	0.05	5.2	0.02	2
BH202	0.2	1.1	<0.01	3.4	0.01	2
BH211a	0.1	1.1	<0.01	5	0.01	2
BH211b	0.2	0.5	<0.01	1.9	<0.01	1
BH223	0.1	3.7	<0.01	10	0.01	2
BH224	0.3	0.1	<0.01	14.4	0.04	2
BH225	0.3	0.2	<0.01	12.1	0.04	2
JKBH/MW1	0.1	0.2	<0.01	3.4	<0.01	1
JKBH/MW7	0	0.5	<0.01	6.8	<0.01	2
JKBH/MW9	0.2	17.5	0.04	23.8	0.05	2
JKBH/MW16	0.3	0.1	<0.01	9.7	0.03	2
JK101	0.3	15.7	0.05	11.4	0.03	2
JK103	6.8	1.7	0.12	0.6	0.04	2

Well ID	Flow Rate Peak	Methane Peak %	GSV	CO_2 Peak %	GSV	CGS [1, 2]
JK103a	0.3	0.9	<0.01	0.2	<0.01	1
JK103b	0.3	5.1	0.02	2.6	0.01	2
JK106	0	14.2	<0.01	6.7	<0.01	2
JKBH/MW107a	0.3	16.4	0.05	0.9	<0.01	2
JK107b	0.2	17.3	0.03	3.8	0.01	2
JK104	0.2	0.5	<0.01	2.3	<0.01	1
JK113	0.1	0.1	<0.01	1	<0.01	1
JK114	0.2	25.3	0.05	4.7	0.01	3
JK114b	0.3	0.1	<0.01	0	<0.01	1
JK115	0.2	0.1	<0.01	0	<0.01	1
JK117*	0.6	11.7	0.07	6.8	0.04	2
JK119	0.4	21.3	0.09	6.9	0.03	3
Max Value	**6.8**	**25.3**	**1.72**	**23.8**	**1.62**	**3**

Notes to table:

1. Where methane >1% or CO_2 >5% CGS has been increased to Situation 2 as per Table 6 of NSW EPA (2012)
2. Where methane >20% CGS has been increased to Situation 3 as per Table 7 of NSW EPA (2012)

*JK117 was inaccessible for previous monitoring events due to stockpile placement

Atmospheric pressure start 1016 mb end 1011 mb – pressure decreasing

The peak methane concentration data for each of the landfill gas monitoring events have been used to generate concentration contours on the following drawings in Appendix A:

- Drawing 3 - Peak Methane Concentration Contours 19/08/15;
- Drawing 4 - Peak Methane Concentration Contours 1/10/15;
- Drawing 5 - Peak Methane Concentration Contours 27/10/15; and
- Drawing 6 - Peak Methane Concentration Contours 10/02/16.

Field sampling records are included in Appendix G.

Where a shallow and deep gas well is present at the one location, the well with the highest methane peak was used to generate the contours. It should also be noted that some wells have been destroyed due to the site owner undertaking a further trial remediation excavation at the south-western portion of the site.

13.4 Groundwater Levels

Groundwater wells, including those installed by J&K, were surveyed using a dGPS. Groundwater levels were gauged on 17 September 2016 using an electronic oil/water interface meter prior to developing the wells. The measured water levels are shown in the following two tables.

Table 17: Summary of Groundwater Level Measurements 17/09/15 (Well Development)

Well ID	Ground Level * m (AHD)	Top of Casing* m (AHD)	SWL m (bgl)	SWL m (AHD)
BH/MW216	7.27	7.99	5.49	1.78
BH/MW218	7.69	8.39	4.61	3.08
JKBH/107a	7.15	7.85	6.43	0.72
JKBH/MW1	2.85	3.32	1.76	1.09
JKBH/MW7	6.51	7.09	5.81	0.70
JKBH/MW9	6.57	7.10	4.79	1.78
JKBH/MW16	5.61	5.86	6.09	-0.48

Notes to table:
*Surveyed by dGPS and top of casing measured from ground level
AHD – Australian Height Datum
SWL – standing water level
bgl – below ground level

Table 18: Summary of Groundwater Level Measurements 1/10/15 (Well Sampling)

Well ID	Ground Level * m (AHD)	Top of Casing* m (AHD)	SWL m (bgl)	SWL m (AHD)
BH/MW216	7.27	7.99	6.00	1.27
BH/MW218	7.69	8.39	7.60	0.09
JKBH/107a	7.15	7.85	6.45	0.70
JKBH/MW1	2.85	3.32	1.89	0.96
JKBH/MW7[#]	6.51	7.09	5.82	0.69
JKBH/MW9[#]	6.57	7.10	-	-
JKBH/MW16	5.61	5.86	6.04	-0.43

Notes to table:
*Surveyed by dGPS and top of casing measured from ground level
AHD – Australian Height Datum
SWL – standing water level
bgl – below ground level
[#] well was bent and could not fit bailer or pump in

Based on the groundwater level measurements, groundwater was flowing to the north towards Newbridge Road, east towards the Georges River, to the south towards the ponds and to the west towards the open drainage channel. The inferred groundwater level contours are shown on Drawing 7 and 8, Appendix A. Essentially groundwater appears to be mounded within the site and flowing radially towards adjacent water bodies and low points. This is to be expected as the permeability of fill at the site is likely to be higher than the natural landforms surrounding the site and water bodies are located to the east, south and west of the site.

Field parameters were measured whilst sampling, however, there was insufficient water in BH/MW218. The field parameters are summarised in the following table.

Table 19: Summary of Field Parameters (Groundwater and Surface Water)

Well / Sample ID	Temp. (°C)	DO (mg/L)	TDS (ppm)	EC* (µS/cm)	pH	Redox (mV)
Groundwater Samples						
BH/MW216	20.0	2.16	7200	11 250	6.84	-83
BH/MW218	-	-	-	-	-	-
JKBH/107a	24.3	3.33	2140	3344	6.98	-56
JKBH/MW1	17.5	3.45	3080	4813	6.95	-34
JKBH/MW7#	-	-	-	-	-	-
JKBH/MW9#	-	-	-	-	-	-
JKBH/MW16	25.0	2.09	5940	9281	5.43	-37
Surface Water Samples						
SW1	21.1	7.15	11640	18 188	7.55	40
SW2	25.4	0.43	6320	9875	7.20	-68
SW3	19.5	2.31	3290	5141	7.10	-15

Notes to table:

*Calculated from TDS result

well was bent and could not fit bailer or pump in

For groundwater, temperature ranged between 17.5 and 25.0°C. There was some dissolved oxygen (2.09 to 3.45 mg/L) measured in all wells. The pH of the groundwater was slightly acidic ranging between 5.43 and 6.98 pH units. The electrical conductivity ranged between 3344 and 11 250 µs/cm reflecting values typical of brackish water. Redox potential (Eh) ranged between -83 and -37 mV.

No LNAPL was observed whilst sampling.

Three discrete surface water bodies were sampled and the locations are shown on Drawing 9, Appendix A. For surface water, temperature ranged between 19.5 and 25.4°C. There was some dissolved oxygen (0.43 to 7.15 mg/L) measured in all locations. The pH of the surface water was slightly acidic ranging between 7.10 and 7.55 pH units. The electrical conductivity ranged between 5141 and 18 188 µs/cm reflecting values typical of brackish to saline water. Redox potential (Eh) ranged between -15 and 40 mV.

13.5 Analytical Laboratory Results

Summary results tables including analytical results and relevant assessment criteria are appended as follows:

- Appendix B – Summary Results for Soil;
- Appendix C – Summary Results for Soil Vapour; and
- Appendix D – Summary Results for Groundwater and Surface Water.

Laboratory reports with associated chain of custody documentation are presented in Appendix H.

13.6 Data Quality Assurance and Quality Control

Field and laboratory quality assurance and quality control (QA/QC) procedures formed an integral part of the assessment. The QA/QC procedures and results are presented in Appendix I. Overall, the standard operating procedures (SOPs) were complied with in the field, and the field and laboratory QC samples were generally within the acceptance criteria. On this basis, it is considered that an acceptable level of field and laboratory precision and consistency was achieved and that the laboratory data sets are reliable, accurate and useable for this assessment.

14. Discussion of Results

14.1 Soil Results

Sixty-six soil samples were analysed for metals (arsenic, cadmium chromium, copper, lead, mercury, nickel, zinc and manganese). All the samples recorded concentrations of metals that were below the adopted EILs and HILs with the following exceptions:

- Sample BH203/2.9-3.35 which recorded a concentration of lead at 860 mg/kg which exceeds the HIL-A of 300 mg/kg;
- Sample BH221/2.9-3.35 which recorded a concentration of lead at 620 mg/kg which exceeds the HIL-A of 300 mg/kg;
- Sample BH223/2.0-2.45 which recorded a concentration of copper at 540 mg/kg which exceeds the EIL of 230 mg/kg. The sample was, however, collected from a depth exceeding that to which the EIL generally apply; and
- Sample BH222/0.9-1.35 which recorded a concentration of copper at 250 mg/kg which marginally exceeds the EIL of 230 mg/kg.

Sixty-three soil samples were analysed for TRH and BTEXN. All the samples recorded concentrations of TRH and BTEXN that were below the adopted ESLs and HILs with the following exceptions:

- Sample BH207/0.1-0.2 (coarse soil) which recorded a concentration of TRH C_{16}-C_{34} at 1700 mg/kg which exceeds the ESL of 300 mg/kg;
- Sample BH209/0.1-0.2 (coarse soil) and BH209/0.9-1.35 (coarse soil) which recorded a concentration of TRH C_{16}-C_{34} at 330 mg/kg and 990 mg/kg, respectively, which exceed the ESL of 300 mg/kg;
- Sample BH212/0.1-0.2 (coarse soil) which recorded a concentration of TRH C_{16}-C_{34} at 640 mg/kg which exceeds the ESL of 300 mg/kg;

- Sample BH222/0.1-0.2 (coarse soil) and BH209/0.9-1.35 (coarse soil) which recorded a concentration of TRH C_{16}-C_{34} at 890 mg/kg and 990 mg/kg, respectively, which exceed the ESL of 300 mg/kg; and
- Sample JK103a/0.1-0.2 (coarse soil) which recorded a concentration of TRH C_{16}-C_{34} at 460 mg/kg which exceeds the ESL of 300 mg/kg.

Sixty-five soil samples were analysed for PAH. Detectable concentrations of total PAH were recorded in 41 samples (i.e. 63% of samples tested). Concentrations of total PAH were below the adopted HIL in all samples. Concentrations of B(a)P and B(a)P TEQ were below the adopted ESL and HIL, respectively, for all samples with the following exceptions:

- B(a)P:
  - Samples which exceeded the ESL of 0.7 mg/kg by greater than 2.5 times (i.e. are 'hotspots') and are within the upper 2.0 m of the surface (i.e. where the ESL applies) were:
    - BH207/0.1-0.2 at 20 mg/kg;
    - BH209/0.9-1.35 at 9.5 mg/kg;
    - BH210/0.1-0.2 at 2.8 mg/kg;
    - BH222/0.9-1.35 at 3.6 mg/kg;
  - Samples which exceeded the ESL of 0.7 mg/kg (excluding 'hotspots') and are within the upper 2.0 m of the surface (i.e. where the ESL applies) were:
    - BH206/0.1-0.2 at 1.1 mg/kg;
    - BH209/0.1-0.2 at 1.1 mg/kg;
    - BH209/1.9-2.35 at 0.86 mg/kg;
- B(a)P TEQ:
  - Samples which exceeded the HIL of 3 mg/kg by greater than 2.5 times (i.e. are 'hotspots') and are within the upper 3.0 m of the surface (i.e. where the HIL applies) were:
    - BH207/0.1-0.2 at 29 mg/kg;
    - BH209/0.9-1.35 at 14 mg/kg;
    - BH210/0.1-0.2 at 4.2 mg/kg;
    - JK103a/2.9-3.35 at 17 mg/kg;
  - Samples which exceeded the HIL of 3 mg/kg (excluding 'hotspots') and are within the upper 3.0 m of the surface (i.e. where the HIL applies) were:
    - BH222/0.9-1.35 at 5.4 mg/kg.

Sixty-three soil samples were analysed for OCP. Detectable concentrations of OCP were recorded in five samples. Concentrations of OCP were below the adopted HIL and EIL in all samples. The detectable OCP included Aldrin, DDT, DDE, DDD, Endosulfan and Endrin.

Sixty-three soil samples were analysed for OPP and all samples recorded concentrations below the laboratory reporting limit and therefore well below the adopted HIL.

Sixty-three soil samples were analysed for PCB and all samples recorded concentrations below the laboratory reporting limit and therefore well below the adopted HIL with the exception of:

- Sample BH220/0.1-0.2 which recorded a concentration of 3.7 mg/kg which exceeds the HIL of 1 mg/kg by greater than 2.5 times (i.e. represents a 'hotspot').

Sixty-three soil samples were analysed for total phenols and all samples recorded concentrations below the laboratory reporting limit and therefore well below the adopted HIL.

Sixty-one soil samples were analysed for total cyanide. Detectable concentrations of total cyanide were recorded in five samples. Concentrations of total cyanide were below the adopted HIL in all samples.

14.1.1 Leachability Results

Toxicity characteristic leaching procedure (TCLP) testing was undertaken on selected 'worst case' soil samples which recorded elevated concentrations of metals or PAH. The results on two samples for metals indicate some degree of leachability for some metals, in particular lead at 0.2 mg/L to 1 mg/L and zinc at 1.1 mg/L and 1.8 mg/L. The results on four samples for PAH indicate a limited degree of leachability between <0.016 mg/L (three samples) and 0.029 mg/L (one sample).

14.2 Landfill Gas Results

The HGG monitoring data for the monitoring undertaken on 19 August 2015 is summarised as follows:

- Methane concentrations ranged from 0.5 %v/v to 24.6 %v/v;
- Carbon dioxide concentrations ranged from 1.7 %v/v to 15.9 %v/v;
- Oxygen concentrations ranged from 0.1 %v/v to 15.9 %v/v;
- Carbon monoxide concentrations ranged from 0 ppm to 2 ppm;
- Hydrogen sulphide concentrations ranged from 0 ppm to 1 ppm; and
- Atmospheric pressure readings remained stable for the duration of monitoring at 1024 mb.

The HGG monitoring data for the monitoring undertaken on 1 October 2015 is summarised as follows:

- Methane concentrations ranged from 0.0 %v/v to 24.4 %v/v;
- Carbon dioxide concentrations ranged from 1.2 %v/v to 14.5 %v/v;
- Oxygen concentrations ranged from 0.0 %v/v to 21.7 %v/v;
- Carbon monoxide concentrations ranged from 0 ppm to 19 ppm;
- Hydrogen sulphide concentrations ranged from 0 ppm to 1 ppm; and
- Atmospheric pressure readings increased during monitoring from 1023 mb to 1032 mb.

The HGG monitoring data for the monitoring undertaken on 27 October 2015 is summarised as follows:

- Methane concentrations ranged from 0.0 %v/v to 32.5 %v/v;

- Carbon dioxide concentrations ranged from 1.7 %v/v to 13.8 %v/v;
- Oxygen concentrations ranged from 0.0 %v/v to 21.7 %v/v;
- Carbon monoxide concentrations ranged from 0 ppm to 5 ppm;
- Hydrogen sulphide concentrations ranged from 0 ppm to 2 ppm; and
- Atmospheric pressure readings increased during monitoring from 1022 mb to 1026 mb.

The HGG monitoring data for the monitoring undertaken on 10 February 2016 is summarised as follows:

- Methane concentrations ranged from 0.0 %v/v to 25.3 %v/v;
- Carbon dioxide concentrations ranged from 1.7 %v/v to 23.8 %v/v;
- Oxygen concentrations ranged from 0.0 %v/v to 21.5 %v/v;
- Carbon monoxide concentrations ranged from 4 ppm to 30 ppm;
- Hydrogen sulphide concentrations ranged from 0 ppm to 30 ppm; and
- Atmospheric pressure readings decreased during monitoring from 1016 mb to 1011 mb.

The following table provides a summary of the GSV and CGS for the four monitoring events.

Table 20: Summary of Maximum Results for the Four Landfill Gas Monitoring Events

Date	Flow Rate Peak	Methane Peak %	GSV	CO_2 Peak %	GSV	CGS [1, 2]
19/08/15	0.9	24.6	0.22	15.9	0.14	3
1/10/15	0.7	24.2	0.17	14.5	0.10	3
27/10/15	0.6	32.5	0.20	13.8	0.08	3
10/02/16	6.8	25.3	1.72	23.8	1.62	3

Notes to table:

1. Where methane >1% or CO_2 >5% CGS was increased to Situation 2 as per Table 6 of NSW EPA (2012)
2. Where methane >20% CGS was increased to Situation 3 as per Table 7 of NSW EPA (2012)

The landfill gas results indicate that over the four monitoring events, a worst case CGS of 3 is consistently recorded using the modified Wilson and Card classification which is in the moderate risk category.

14.2.1 Background Gas Wells

The two 'background' landfill gas wells BH224 and BH225 were sampled for the last two monitoring events. The wells recorded maximum methane concentrations of 0.1 %v/v and 0.2 %v/v suggesting that the local estuarine alluvial (possibly swamp deposits) soils are unlikely to be contributing a significant amount of methane to that being generated by fill at the site.

14.2.2 Relationship between Deep and Shallow Gas Well Data

Over the three monitoring events where nested (paired) gas wells were sampled, there did not appear to be a strong indication that the gas concentration increases significantly with depth. Results at

paired wells were broadly comparable with rare exception and the exceptions also included a higher methane concentration at the shallow well compared to the deeper well.

14.2.3 Trace Non-Methane Organic Compounds

The trace NMOC results have indicated that several NMOC are in the landfill gas mixture. NMOC present at detectable concentrations included:

- BTEX;
- 1,2,4-trimethylbenzene;
- Styrene;
- Chloroethane;
- Trichloroethene;
- cis-1,2-dichloroethene;
- Dichlorofluromethane;
- Carbon disulphide;
- Cyclohexane;
- Ethanol;
- Heptane;
- Hexane; and
- Naphthalene.

For those trace NMOC with published screening criteria, the concentrations were below those adopted screening criteria. The trace NMOC detected are considered to be typical of those normally present in landfill gas mixtures from sites with a similar filling history.

14.2.4 Trial Remediation Excavations

Trial remediation excavations were initiated by Benedict in the vicinity of landfill gas wells JK102 and JK107 (now destroyed). The intention of the excavations was to stockpile screen and backfill the trial excavations and monitor landfill gas in the vicinity of the backfilled excavations to evaluate whether the process resulted in a significant reduction in the methane production (concentrations). The screening process is understood to have included the removal of methane generating timber from the fill that was retained on the screen prior to backfilling with the remaining material. Both monitoring wells had previously recorded methane concentrations of around 30 %v/v.

JK102 was retained and following backfilling of the excavation and has recorded methane concentrations of between 12 %v/v and 13.2 %v/v over three monitoring events suggesting a reduction of two thirds.

JK107 (destroyed) was replaced by JKBH/MW107a following backfilling of the excavation. A shallow gas well JK107b was installed adjacent to JKBH/MW107a. The wells have recorded methane concentrations of:

- JKBH/MW107a – between 3 %v/v (first monitoring event following backfilling) and 16.4 %v/v (most recent monitoring event following backfilling) over three monitoring events suggesting a reduction of half; and
- JK107b – between 10.2 %v/v (first monitoring event following backfilling) and 17.3 %v/v (most recent monitoring event following backfilling) over three monitoring events suggesting a reduction of half to one third.

The results at JKBH/MW107a and JK107b indicate a trending increase in methane concentrations and further monitoring would be required to fully assess the result of the trial remediation excavations.

14.3 Groundwater Results

All results for groundwater samples were below the adopted GIL with the following exceptions:

- Ammonia (as N) at 20 mg/L (BH/MW216), 30 mg/L (BH/MW218), 3.2 mg/L (JKBH/MW1), 10 mg/L (JKBH/MW107a), 4.9 mg/L (JKBH/MW16) exceeded the MWG of 0.91 mg/L, FWG of 0.9 mg/L, DWGA of 0.1 mg/L and RWG of 0.1 mg/L;
- Chloride at 2200 mg/L (BH/MW216), 2300 mg/L (BH/MW218), 750 mg/L (JKBH/MW1), 700 mg/L (JKBH/MW107a), 3400 mg/L (JKBH/MW16) exceeded the RWG of 400 mg/L;
- Sulphate at 410 mg/L (BH/MW218), 1100 mg/L (JKBH/MW1), 1700 mg/L (JKBH/MW16) exceeded the DWGA of 250 mg/L, DWGH of 500 mg/L and RWG of 400 mg/L;
- Arsenic at 0.011 mg/L (BH/MW218) exceeded the low reliability MWG of 0.0045 mg/L and DWGH of 0.01 mg/L;
- Chromium at 0.19 mg/L (BH/MW218) exceeded the MWG of 0.0274 mg/L and RWG of 0.05 mg/L;
- Copper at 0.017 mg/L (BH/MW218), 0.005 mg/L (JKBH/MW1), 0.007 mg/L (JKBH/MW107a), 0.004 mg/L (JKBH/MW16) exceeded the MWG of 0.0013 mg/L and FWG of 0.0014 mg/L;
- Lead at 0.007 mg/L (BH/MW218) exceeded the MWG of 0.0044 mg/L and FWG of 0.0034 mg/L;
- Manganese at 1.4 mg/L (BH/MW216), 0.65 mg/L (BH/MW218), 0.95 mg/L (JKBH/MW1), 0.42 mg/L (JKBH/MW107a), 4.4 mg/L (JKBH/MW16) exceeded some or all of the low reliability MWG of 0.08 mg/L, FWG of 1.9 mg/L, DWGA of 0.1 mg/L, DWGH of 0.5 mg/L and RWG of 0.1 mg/L;
- Nickel at 0.009 mg/L (BH/MW216), 0.16 mg/L (BH/MW218), 0.03 mg/L (JKBH/MW1), 0.012 mg/L (JKBH/MW107a), 0.02 mg/L (JKBH/MW16) exceeded some or all of the MWG of 0.007 mg/L, FWG of 0.011 mg/L, DWGH of 0.02 mg/L and RWG of 0.1 mg/L;
- Zinc at 0.06 mg/L (BH/MW216), 0.084 mg/L (BH/MW218), 0.097 mg/L (JKBH/MW1), 0.079 mg/L (JKBH/MW107a), 0.82 mg/L (JKBH/MW16) exceeded the MWG of 0.015 mg/L and FWG of 0.008 mg/L; and
- Dieldrin at 0.000076 mg/L exceeded the low reliability MWG of 0.00001 mg/L. Detectable concentrations of Dieldrin were recorded in all other monitoring wells, however, at concentrations below the adopted GIL.

Chlorpyrifos was detected in groundwater in 2013 (EIS, 2013), however, it was not detected in any samples from the most recent round of monitoring.

14.4 Surface Water Results

All results for surface water samples were below the adopted investigation levels with the following exceptions:

- Ammonia (as N) at 8.4 mg/L (SW2) exceeded the MWG of 0.91 mg/L and FWG of 0.9 mg/L;
- Sulphate at 410 mg/L (BH/MW218), 1100 mg/L (JKBH/MW1), 1700 mg/L (JKBH/MW16) exceeded the DWGA of 250 mg/L, DWGH of 500 mg/L and RWG of 400 mg/L;
- Nitrate (as N) at 0.29 mg/L (SW1) exceeded the FWG of 0.161 mg/L;
- Copper at 0.002 mg/L (SW1) exceeded the MWG of 0.0013 mg/L and FWG of 0.0014 mg/L;
- Manganese at 0.42 mg/L (SW2), 0.1 mg/L (SW3) exceeded low reliability MWG of 0.08 mg/L; and
- Zinc at 0.0018 mg/L (SW3) exceeded the MWG of 0.015 mg/L.

Detectable concentrations of Dieldrin were recorded in at SW1 and SW2, however, at concentrations below the adopted investigation levels.

15. Conclusions

15.1 General

The findings of the current investigation were generally consistent with previous investigations insofar as the drilling programme encountered uncontrolled filling with a component of construction and demolition waste to thicknesses of up to 9.2 m. Many boreholes met refusal on buried obstructions in the filling.

The contaminant concentrations in soil were generally consistent with previous investigations with the exception of the PCB hotspot encountered at BH220. PCB has not previously been detected at the site, but this is most likely attributable to the heterogeneous nature of the waste filling.

Ongoing landfill gas monitoring has confirmed CGS3 and thus the need to incorporate gas mitigation systems into the building design for proposed residential dwellings.

15.2 Relationship between Soil, Groundwater and Surface Water Results

Some contaminants in soil at the site including various metals have been detected at elevated concentrations in groundwater, in particular, zinc. TCLP testing on a limited number of samples also indicates some degree of leachability for some metals including zinc. Concentrations of zinc in surface water bodies adjacent to the site were, however, lower than concentrations in the groundwater.

Under certain circumstances, the OCP Aldrin will oxidise to form Dieldrin. Detectable concentrations of Dieldrin were recorded in all (serviceable) groundwater monitoring wells at the site and in the dredge pond and Georges River surface water bodies. Aldrin and/or Dieldrin have been detected in soil at the site at concentrations below the HIL. It is possible that the source of the Dieldrin in groundwater and surface water is the fill at the site.

The PAH that was detected in filling does not appear to be leaching and migrating vertically to groundwater. This is probably due to the low solubility of the majority of PAH compounds. TCLP testing on a limited number of samples also indicates the PAH is unlikely to leach. PAH was not detected in any groundwater or surface water samples with the exception of JKBH/MW16 as reported in EIS (2013).

15.3 Updated Conceptual Site Model

The data collected for this DSI has generally confirmed that the CSM outlined in Section 8 remains valid. No other sources of contamination have been detected and the data indicates that the large scale filling at the site represents the major point-source of soil contamination and the generation of landfill gas. Groundwater and surface water data suggests that some contaminants likely to be from filling have migrated to groundwater, however, impacts to adjacent surface water bodies appears to be negligible.

15.4 Suitability of the Site for the Proposed Development

Based on the findings of the current investigation it is considered that the site can be made suitable for the proposed residential development subject to the development of a suitable RAP and the implementation of appropriate site remediation as per the recommendations outlined in Section 17.

15.5 Integration of the Development Application and Closure Plan

The site Environment Protection Licence – 10490 version date: 10-Sep-2015 under Section O5.6 required that: *the last licensee must prepare and submit to the EPA within three months of cessation all activities at the premises permitted by this licence, a closure plan in accordance with section 76 of the Protection of the Environment Operations Act 1997*. This process will need to be integrated with the DA process and site remediation activities (refer to Section 17).

16. Geotechnical Considerations

Advice on the geotechnical considerations for the project is currently being provided to Benedict by J&K. The geotechnical methodology for remediating the site from a geotechnical standpoint (i.e. ground improvement) has been summarised by J&K. The summary is provided in Appendix J. The inclusion of the summary should not be interpreted to imply that DP endorses the proposed methodology. It is understood that further details of the geotechnical methodology will be fine-tuned and a report will be prepared by J&K in due course.

17. Recommendations

17.1 Requirements for Site Remediation

A RAP should be prepared with reference to NSW OEH (2011) that outlines the requirements for site remediation necessary in order to render the site suitable for the proposed residential development.

17.1.1 Soil

There are several 'hotspots' of soil contamination that will require remediation. The RAP should determine which 'hotspots' (if any) will need to be remediated and this will be determined based on the proposed final site levels and the thickness of imported VENM that will be used to cap the site.

17.1.2 Landfill Gas

Based on the ongoing landfill gas monitoring at the site, gas mitigation systems will need to be incorporated into the building design for proposed dwellings.

Additional landfill gas monitoring wells should be installed, in particular, in the footprint on any remediation excavations following the screening and backfilling process. They should also be installed at previously inaccessible areas of the site when stockpiles have been moved. The additional monitoring data should be used to finalise the levels of gas mitigation that will be required.

The recent monitoring conducted as part of this DSI suggests that a CGS of 3 is likely to be appropriate for this site as opposed to the previously recommended CGS of 4. The historical worst case CGS of 4 appears to be an outlier in the overall monitoring dataset. With reference to NSW EPA (2012), a CGS of 3 is typical of "old inert waste landfill" which is consistent with the filling at this site. Ongoing monitoring will be required to confirm the CGS.

The RAP will need to outline the relevant measure or system element to achieve a score consistent with what is required based on the CGS.

17.1.3 Groundwater and Surface Water

Given that surface water data suggests that groundwater is unlikely to be having an adverse impact on adjacent surface water, in particular, the Georges River, and impacts on other possible receptors of groundwater are unlikely or implausible (e.g. abstraction for drinking water) it is considered that no groundwater or surface water remediation is required.

17.2 Integration of Site Remediation and Geotechnical Site Improvements

The site remediation will need to be integrated with the geotechnical site improvements. Notably, the J&K summary (Appendix J) item 4 whereby "the entire site is to be excavated, as appropriate, to final terrace level –3m." Whilst it is understood that these details are still subject to detailed design, the excavated material may involve the disturbance of contaminated soil 'hotspots'. This aspect of the

geotechnical site improvements will need to be clearly integrated into the RAP and site remediation when these earthworks occur.

17.3 Additional Investigations to Finalise Site Remediation Strategy

All or some of the following additional soil investigations are required when stockpiles have been removed from the site and a decision is finalised on the thickness of imported VENM that will be used to cap the site to achieve final design levels:

- Targeted near surface sampling at the diesel above ground storage tank (AST) and the drum storage area following their decommissioning;
- Delineation testing in the area of the PCB, PAH and lead 'hotspots' (if required); and
- Grid based sampling across the site with a focus on previously inaccessible areas (i.e. beneath existing stockpiles) in order to meet the EPA (1995) *Sampling Design Guidelines* recommended sampling density.

Ongoing landfill gas monitoring should be undertaken including the installation of additional monitoring wells as discussed in Section 17.1.2.

17.4 Long Term Environmental Management Plan

A long term Environmental Management Plan (EMP) will be required for the ongoing management of contamination remaining on site and landfill gas mitigation systems. The EMP should include:

- Procedures for the management and maintenance of cap and landfill gas mitigation systems; and
- Procedures for scenarios where the capping or landfill gas mitigation systems need to be penetrated and reinstated.

The EMP will require establishment of appropriate public notification under Section 149(2) of the EP&A Act or a covenant registered on the title to land under Section 88B of the Conveyancing Act 1919. The EMP would be prepared prior to or during remediation and finalised following validation of the remedial activities.

18. References

ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality

CIRIA (2007) C665 Assessing Risks Posed by Hazardous Ground Gases to Buildings

EPA (2012) Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases

EPA (1995) Sampling Design Guidelines

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DEC (2006) Guidelines for the NSW Site Auditor Scheme

DP (1999) Proposed Environmental Monitoring Program, Sorting, Recovery and Transfer (SRT) Facility, 146 Newbridge Road, Moorebank

DP (2002a) Preliminary Geotechnical Assessment, 146 Newbridge Road, Moorebank

DP (2002b) Report on Preliminary Contamination Assessment, Proposed Residential Development, 146 Newbridge Road, Moorebank

DP (2002c) Geotechnical Assessment, 146 Newbridge Road, Moorebank

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DP (2008) Preliminary Desktop Review, Benedict Sand and Gravel, Moorebank

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DP (2009b) Environmental and Geotechnical Advice, Benedict Sand and Gravel, 146 Newbridge Road, Moorebank

DP (2009c) Review of Foundation Options, Proposed Residential Development, 146 Newbridge Road, Moorebank

DP (2009d) Compaction and Grading, 146 Newbridge Road, Moorebank

DP (2014a) Initial Comments on the Design of Landfill Gas Mitigation Measures 146 Newbridge Road, Moorebank Stage 1

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DP (2015a) Construction Environmental Management Plan, Proposed Retaining Wall, 146 Newbridge Road, Moorebank, NSW

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EIS (2013) Stage 1 Environmental Site Assessment for Proposed Residential Development at 146 Newbridge Road, Moorebank, NSW

EIS (2014a) Preliminary Hazardous Ground Gas Screening for the Proposed Residential Development at 146 Newbridge Road, Moorebank, NSW

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EIS (2014e) Hazardous Ground Gas (HGG) Screening Results (Round 5), Proposed Residential Development at 146 Newbridge Road, Moorebank, NSW

J&K (2013) Geotechnical Investigation for Proposed Residential Development at 146 Newbridge Road, Moorebank, NSW

J&K (2016) Geotechnical Methodology for Remediating Benedict's Moorebank Site

NEPC (2013) National Environment Protection (Assessment of Site Contamination) Measure 1999 amended 2013

NHMRC (2016) Australian Drinking Water Guidelines

OEH (2011) Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites

19. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at 146 Newbridge Road, Moorebank with reference to DP's proposal SYD150814 dated 10 August 2015 and acceptance received from Mr Ernest Dupere of Benedict Industries Pty Ltd dated 14 August 2015. The report is provided for the exclusive use of Benedict Industries Pty Ltd for this project only and for the purpose described in the report. It should not be used for other projects or by a third party. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and / or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and /or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached notes and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion given in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the environmental components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Douglas Partners Pty Ltd

Appendix A

About This Report

Drawings

Site Photographs

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

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Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

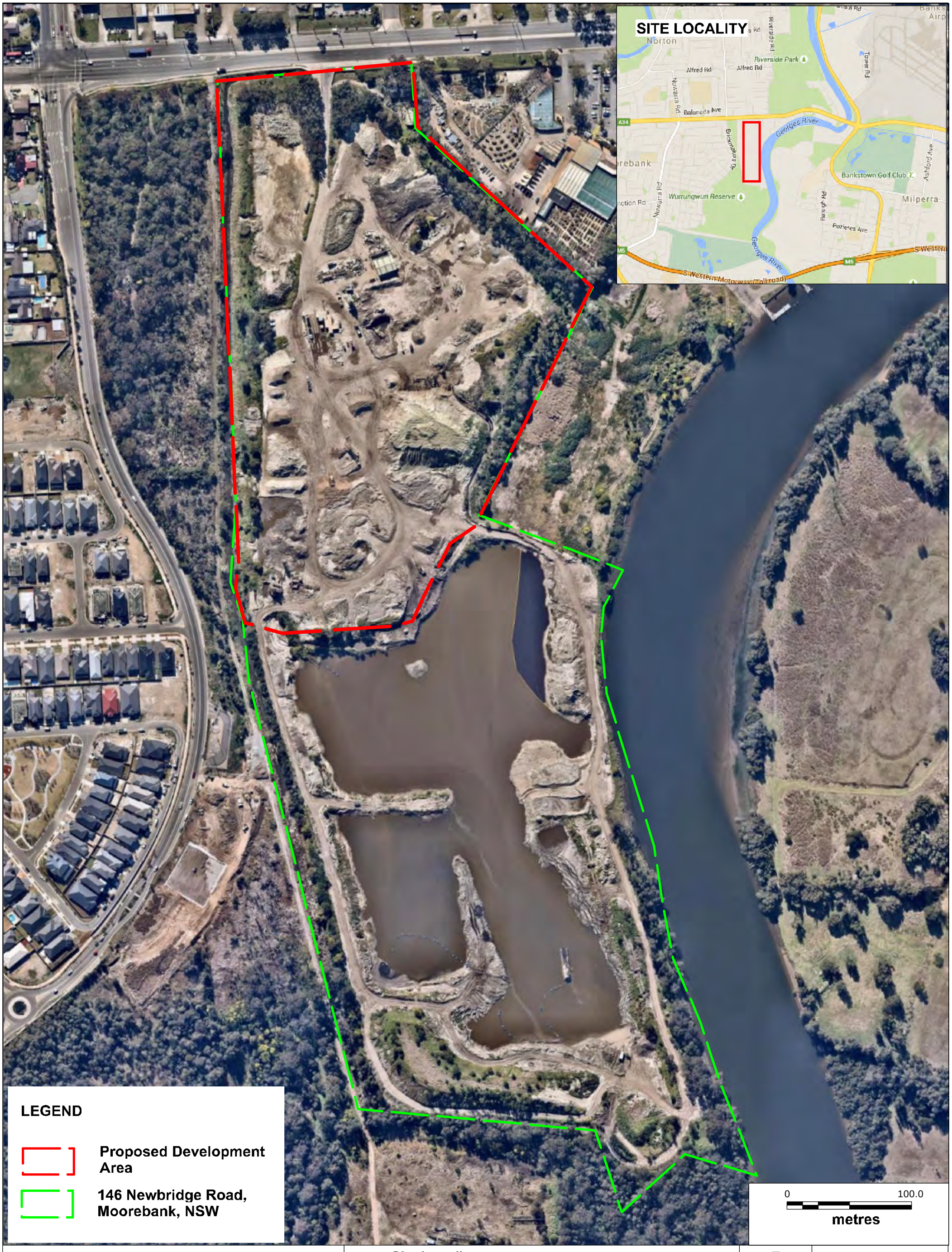
In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.



Douglas Partners
Geotechnics / Environment / Groundwater

TITLE: Site Locality
Detailed Site Investigation
146 Newbridge Road, Moorebank, NSW

MGA

OFFICE: Sydney
DRAWN BY: MJC
DATE: 14.10.2015

CLIENT: Benedict Industries Pty Ltd

PROJECT No: 71459.03

DRAWING No: 1

REVISION: A

SCALE: As shown

Douglas Partners
Geotechnics / Environment / Groundwater

TITLE: Test Locations
Detailed Site Investigation
146 Newbridge Road, Moorebank, NSW

MGA

OFFICE: Sydney
DRAWN BY: MJC
DATE: 17.2.2016

CLIENT: Benedict Industries Pty Ltd
PROJECT No: 71459.03
DRAWING No: 2
REVISION: A
SCALE: As shown

Peak Methane Concentration %

60

40

20

0

Where a shallow and deep well are present at the one location, the well with the highest methane peak has been used to generate the contours.

Well ID	Well ID	Well ID
BH1	JK103	JK115
JKBH/MW16	JK104	JK119
JKBH/MW17	JK106	
JKBH/MW9	JK110	
JK101	JK113	
JK102	JK114	

LEGEND

- Proposed Development Area
- Surface Sample
- a Replacement Well
- b Shallow Gas Well
- Borehole / Gas Well
- Monitoring Well
- Borehole
- Borehole (DP, 2002)
- Borehole (EIS, 2015)
- Borehole / Gas Well (EIS, 2015)
- Monitoring Well Location (EIS, 2015)

JKBH/MW1, JK2, BH1, BH5, BH6, BH201, JK3, BH207, BH206, BH202, BH204, BH205, JK4, BH203, BH208, BH2, JK119, BH7, JK6, JK104, BH209, JK5, JK101, JK102, BH211, BH211b, BH210, JK103a, JK103b, BH9, BH212, JKBH/MW107a, JK107b, JK106, JK8, BH213, JKBH/MW9, BH214, JKBH/MW7, BH/MW216, BH215, BH3, BH8, JK10, JK110, BH10, JK11, JK113, SS217, BH/MW218, JK118a, JK118b, JK12, SS219, JK115, BH220, JK117, BH11, JK14, JK114, JK114b, BH4, JK13, JK116, BH221, BH224, JK15, JKBH/MW16, BH225, BH222, BH12, BH223

0 100.0 metres

Douglas Partners Geotechnics / Environment / Groundwater	TITLE: Peak Methane Concentration Contours 19/8/15 Detailed Site Investigation 146 Newbridge Road, Moorebank, NSW	N MGA	OFFICE: Sydney DRAWN BY: MJC DATE: 17.02.2016
CLIENT: Benedict Industries Pty Ltd	PROJECT No: 71459.03	DRAWING No: 3	REVISION: A / SCALE: As shown

Peak Methane Concentration %

60

40

20

0

Where a shallow and deep well are present at the one location, the well with the highest methane peak has been used to generate the contours.

Wells used to generate the contours

Well ID	Well ID	Well ID	Well ID
BH/MW216	JK101	JK110	JK119
BH/MW218	JK102	JK113	JKBH/MW7
BH202	JK103b	JK114	JKBH/MW9
BH211	JK104	JK115	
BH223	JK106	JKBH/MW16	
JKBH/MW1	JK107b	JK118a	

LEGEND

- Proposed Development Area
- Surface Sample
- a Replacement Well
- b Shallow Gas Well
- Borehole / Gas Well
- Monitoring Well
- Borehole
- Borehole (DP, 2002)
- Borehole (EIS, 2015)
- Borehole / Gas Well (EIS, 2015)
- Monitoring Well Location (EIS, 2015)

JKBH/MW1, JK2, BH1, BH5, BH6, BH201, JK3, BH207, BH206, BH202, BH204, BH205, JK4, BH203, BH208, BH2, JK119, BH7, JK104, JK6, BH209, JK5, JK101, JK102, BH211, BH211b, BH210, JK103a, JK103b, BH9, BH212, JKBH/MW107a, JK107b, BH213, JKBH/MW9, BH214, JK106, JK8, JKBH/MW7, BH/MW216, BH215, BH3, BH8, JK10, JK11, BH10, JK110, JK113, SS217, BH/MW218, JK118a, JK118b, JK12, SS219, JK115, BH220, BH11, JK117, JK14, JK114, JK114b, BH4, JK13, JK116, BH221, BH224, JK15, JKBH/MW16, BH225, BH222, BH12, BH223

0 100.0 metres

Douglas Partners Geotechnics / Environment / Groundwater	TITLE: Peak Methane Concentration Contours 1/10/15 Detailed Site Investigation 146 Newbridge Road, Moorebank, NSW	N MGA	OFFICE: Sydney DRAWN BY: MJC DATE: 17.02.2016
CLIENT: Benedict Industries Pty Ltd	PROJECT No: 71459.03	DRAWING No: 4	REVISION: A / SCALE: As shown

Peak Methane Concentration %

60
40
20
0

Where a shallow and deep well are present at the one location, the well with the highest methane peak has been used to generate the contours.

Wells used to generate the contours

Well ID	Well ID	Well ID	Well ID
BH/MW216	BH225	JK106	JK118a
BH/MW218	JKBH/MW1	KBH/MW107	JK119
BH202	JK101	JK110	JKBH/MW16
BH211	JK102	JK113	JKBH/MW7
BH223	JK103b	JK114	JKBH/MW9
BH224	JK104	JK115	

LEGEND

- Proposed Development Area
- Surface Sample
- a Replacement Well
- b Shallow Gas Well
- Borehole / Gas Well
- Monitoring Well
- Borehole
- Borehole (DP, 2002)
- Borehole (EIS, 2015)
- Borehole / Gas Well (EIS, 2015)
- Monitoring Well Location (EIS, 2015)

0 100.0
metres

Douglas Partners
Geotechnics / Environment / Groundwater

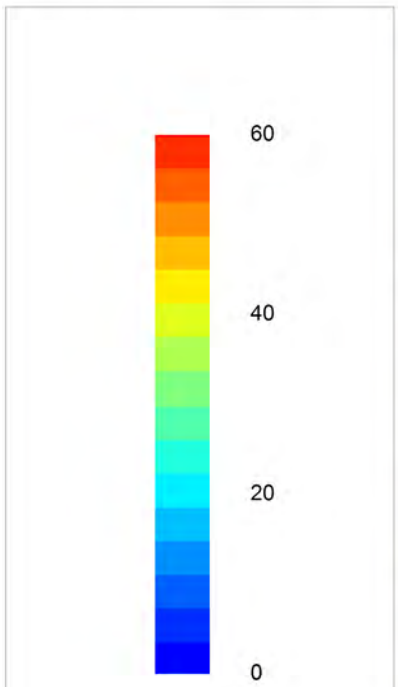
TITLE: Peak Methane Concentration Contours 27/10/15
Detailed Site Investigation
146 Newbridge Road, Moorebank, NSW

MGA

OFFICE: Sydney
DRAWN BY: MJC
DATE: 17.02.2016

CLIENT: Benedict Industries Pty Ltd | PROJECT No: 71459.03 | DRAWING No: 5 | REVISION: A | SCALE: As shown

Peak Methane Concentration %



Where a shallow and deep well are present at the one location, the well with the highest methane peak has been used to generate the contours.

Wells used to generate the contours

Well ID	Well ID	Well ID	Well ID
BH/MW216	JKBH/MW1	JK117	JK119
BH202	JK101	JK113	JKBH/MW7
BH211a	JK103b	JK114	JKBH/MW9
BH223	JK106	JK114b	
BH224	JK107b	JK115	
BH225	JK104	JKBH/MW16	

LEGEND

- Proposed Development Area
- Surface Sample
- a Replacement Well
- b Shallow Gas Well
- Borehole / Gas Well
- Monitoring Well
- Borehole
- Borehole (DP, 2002)
- Borehole (EIS, 2015)
- Borehole / Gas Well (EIS, 2015)
- Monitoring Well Location (EIS, 2015)

0 100.0 metres

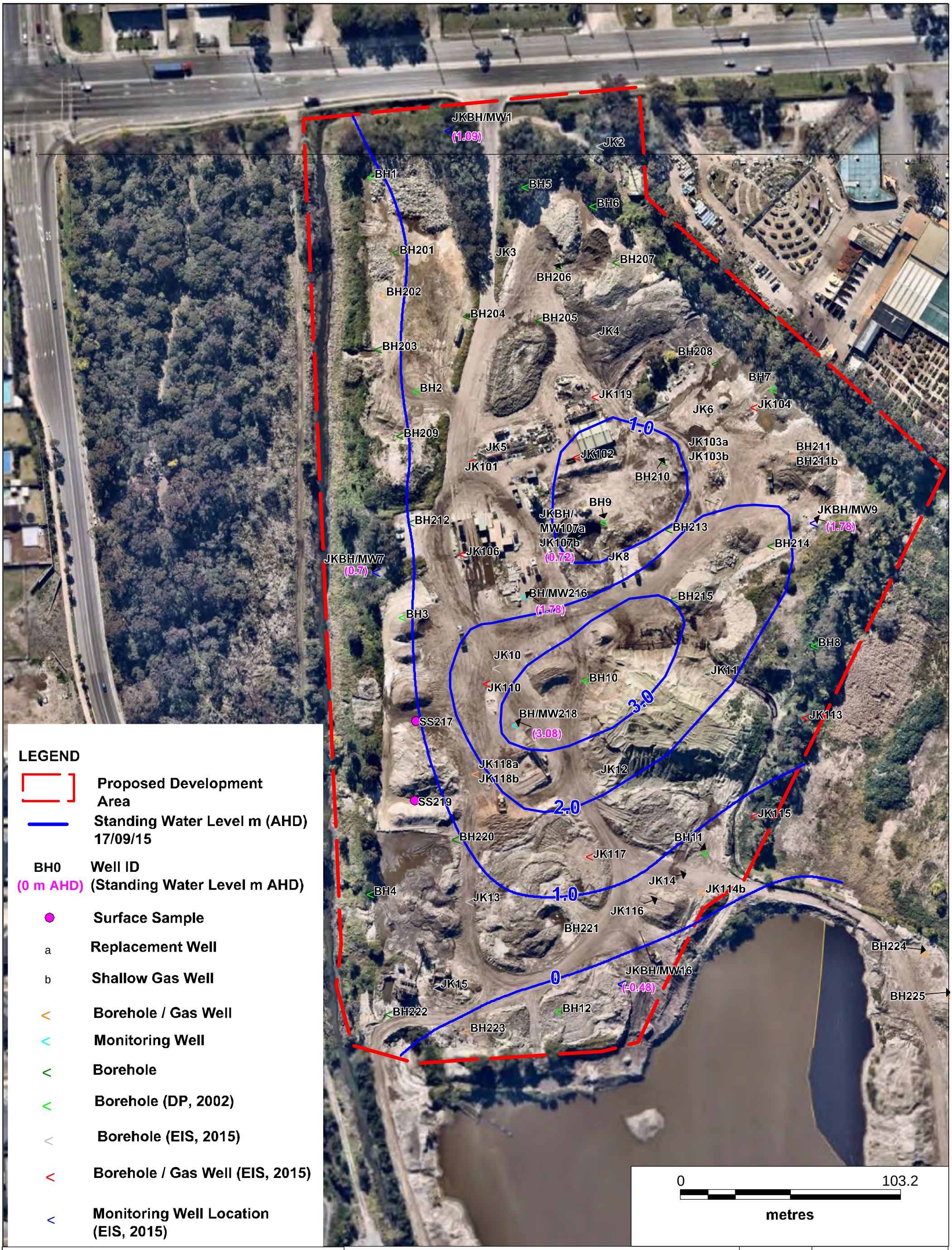
N MGA

Douglas Partners
Geotechnics / Environment / Groundwater

TITLE: Peak Methane Concentration Contours 10/2/16
Detailed Site Investigation
146 Newbridge Road, Moorebank, NSW

OFFICE: Sydney
DRAWN BY: MJC
DATE: 17.02.2016

CLIENT: Benedict Industries Pty Ltd | PROJECT No: 71459.03 | DRAWING No: 6 | REVISION: A | SCALE: As shown

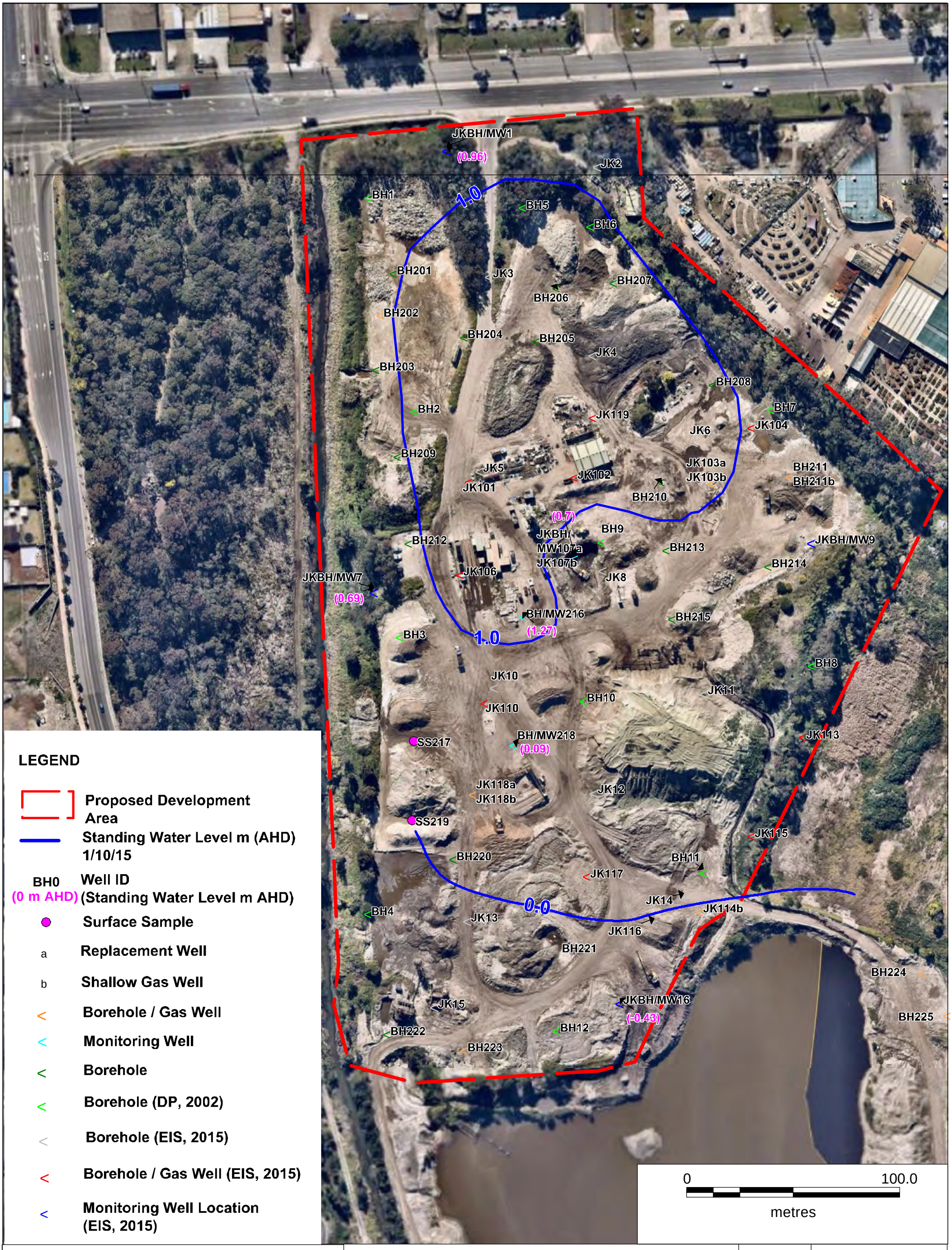


Douglas Partners
Geotechnics / Environment / Groundwater

TITLE: Standing Water Level (17.09.15)
Detailed Site Investigation
146 Newbridge Road, Moorebank, NSW

OFFICE: Sydney
DRAWN BY: BAH
DATE: 19.02.16

CLIENT: Benedict Industries Pty Ltd
PROJECT No: 71459.03
DRAWING No: 7
REVISION: A
SCALE: As shown



LEGEND

- Proposed Development Area
- Standing Water Level m (AHD) 1/10/15
- BH0 (0 m AHD) — Well ID (Standing Water Level m AHD)
- Surface Sample
- a — Replacement Well
- b — Shallow Gas Well
- Borehole / Gas Well
- Monitoring Well
- Borehole
- Borehole (DP, 2002)
- Borehole (EIS, 2015)
- Borehole / Gas Well (EIS, 2015)
- Monitoring Well Location (EIS, 2015)

Douglas Partners
Geotechnics / Environment / Groundwater

TITLE: Standing Water Level (1.10.15)
Detailed Site Investigation
146 Newbridge Road, Moorebank, NSW

MGA

OFFICE: Sydney
DRAWN BY: BAH
DATE: 18.02.2016

CLIENT: Benedict Industries Pty Ltd
PROJECT No: 71459.03
DRAWING No: 8
REVISION: A
SCALE: As shown

Douglas Partners
Geotechnics / Environment / Groundwater

TITLE: Surface Water Sample Locations
Detailed Site Investigation
146 Newbridge Road, Moorebank, NSW

MGA

OFFICE: Sydney
DRAWN BY: MJC
DATE: 19.02.2016

CLIENT: Benedict Industries Pty Ltd
PROJECT No: 71459.03
DRAWING No: 9
REVISION: A
SCALE: As shown

Photo 1 – Installed JK114b (shallow gas well) adjacent to JK114

Photo 2 – Stockpiles in the vicinity of BH220

Douglas Partners Geotechnics / Environment / Groundwater	**Detailed Site Investigation** **146 Newbridge Road** **Moorebank**	PROJECT: 71459.03 PLATE No: 1 REV: 0
	CLIENT: Benedict Industries Pty Ltd	DATE: 14/03/16

Photo 3 – Installed BH211a (shallow gas well) adjacent to BH211

Photo 4 – Typical fill composition (trial remediation excavation at former JK107)

Douglas Partners Geotechnics / Environment / Groundwater	**Detailed Site Investigation** **146 Newbridge Road** **Moorebank**	PROJECT: 71459.03 PLATE No: 2 REV: 0
	CLIENT: Benedict Industries Pty Ltd	DATE: 14/03/16

Photo 5 – Looking north from the dredge pond at the southern site boundary

Photo 6 – Start of trial remediation excavation near JK102

Douglas Partners Geotechnics / Environment / Groundwater	**Detailed Site Investigation** **146 Newbridge Road** **Moorebank**	PROJECT:	71459.03
		PLATE No:	3
		REV:	0
	CLIENT: Benedict Industries Pty Ltd	DATE:	14/03/16

Photo 7 – Metal cable in fill at BH201 wrapped around auger

Photo 8 – Fill excavated from trial remediation excavation at former JK107

Douglas Partners Geotechnics / Environment / Groundwater	**Detailed Site Investigation** **146 Newbridge Road** **Moorebank**	PROJECT: 71459.03 PLATE No: 4 REV: 0
	CLIENT: Benedict Industries Pty Ltd	DATE: 14/03/16

Appendix B

Summary of Soil Results

Douglas Partners
Geotechnics | Environment | Groundwater

Table 1: Summary Results for Metals

Test Location ID	Depth (m)	As [3]	Cd	Cr	Cu	Pb [4]	Hg [5,6]	Ni	Zn	Mn
BH/MW216	0.1-0.2	<4	0.8	13	28	54	<0.1	9	130	200
BH/MW216	3.9-4.35	7	<0.4	21	26	66	0.1	11	83	230
BH/MW216	5.9-6.35	17	<0.4	21	23	51	<0.1	9	170	130
BH/MW218	0.9-1.35	<4	<0.4	4	2	4	<0.1	3	13	68
BH/MW218	2.9-2.35	5	<0.4	14	46	37	<0.1	13	64	110
BH/MW218	5.9-6.35	5	<0.4	15	7	11	<0.1	2	3	5
BH201	0.1-0.2	<4	0.4	7	32	56	<0.1	5	110	61
BH201	0.9-1.35	4	1	15	79	110	0.1	9	170	160
BH202	0.9-1.35	<4	<0.4	45	47	13	<0.1	11	32	1500
BH202	1.9-2.35	6	0.5	26	50	170	0.1	15	140	180
BH203	0.1-0.2	<4	<0.4	7	46	44	<0.1	5	100	87
BH203	0.9-1.35	7	<0.4	14	19	36	<0.1	6	70	40
BH203	2.9-3.35	7	0.5	15	160	860	0.2	14	380	150
BH204	0.1-0.2	<4	<0.4	5	24	47	<0.1	3	83	44
BH204	1.9-2.35	5	<0.4	15	56	72	<0.1	5	140	130
BH204	3.9-4.35	7	<0.4	11	64	150	0.1	16	210	80
BH205	0.9-1.35	<4	<0.4	46	15	12	<0.1	19	25	92
BH205	2.9-3.35	6	<0.4	9	7	13	<0.1	2	5	8
BH205	3.9-4.35	8	<0.4	15	15	15	<0.1	2	15	9
BH206	0.1-0.2	5	<0.4	17	30	140	0.2	15	140	160
BH206	0.9-1.35	8	<0.4	15	22	16	<0.1	11	30	450
BH206	2.35-2.9	<4	<0.4	16	8	25	<0.1	3	9	37
BH206	4.35-4.9	17	<0.4	19	10	32	<0.1	11	30	120
BH207	0.1-0.2	<4	<0.4	25	53	16	<0.1	26	40	490
BH207	0.9-1.35	5	<0.4	15	18	21	<0.1	6	55	73
BH208	1.9-2.35	<4	<0.4	18	21	55	<0.1	13	470	190
BH208	0.9-1.35	<4	<0.4	10	19	32	<0.1	5	44	42
BH208	3.9-4.35	7	<0.4	30	13	26	<0.1	5	16	6
BH209	0.1-0.2	6	<0.4	18	82	98	0.1	13	210	270
BH209	0.9-1.35	<4	<0.4	21	37	35	<0.1	10	75	450
BH209	1.9-2.35	5	<0.4	17	55	35	<0.1	9	66	150
BH209	3.9-4.35	7	0.4	19	25	150	<0.1	10	140	190
BH210	0.1-0.2	<4	<0.4	10	63	11	<0.1	14	33	280
BH210	2.0-2.45	5	<0.4	12	4	10	<0.1	2	5	15
BH211	0.1-0.2	<4	<0.4	12	19	21	<0.1	9	54	200
BH211	0.9-1.35	<4	<0.4	10	5	10	<0.1	2	4	18
BH211	2.9-2.35	4	<0.4	17	3	24	<0.1	4	6	42
BH212	0.1-0.2	<4	<0.4	28	67	16	<0.1	11	39	800
BH212	2.9-3.35	6	0.6	16	41	130	0.1	9	240	120
BH213	0.1-0.2	8	<0.4	19	21	19	<0.1	14	43	200
BH213	2.9-3.35	5	<0.4	13	4	18	<0.1	3	27	27
BH214	0.1-0.2	<4	<0.4	18	46	17	<0.1	11	48	240
BH214	2.2-2.65	<4	<0.4	6	14	54	<0.1	8	33	67
BH215	0.9-1.35	<4	<0.4	9	10	28	<0.1	4	50	61
BH215	1.9-2.35	<4	<0.4	4	17	19	<0.1	2	11	13
BH220	0.1-0.2	4	0.8	16	47	190	0.2	11	290	610
BH221	0.1-0.2	<4	<0.4	11	14	30	0.1	4	69	110
BH221	1.9-2.35	4	<0.4	14	16	92	<0.1	6	78	120
BH221	2.9-3.35	7	0.6	15	45	620	0.2	9	290	180
BH221	3.9-4.35	17	0.7	25	24	86	<0.1	8	150	130
BH222	0.1-0.2	<4	<0.4	16	32	22	<0.1	26	52	560
BH222	0.9-1.35	<4	<0.4	12	85	22	<0.1	12	77	220
BH223	2.0-2.45	5	<0.4	17	540	79	0.2	10	110	190
JK103a	0.1-0.2	<4	<0.4	73	78	6	<0.1	11	26	2300
JK103a	1.9-2.35	<4	<0.4	4	18	31	<0.1	1	14	51
JK103a	2.9-3.35	<4	<0.4	12	22	49	<0.1	9	66	170
JK103a	5.9-6.35	<4	<0.4	3	3	3	<0.1	<1	1	1
JK107a	0.1-0.2	<4	<0.4	9	19	38	<0.1	5	79	87
JK107a	1.9-2.35	10	<0.4	17	29	98	<0.1	10	110	89
JK107a	7.9-8.35	<4	<0.4	5	5	6	<0.1	1	2	2
JK107a	8.9-9.35	<4	<0.4	3	3	6	<0.1	<1	4	3
JK118a	0.1-0.2	<4	<0.4	4	17	15	<0.1	5	25	110
JK118a	1.9-2.35	<4	<0.4	9	12	63	<0.1	6	87	120
JK118a	4.9-5.35	<4	<0.4	15	15	10	<0.1	2	9	9
SS217	0.0-0.1	5	<0.4	9	18	25	<0.1	6	55	120
SS219	0.0-0.1	<4	<0.4	9	24	45	<0.1	7	80	120
BD1/070815	-	8	0.6	13	49	35	<0.1	43	160	340
BD2/080915	-	5	<0.4	9	42	90	0.1	6	75	79
BD3/090915	-	4	0.5	12	27	140	0.1	8	170	100
BD5/100915	-	6	<0.4	16	56	93	<0.1	10	250	85
BD4/100915	-	9	<1	18	23	25	<0.1	6	35	254
BD6/100915	-	6	<1	8	15	14	<0.1	7	15	152
BD7/100915	-	10	<1	30	13	27	<0.1	2	11	<5
BH222(T)	0.9-1.35	<4	<0.4	23	250	42	<0.1	16	160	270
BH204 (T)	3.9-4.35	6	<0.4	13	31	180	<0.1	8	150	110
BH206 (T)	2.35-2.9	<4	<0.4	16	10	35	<0.1	2	10	49
BH/MW216 (T)	5.9-6.35	14	<0.4	18	18	43	<0.1	7	210	74
Laboratory PQL		4	0.4	1	1	1	0.1	1	1	1
NEPM HIL A [1, 2]		100	20	100 [7]	6000	300	40	400	7400	3800
EILs [8] - Urban residential/Public open space		100	NC	450	230	1100	NC	300	850	NC

Notes to Table:

All results in mg/kg on a dry weight basis

NA - Not Applicable

NC - No Criteria

NT - Not Tested

PQL - Practical Quantitation Limits

1 - Health Based Criteria for Residential with Accessible Soils Land Use

2- HIL generally applies to the top 3m of soil

3- HIL assumes 70% oral bioavailability. Site-specific bioavailability may be important and should be considered where appropriate (refer Schedule B7)

4- HIL is based on blood lead models (adult lead model where 50% bioavailability has been considered) Site-specific bioavailability may be important and should be considered where appropriate (refer Schedule B7)

5- Assessment of methyl mercury should only be considered if there is evidence of its potential source

6- HIL does not address elemental mercury

7 - Chromium (VI)

8- EILs refer to contamination present in soil for at least two years

exceeds NEPM Health-Based Criteria for Residential with accessible soil Landuse

Underlined results exceed NPEM Ecological Investigation Levels for Urban residential/Public open space

BD1/070815 is the replicate sample of JK107a/1.9-2.35 m (Envirolab)

BD2/080915 is the replicate sample of BH213/2.9-3.35 m (Envirolab)

BD3/090915 is the replicate sample of BH212/2.9-3.35 m (Envirolab)

BD5/100915 is the replicate sample of BH207/0.9-1.35 m (Envirolab)

BD4/100915 is the replicate sample of BH201/0.9-1.35 m (ALS)

BD6/100915 is the replicate sample of BH206/0.9-1.35 m (ALS)

BD7/100915 is the replicate sample of BH208/3.9-4.35 m (ALS)

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Table 2: Summary Results for Hydrocarbons

Test Location ID	Depth (m)	TRH				TRH (NEPC, 2013)						BTEX				PAHs
		C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	F1 (C_6-C_{10}-BTEX)	F2 (>C_{10}-C_{16} - Napthalene)	C_6-C_{10}	>C_{10}-C_{16}	>C_{16}-C_{34}	>C_{34}-C_{40}	Benzene	Toluene	Ethyl Benzene	Xylenes	Naphthalene
BH/MW216	0.1-0.2	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH/MW216	3.9-4.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH/MW216	5.9-6.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH/MW218	0.9-1.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH/MW218	2.9-2.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH/MW218	5.9-6.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH202	0.9-1.35	<25	<50	<100	240	<25	<50	<25	<50	200	330	<0.5	<1	<2	<1	<1
BH201	0.1-0.2	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH201	0.9-1.35	<25	<50	<100	110	<25	<50	<25	<50	110	130	<0.5	<1	<2	<1	<1
BH202	1.9-2.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH203	0.1-0.2	<25	<50	<100	<100	<25	<50	<25	<50	110	<100	<0.5	<1	<2	<1	<1
BH203	0.9-1.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH203	2.9-3.35	<25	<50	<100	200	<25	<50	<25	<50	210	170	<0.5	<1	<2	<1	<1
BH204	0.1-0.2	<25	<50	<100	<100	<25	<50	<25	<50	110	<100	<0.5	<1	<2	<1	<1
BH204	1.9-2.35	<25	<50	<100	120	<25	<50	<25	<50	170	<100	<0.5	<1	<2	<1	<1
BH204	3.9-4.35	<25	<50	<100	140	<25	<50	<25	<50	150	130	<0.5	<1	<2	<1	<1
BH205	0.9-1.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH205	2.9-3.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH205	3.9-4.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH206	0.1-0.2	<25	<50	<100	<100	<25	<50	<25	<50	120	<100	<0.5	<1	<2	<1	<1
BH206	0.9-1.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH206	2.35-2.9	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH206	4.35-4.9	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH207	0.1-0.2	<25	<50	850	1200	<25	<50	<25	<50	1700	1300	<0.5	<1	<2	<1	<1
BH207	0.9-1.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH208	1.9-2.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH208	0.9-1.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH208	3.9-4.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH209	0.1-0.2	<25	<50	160	250	<25	<50	<25	<50	330	170	<0.5	<1	<2	<1	<1
BH209	0.9-1.35	<25	<50	370	910	<25	<50	<25	<50	990	1100	<0.5	<1	<2	<1	<1
BH209	1.9-2.35	<25	<50	<100	140	<25	<50	<25	<50	140	150	<0.5	<1	<2	<1	<1
BH209	3.9-4.35	<25	<50	<100	150	<25	<50	<25	<50	120	130	<0.5	<1	<2	<1	<1
BH210	0.1-0.2	<25	<50	260	570	<25	<50	<25	<50	680	580	<0.5	<1	<2	<1	<1
BH210	2.0-2.45	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH211	0.1-0.2	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH211	0.9-1.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH211	2.9-2.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH212	0.1-0.2	<25	<50	230	640	<25	<50	<25	<50	640	840	<0.5	<1	<2	<1	<1
BH212	2.9-3.35	<25	<50	100	250	<25	<50	<25	<50	280	160	<0.5	<1	<2	<1	<1
BH213	0.1-0.2	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH213	2.9-3.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH214	0.1-0.2	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH214	2.2-2.65	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH215	0.9-1.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH215	1.9-2.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH220	0.1-0.2	<25	<50	<100	<100	<25	<50	<25	<50	130	<100	<0.5	<1	<2	<1	<1
BH221	0.1-0.2	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH221	1.9-2.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BH221	2.9-3.35	<25	<50	<100	<100	<25	<50	<25	<50	110	<100	<0.5	<1	<2	<1	<1
BH221	3.9-4.35	<25	<50	220	<100	<25	<50	<25	<50	270	<100	<0.5	<1	<2	<1	<1
BH222	0.1-0.2	<25	<50	400	590	<25	<50	<25	<50	890	340	<0.5	<1	<2	<1	<1
BH222	0.9-1.35	<25	<50	450	790	<25	<50	<25	<50	990	890	<0.5	<1	<2	<1	<1
BH223	2.0-2.45	<25	<50	<100	110	<25	<50	<25	<50	100	130	<0.5	<1	<2	<1	<1
JK103a	0.1-0.2	<25	<50	110	550	<25	<50	<25	<50	460	860	<0.5	<1	<2	<1	<1
JK103a	1.9-2.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
JK103a	2.9-3.35	<25	<50	460	360	<25	<50	<25	<50	720	240	<0.5	<1	<2	<1	<1
JK103a	5.9-6.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
JK107a	0.1-0.2	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
JK107a	1.9-2.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
JK107a	7.9-8.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
JK107a	8.9-9.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
JK118a	0.1-0.2	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
JK118a	1.9-2.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
JK118a	4.9-5.35	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
SS217	0.0-0.1	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
SS219	0.0-0.1	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BD1/070815	-	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BD2/080915	-	<25	<50	<100	<100	<25	<50	<25	<50	<100	<100	<0.5	<1	<2	<1	<1
BD3/090915	-	<25	<50	<100	<100	<25	<50	<25	<50	110	<100	<0.5	<1	<2	<1	<1
BD5/100915	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BD4/100915	-	<25	<50	<100	<100	<25	<50	<25	<50	110	<100	<0.5	<1	<2	<1	<1
BD6/100915	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BD7/100915	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laboratory PQL		25	50	100	100	25	50	25	50	100	100	0.2	0.5	1	1	1
NEPM HSL A [6] SAND		NC	NC			45/70/110/200 [1]	110/240/440/NL [1]	NC	NC	NC	NC	0.5/0.5/0.5/0.5 [1]	160/220/310/540 [1]	55/NL/NL/NL [1]	40/60/95/170 [1]	3/NL/NL/NL [1]
NEPM HSL A [6] SILT		NC	NC			40/65/100/190 [2]	230/NL/NL/NL [2]	NC	NC	NC	NC	0.6/0.7/1/2 [2]	390/NL/NL/NL [2]	NL/NL/NL/NL [2]	95/210/NL/NL [2]	4/NL/NL/NL [2]
NEPM HSL A [6] CLAY		NC	NC			50/90/150/290 [3]	280/NL/NL/NL [3]	NC	NC	NC	NC	0.7/1/2/3 [3]	480/NL/NL/NL [3]	NL/NL/NL/NL [3]	110/310/NL/NL [3]	5/NL/NL/NL [3]
CRC HSL for Intrusive Worker by Vapour Intrusion		NC	NC			NC	NC	NL	NL	NL	NL	77	NL	NL	NL	NL
CRC HSL A for Direct Contact - Resident		NC	NC			NC	NC	4400	3300	4500	6300	100	14000	4500	12000	1400
CRC HSL for Intrusive Worker by Direct Contact		NC	NC			NC	NC	82000	62000	85000	120000	1100	120000	85000	130000	29000
NEPM ESL Residential A,B,C [4, 7] - Coarse Soils		NC	NC			180 *	NC	NC	120 *	300	2800	50	85	70	105	170 [8]
NEPM ESL Residential A,B,C [4, 7] - Fine Soils		NC	NC			180 *	NC	NC	120 *	1300	5600	65	105	125	45	170 [8]
Management limits for TPH fractions in coarse soils - Residential A, B, C [5]		NC	NC			NC	NC	700	1000	2500	10000	NC	NC	NC	NC	NC
Management limits for TPH fractions in fine soils - Residential A, B, C [5]		NC	NC			NC	NC	800	1000	3500	10000	NC	NC	NC	NC	NC

Notes to Table:

All results in mg/kg on a dry weight basis

NC - No Criteria

PID - Photoionisation Detector

PQL - Practical Quantitation Limits

NL - Not Limiting

1- Soil HSLs for vapour intrusion (mg/kg) for SAND samples recovered from 0 m to <1 m / 1 m to <2 m / 2 m to <4 m / >=4 m

2- Soil HSLs for vapour intrusion (mg/kg) for SILT samples recovered from 0 m to <1 m / 1 m to <2 m / 2 m to <4 m / >=4 m

3- Soil HSLs for vapour intrusion (mg/kg) for CLAY samples recovered from 0 m to <1 m / 1 m to <2 m / 2 m to <4 m / >=4 m

4- ESLs are of low reliability except where indicated by * which indicates that the ESLs are of moderate reliability

5- Management limits are applied after consideration of relevant ESLs and HSLs

6- Multiplication factor may be applied (for depths >2m) subject to favourable biodegradation conditions - refer to 2.4.10 NEPC (2013)

7- ESLs apply from the surface to 2 m depth below finished surface/ground level

8- Ecological Investigation Level (EIL) - this value relates to fresh contamination.

exceeds NEPM HSL Health-Based Criteria for Residential with accessible soils Landuse

exceeds NEPM management limits for TRH fractions in coarse/fine soils - Residential Landuse

Underlined results exceed the NEPM ESL guideline values for Residential with accessible Soils Landuse

Bold results exceed the CRC CARE guideline values for HSL

BD1/070815 is the replicate sample of JK107a/1.9-2.35 m (Envirolab)

BD2/080915 is the replicate sample of BH213/2.9-3.35 m (Envirolab)

BD3/090915 is the replicate sample of BH212/2.9-3.35 m (Envirolab)

BD5/100915 is the replicate sample of BH207/0.9-1.35 m (Envirolab)

BD4/100915 is the replicate sample of BH201/0.9-1.35 m (ALS)

BD6/100915 is the replicate sample of BH206/0.9-1.35 m (ALS)

BD7/100915 is the replicate sample of BH208/3.9-4.35 m (ALS)

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Table 3: Summary Results for PAH, OCP, OPP, PCB, Phenols and Cyanide

Test Location ID	Depth (m)	Total PAH	Naphthalene	B(a)P	B(a)P TEQ	Total OCP	Aldrin + Dieldrin	Chlordane	DDT+DDE+ DDD	Endosulfan	Endrin	Heptachlor	HCB	Methoxychlor	Total OPP	Chlorpyrifos	PCB [3]	Total Phenols	Total Cyanide
BH/MW216	0.1-0.2	2.6	<0.1	0.2	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH/MW216	3.9-4.35	0.53	<0.1	0.07	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH/MW216	5.9-6.35	0.47	<0.1	0.1	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH/MW218	0.9-1.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH/MW218	2.9-2.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	0.6
BH/MW218	5.9-6.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH201	0.1-0.2	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	0.6
BH201	0.9-1.35	0.28	<0.1	0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH202	0.9-1.35	4.5	<0.1	0.4	0.6	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH202	1.9-2.35	1.8	<0.1	0.2	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH203	0.1-0.2	1.6	<0.1	0.1	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH203	0.9-1.35	1.2	<0.1	0.1	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH203	2.9-3.35	17	<0.1	1.5	2.1	0.3	0.3	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH204	0.1-0.2	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH204	1.9-2.35	0.51	<0.1	0.08	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<1	<5	<0.5
BH204	3.9-4.35	1.9	<0.1	0.2	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<1	<5	<0.5
BH205	0.9-1.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH205	2.9-3.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH205	3.9-4.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH206	0.1-0.2	17	<0.1	1.1	1.7	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH206	0.9-1.35	<1.45	<0.1	<0.05	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH206	2.35-2.9	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH206	4.35-4.9	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	0.5
BH207	0.1-0.2	250	0.4	20	29	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	0.6	<0.1	<0.7	<5	<0.5
BH207	0.9-1.35	<1.45	<0.1	<0.05	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH208	1.9-2.35	8.5	<0.1	0.65	1	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH208	0.9-1.35	1.9	<0.1	0.2	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH208	3.9-4.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH209	0.1-0.2	13	<0.1	1.1	1.7	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH209	0.9-1.35	110	<0.1	9.5	14	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH209	1.9-2.35	10	<0.1	0.86	1.3	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	4.4
BH209	3.9-4.35	0.76	<0.1	0.1	<0.5	0.2	0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH210	0.1-0.2	28	<0.1	2.8	4.2	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH210	2.0-2.45	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH211	0.1-0.2	0.59	<0.1	0.07	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH211	0.9-1.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH211	2.9-2.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH212	0.1-0.2	7	<0.1	0.4	0.7	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH212	2.9-3.35	3.9	<0.1	0.4	0.7	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	0.5
BH213	0.1-0.2	3.6	<0.1	0.3	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH213	2.9-3.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH214	0.1-0.2	2.5	<0.1	0.2	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH214	2.2-2.65	0.3	<0.1	0.06	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH215	0.9-1.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH215	1.9-2.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH220	0.1-0.2	0.43	<0.1	0.1	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	3.7	<5	<0.5
BH221	0.1-0.2	0.36	<0.1	0.09	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH221	1.9-2.35	0.54	<0.1	0.09	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH221	2.9-3.35	2.9	<0.1	0.3	<0.5	0.1	0.1	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH221	3.9-4.35	0.49	<0.1	0.06	<0.5	0.3	<0.2	<0.2	0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH222	0.1-0.2	2.1	<0.1	0.1	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH222	0.9-1.35	46	2.5	3.6	5.4	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BH223	2.0-2.45	6.9	<0.1	0.51	0.8	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
JK103a	0.1-0.2	5	<0.1	0.56	1	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
JK103a	1.9-2.35	0.38	<0.1	0.08	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
JK103a	2.9-3.35	150	0.6	13	17	1	<0.2	<0.2	0.7	0.1	0.2	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
JK103a	5.9-6.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
JK107a	0.1-0.2	2.8	<0.1	0.3	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
JK107a	1.9-2.35	0.33	<0.1	0.07	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
JK107a	7.9-8.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
JK107a	8.9-9.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
JK118a	0.1-0.2	1.9	<0.1	0.2	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
JK118a	1.9-2.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
JK118a	4.9-5.35	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
SS217	0.0-0.1	1.3	<0.1	0.1	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	-
SS219	0.0-0.1	3.4	<0.1	0.3	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	-
BD1/070815	-	<1.45	<0.1	<0.05	<0.5	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BD2/080915	-	7.5	<0.1	0.77	1.2	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BD3/090915	-	3.3	<0.1	0.4	0.6	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.7	<5	<0.5
BD5/100915	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BD4/100915	-	<0.5	<0.1	<0.05	1.2	<2.0	<0.2	<0.2	<0.3	<0.3	<0.1	<0.2	<0.1	<0.1	<0.8	<0.1	<0.1	<5	<0.5
BD6/100915	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BD7/100915	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laboratory PQL		0.05/0.2	1	0.05	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	5	0.5
NEPM HIL A [1]		300	NC	NC	3	NC	6	50	240	270	10	6	10	300	NC	160	1	3000 [4]	250
NEPM EIL Residential A,B,C [2]		NC	170	NC	NC	NC	NC	NC	180 [5]	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
NEPM ESL Residential A,B,C [2] - Fine and Coarse Soils		NC	NC	0.7	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Notes to Table:

All results in mg/kg on a dry weight basis

NC - No Criteria

NT - Not Tested

PQL - Practical Quantitation Limits

TEQ - Toxicity Equivalent Quotient

Total PAH - Sum of positive and PQL values

1 - Health Based Criteria for Residential with Accessible Soils Land Use

2- ESLs apply from the surface to 2 m depth below finished surface/ground level

3- PCB HILs relates to non-dioxin-like PCB only

4- Criterion based on phenol

5- Criterion is for DDT only

exceeds NEPM Health-Based Criteria for Residential with Accessible Soils Landuse

Underline results exceed NEPM EIL or ESL

BD1/070815 is the replicate sample of JK107a/1.9-2.35 m (Envirolab)

BD2/080915 is the replicate sample of BH213/2.9-3.35 m (Envirolab)

BD3/090915 is the replicate sample of BH212/2.9-3.35 m (Envirolab)

BD5/100915 is the replicate sample of BH207/0.9-1.35 m (Envirolab)

BD4/100915 is the replicate sample of BH201/0.9-1.35 m (ALS)

BD6/100915 is the replicate sample of BH206/0.9-1.35 m (ALS)

BD7/100915 is the replicate sample of BH208/3.9-4.35 m (ALS)

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Table 4: Summary Results for TCLP Metals and PAH

Test Location ID	Depth (m)	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Total PAH
JK103a	2.9-3.35	-	-	-	-	-	-	-	-	0.029
BH221	2.9-3.35	<0.05	<0.01	<0.01	<0.01	0.2	<0.0005	<0.02	1.1	-
BH222	0.9-1.35	-	-	-	-	-	-	-	-	<0.016
BH209	0.9-1.35	-	-	-	-	-	-	-	-	<0.016
BH203	2.9-3.35	<0.05	0.01	<0.01	0.04	1	<0.0005	<0.02	1.8	-
BH207	0.1-0.2	-	-	-	-	-	-	-	-	<0.016

Notes to Table:

All results in mg/L

Appendix C

Summary of Non-Methane Organic Compound Results

							BTEX				MAH				Chlorinated Hydrocarbons																								Halo
				Freon 113	2-Propanol	Propene	1,2-Dichlorotetrafluoroethane	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	1-methyl-4 ethyl benzene	Styrene	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2-dichloroethane	1,2-dichloropropane	Benzyl chloride	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2-dibromoethane
				µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	ug/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
PQL				**3.8**	**1**	**0.9**	**2.5**	**1.6**	**2**	**1.9**	**4**	**2**	**2.5**	**2.5**	**2.5**	**2**	**2.7**	**3**	**2.7**	**2**	**2**	**2**	**2**	**2.6**	**3**	**5**	**3**	**1.6**	**1**	**2**	**1**	**2**	**2**	**5**	**2.7**	**3**	**2**	**2**	**1**	**3.8**
NEPM 2013 Table 1A(2) Res A Soil Vap VOCC HILs																	60000														80			20	2000			30	
NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sand																																							
0-1m								1000	330000	1300000																														
Field_ID	**LocCode**	**WellCode**	**Sampled_Date-Time**																																				
BH/MW216	BH/MW216		27/10/2015	<3.8	<1	<0.9	<2.5	**5**	**7**	**9**	**10**	**4**	**5**	<2.5	<2.5	**10**	<2.7	<3	<2.7	<2	<2	<2	<2	<2.6	<3	<5	<3	<1.6	**3**	<2	<1	**6**	<2	<5	**5**	<3	<2	<2	<1	<3.8
BD1	BH/MW216		27/10/2015	<3.8	<1	<0.9	<2.5	**6**	**7**	**8**	**9**	**3**	**5**	<2.5	<2.5	**10**	<2.7	<3	<2.7	<2	<2	<2	<2	<2.6	<3	<5	<3	<1.6	**4**	<2	<1	**7**	<2	<5	<2.7	<3	<2	<2	<1	<3.8
JK101	JK101		27/10/2015	<3.8	<1	<0.9	<2.5	**4**	**5**	**9**	**10**	**4**	**6**	<2.5	<2.5	<2	<2.7	<3	<2.7	<2	<2	<2	<2	<2.6	<3	<5	<3	<1.6	<1	<2	<1	<2	<2	<5	<2.7	<3	<2	<2	<1	<3.8
JK107B	JK107B		27/10/2015	<3.8	<1	<0.9	<2.5	**8**	**6**	**8**	**10**	**4**	**5**	<2.5	<2.5	**43**	<2.7	<3	<2.7	<2	<2	<2	<2	<2.6	<3	<5	<3	<1.6	**4**	<2	<1	<2	<2	<5	<2.7	<3	<2	<2	<1	<3.8

				genated Hydrocarbons			Halogenated Benzenes					VOCs			Solvents															PAH/Phenols
				Bromomethane	Dichlorodifluoromethane	Trichlorofluoromethane	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Chlorobenzene	1,3-Butadiene	Acrolein	Methyl Methacrylate	1,4-Dioxane	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Ethanol	Ethyl acetate	Heptane	Hexane	MTBE	Tetrahydrofuran	Vinyl acetate	Naphthalene
				µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	ug/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
PQL				**1.9**	**2.5**	**2.8**	**3.7**	**3**	**3**	**3**	**2**	**1**	**1**	**2**	**1.8**	**1.5**	**2**	**2**	**1.6**	**1.7**	**0.9**	**1.8**	**2**	**1.8**	**1.8**	**1.5**	**1.8**	**2.6**
NEPM 2013 Table 1A(2) Res A Soil Vap VOCC HILs																												
NEPM 2013 Table 1A(5) Res Soil Vapour HSL A/B for Vapour Intrusion, Sa																												
0-1m																												800
Field_ID	**LocCode**	**WellCode**	**Sampled_Date-Time**																									
BH/MW216	BH/MW216		27/10/2015	<1.9	**210**	<2.8	<3.7	<3	<3	<3	<2	<1	<1	<2	<1.8	<1.5	<2	<2	<1.6	**88**	**18**	<1.8	**4**	**47**	<1.8	<1.5	<1.8	**7**
BD1	BH/MW216		27/10/2015	<1.9	**230**	<2.8	<3.7	<3	<3	<3	<2	<1	<1	<2	<1.8	<1.5	<2	<2	<1.6	**98**	**19**	<1.8	**5**	**53**	<1.8	<1.5	<1.8	**4**
JK101	JK101		27/10/2015	<1.9	**20**	<2.8	<3.7	<3	<3	<3	<2	<1	<1	<2	<1.8	<1.5	<2	<2	**6**	**110**	**22**	<1.8	**30**	**100**	<1.8	<1.5	<1.8	**10**
JK107B	JK107B		27/10/2015	<1.9	**120**	<2.8	<3.7	<3	<3	<3	<2	<1	<1	<2	<1.8	<1.5	<2	<2	**2**	**130**	**17**	<1.8	**10**	**38**	<1.8	<1.5	<1.8	**10**

Appendix D

Summary of Groundwater and Surface Water Results

			Inorganics						Metals													
			Ammonia (as N)	Chloride	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised)	Sulphate	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Manganese (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Phosphorus	Zinc (Filtered)	C10-C16	C16-C34	C34-C40
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL			0.005	1	0.005	0.005		1	0.001	0.0001	0.001	0.001	0.001	0.001	0.00005	0.001	0.01	0.001	0.05	0.1	0.1
ANZECC 2000, Marine Waters, 95% of Species			0.91							0.0007		0.0013	0.0044		0.0001	0.007		0.015			
ANZECC 2000 LOW RELIABILITY MW									0.0045					0.08							
ANZECC 2000 Fresh Waters GILs for 95% of Species			0.9		0.161					0.0002	0.0274	0.0014	0.0034	1.9	0.00006	0.011		0.008			
ANZECC 2000 LOW RELIABILITY FRESH WATER																					
ADWG 2011 Aesthetic			0.5					250				1		0.1				3			
ADWG 2011 Drinking Water					11.5	0.9		500	0.01	0.002		2	0.01	0.5	0.001	0.02					
ANZECC 2000 Recreational water quality and aesthetics			0.1	400	10	1		400	0.05	0.005	0.05	1	0.05	0.1	0.001	0.1		5			
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand																					
2-4m																					
4-8m																					
>8m																					
Field_ID	**LocCode**	**Sampled_Date-Time**																			
BH/MW216	BH/MW216	1-Oct-15	20	2200	<0.005	<0.005	-	91	0.002	<0.0001	0.001	0.001	0.001	1.4	<0.00005	0.009	0.7	0.06	<0.05	<0.1	<0.1
BH/MW218	BH/MW218	1-Oct-15	30	2300	<0.25	<0.25	-	410	0.011	<0.0001	0.19	0.017	0.007	0.65	<0.00005	0.16	0.3	0.084	<0.05	<0.1	<0.1
JKBH/MW1	JKBH/MW1	2-Oct-15	3.2	750	0.01	<0.005	-	1100	0.001	0.0001	<0.001	0.005	<0.001	0.95	<0.00005	0.03	<0.05	0.097	<0.05	<0.1	<0.1
BD1/021015	BD1/021015	2-Oct-15	2.56	-	0.03	<0.01	0.03	-	0.003	<0.0001	<0.001	<0.001	<0.001	0.985	<0.0001	0.046	3.58	0.245	<0.1	<0.1	<0.1
JKBH/MW107A	JKBH/MW107A	1-Oct-15	10	700	0.006	<0.005	-	75	0.003	<0.0001	<0.001	0.007	<0.001	0.42	<0.00005	0.012	<0.05	0.079	<0.05	<0.1	<0.1
JKBH/MW16	JKBH/MW16	1-Oct-15	4.9	3400	0.02	<0.005	-	1700	<0.001	0.0001	<0.001	0.004	<0.001	4.4	<0.00005	0.02	<0.05	0.82	<0.05	<0.1	<0.1
R1/021015	R1/021015	2-Oct-15	-	-	-	-	-	-	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.005	<0.00005	<0.001	-	<0.001	<0.05	<0.1	<0.1
SW1	SW1	1-Oct-15	0.025	6900	0.29	0.006	-	890	<0.001	<0.0001	<0.001	0.002	<0.001	0.012	<0.00005	0.001	<0.05	0.006	<0.05	<0.1	<0.1
SW2	SW2	1-Oct-15	8.4	2700	0.11	0.08	-	590	0.002	<0.0001	<0.001	<0.001	<0.001	0.42	<0.00005	0.005	<0.05	0.005	<0.05	<0.1	<0.1
BD2/011015	SW2	1-Oct-15	8.2	-	0.16	0.083	-	-	0.002	<0.0001	<0.001	<0.001	<0.001	0.4	<0.00005	0.005	<0.05	0.005	<0.05	<0.1	<0.1
SW3	SW3	2-Oct-15	0.017	91	0.02	<0.005	-	12	<0.001	<0.0001	<0.001	<0.001	<0.001	0.1	<0.00005	0.002	<0.05	0.018	<0.05	<0.1	<0.1

			TRH								BTEX								
			F2-NAPHTHALENE	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)	C10 - C40 (Sum of total)	C6-C10 less BTEX (F1)	C6-C10	Benzene	Ethylbenzene	Toluene	Total BTEX	Xylene (m & p)	Xylene (o)	Xylene Total	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL			0.05	0.01	0.05	0.1	0.05			0.01	0.01	0.001	0.001	0.001		0.002	0.001		0.001	0.001
ANZECC 2000, Marine Waters, 95% of Species												0.5								
ANZECC 2000 LOW RELIABILITY MW													0.005	0.18				0.625		
ANZECC 2000 Fresh Waters GILs for 95% of Species												0.95					0.35			
ANZECC 2000 LOW RELIABILITY FRESH WATER																				
ADWG 2011 Aesthetic													0.003	0.025				0.02		
ADWG 2011 Drinking Water												0.001	0.3	0.8				0.6		
ANZECC 2000 Recreational water quality and aesthetics												0.01								
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand																				
2-4m			1							1		0.8	NL	NL				NL		
4-8m			1							1		0.8	NL	NL				NL		
>8m			1							1		0.9	NL	NL				NL		
Field_ID	**LocCode**	**Sampled_Date-Time**																		
BH/MW216	BH/MW216	1-Oct-15	<0.05	<0.01	<0.05	<0.1	<0.1	-	-	<0.01	<0.01	<0.001	<0.001	<0.001	-	<0.002	<0.001	-	<0.001	<0.001
BH/MW218	BH/MW218	1-Oct-15	<0.05	<0.1	<0.05	<0.1	<0.1	-	-	<0.01	<0.1	<0.01	<0.01	<0.01	-	<0.02	<0.01	-	<0.01	<0.01
JKBH/MW1	JKBH/MW1	2-Oct-15	<0.05	<0.01	<0.05	<0.1	<0.1	-	-	<0.01	<0.01	<0.001	<0.001	<0.001	-	<0.002	<0.001	-	<0.001	<0.001
BD1/021015	BD1/021015	2-Oct-15	<0.1	<0.02	<0.05	<0.1	<0.05	<0.05	<0.1	<0.02	<0.02	<0.001	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	-	-
JKBH/MW107A	JKBH/MW107A	1-Oct-15	<0.05	<0.01	<0.05	<0.1	<0.1	-	-	<0.01	<0.01	<0.001	<0.001	<0.001	-	<0.002	<0.001	-	<0.001	<0.001
JKBH/MW16	JKBH/MW16	1-Oct-15	<0.05	<0.01	<0.05	<0.1	<0.1	-	-	<0.01	<0.01	<0.001	<0.001	<0.001	-	<0.002	<0.001	-	<0.001	<0.001
R1/021015	R1/021015	2-Oct-15	<0.05	<0.01	<0.05	<0.1	<0.1	-	-	<0.01	<0.01	<0.001	<0.001	<0.001	-	<0.002	<0.001	-	-	-
SW1	SW1	1-Oct-15	<0.05	<0.01	<0.05	<0.1	<0.1	-	-	<0.01	<0.01	<0.001	<0.001	<0.001	-	<0.002	<0.001	-	<0.001	<0.001
SW2	SW2	1-Oct-15	<0.05	<0.01	<0.05	<0.1	<0.1	-	-	<0.01	<0.01	<0.001	<0.001	<0.001	-	<0.002	<0.001	-	<0.001	<0.001
BD2/011015	SW2	1-Oct-15	<0.05	<0.01	<0.05	<0.1	<0.1	-	-	<0.01	<0.01	<0.001	<0.001	<0.001	-	<0.002	<0.001	-	<0.001	<0.001
SW3	SW3	2-Oct-15	<0.05	<0.01	<0.05	<0.1	<0.1	-	-	<0.01	<0.01	<0.001	<0.001	<0.001	-	<0.002	<0.001	-	<0.001	<0.001

			MAH																	
			Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL			0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
ANZECC 2000, Marine Waters, 95% of Species													1.9							
ANZECC 2000 LOW RELIABILITY MW															0.7					
ANZECC 2000 Fresh Waters GILs for 95% of Species													6.5							
ANZECC 2000 LOW RELIABILITY FRESH WATER								0.004			0.27	0.4	1.9						1.9	0.9
ADWG 2011 Aesthetic								0.03							0.03				0.003	
ADWG 2011 Drinking Water															0.0003				0.01	
ANZECC 2000 Recreational water quality and aesthetics																				
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand																				
2-4m																				
4-8m																				
>8m																				
Field_ID	**LocCode**	**Sampled_Date-Time**																		
BH/MW216	BH/MW216	1-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BH/MW218	BH/MW218	1-Oct-15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
JKBH/MW1	JKBH/MW1	2-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BD1/021015	BD1/021015	2-Oct-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JKBH/MW107A	JKBH/MW107A	1-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
JKBH/MW16	JKBH/MW16	1-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1/021015	R1/021015	2-Oct-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW1	SW1	1-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
SW2	SW2	1-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BD2/011015	SW2	1-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
SW3	SW3	2-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

			Chlorinated Hydrocarbons																	
			1,3-dichloropropane	2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL			0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.01	0.001	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
ANZECC 2000, Marine Waters, 95% of Species																				
ANZECC 2000 LOW RELIABILITY MW																				
ANZECC 2000 Fresh Waters GILs for 95% of Species																				
ANZECC 2000 LOW RELIABILITY FRESH WATER			1.1					0.24			0.37			0.0008			0.33	0.07		0.0008
ADWG 2011 Aesthetic																				
ADWG 2011 Drinking Water																0.0007		0.05		
ANZECC 2000 Recreational water quality and aesthetics								0.003									0.03	0.01		
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand																				
2-4m																				
4-8m																				
>8m																				
Field_ID	**LocCode**	**Sampled_Date-Time**																		
BH/MW216	BH/MW216	1-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BH/MW218	BH/MW218	1-Oct-15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
JKBH/MW1	JKBH/MW1	2-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BD1/021015	BD1/021015	2-Oct-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JKBH/MW107A	JKBH/MW107A	1-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
JKBH/MW16	JKBH/MW16	1-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
R1/021015	R1/021015	2-Oct-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW1	SW1	1-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
SW2	SW2	1-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
BD2/011015	SW2	1-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
SW3	SW3	2-Oct-15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

			Halogenated Hydrocarbons				Halogenated Benzenes										Solvents	PA
			Vinyl chloride	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Trichlorofluoromethane	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Cyclohexane	7,12-dimethylbenz(a)anthracene
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL			0.01	0.001	0.01	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000001	0.001	
ANZECC 2000, Marine Waters, 95% of Species									0.02										
ANZECC 2000 LOW RELIABILITY MW			0.1																
ANZECC 2000 Fresh Waters GILs for 95% of Species								0.003	0.085	0.16	0.26	0.06							
ANZECC 2000 LOW RELIABILITY FRESH WATER								0.003		0.16	0.26	0.06							
ADWG 2011 Aesthetic										0.001	0.02	0.0003							
ADWG 2011 Drinking Water			0.0003	0.001	0.001					1.5		0.04							
ANZECC 2000 Recreational water quality and aesthetics																			
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand																			
2-4m																			
4-8m																			
>8m																			
Field_ID	**LocCode**	**Sampled_Date-Time**																	
BH/MW216	BH/MW216	1-Oct-15	<0.01	<0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.000001	<0.001	-
BH/MW218	BH/MW218	1-Oct-15	<0.1	<0.01	<0.1	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.000001	<0.01	-
JKBH/MW1	JKBH/MW1	2-Oct-15	<0.01	<0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.000001	<0.001	-
BD1/021015	BD1/021015	2-Oct-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00001	-	<0.0001
JKBH/MW107A	JKBH/MW107A	1-Oct-15	<0.01	<0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.000001	<0.001	-
JKBH/MW16	JKBH/MW16	1-Oct-15	<0.01	<0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.000001	<0.001	-
R1/021015	R1/021015	2-Oct-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.000001	-	-
SW1	SW1	1-Oct-15	<0.01	<0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.000001	<0.001	-
SW2	SW2	1-Oct-15	<0.01	<0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.000001	<0.001	-
BD2/011015	SW2	1-Oct-15	<0.01	<0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.000001	<0.001	-
SW3	SW3	2-Oct-15	<0.01	<0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.000001	<0.001	-

				PAH/Phenols														
				Benzo[b+j]fluoranthene	2,4-dimethylphenol	2-methylnaphthalene	2-methylphenol	2-nitrophenol	3-&4-methylphenol	3-methylcholanthrene	4-chloro-3-methylphenol	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)&(k)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL												0.0001	0.0001	0.0001	0.0001	0.00005	0.0002	0.0001	
ANZECC 2000, Marine Waters, 95% of Species																			
ANZECC 2000 LOW RELIABILITY MW														0.00001		0.0002			
ANZECC 2000 Fresh Waters GILs for 95% of Species																			
ANZECC 2000 LOW RELIABILITY FRESH WATER																			
ADWG 2011 Aesthetic																			
ADWG 2011 Drinking Water																			
ANZECC 2000 Recreational water quality and aesthetics																0.00001			
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand																			
2-4m																			
4-8m																			
>8m																			
Field_ID	**LocCode**	**Sampled_Date-Time**																	
BH/MW216	BH/MW216	1-Oct-15	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	-
BH/MW218	BH/MW218	1-Oct-15	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	-
JKBH/MW1	JKBH/MW1	2-Oct-15	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	-
BD1/021015	BD1/021015	2-Oct-15	<0.0001	<0.001	<0.0001	<0.001	<0.001	<0.002	<0.0001	<0.001	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	-	<0.0001	<0.0001
JKBH/MW107A	JKBH/MW107A	1-Oct-15	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	-
JKBH/MW16	JKBH/MW16	1-Oct-15	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	-
R1/021015	R1/021015	2-Oct-15	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	-
SW1	SW1	1-Oct-15	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	-
SW2	SW2	1-Oct-15	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	-
BD2/011015	SW2	1-Oct-15	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	-
SW3	SW3	2-Oct-15	-	-	-	-	-	-	-	-	-	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	-

													Halogenated Phenols					
			Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Phenol	Phenolics Total	Pyrene	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,6-dichlorophenol	2-chlorophenol	Pentachlorophenol
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL			0.0001	0.0001	0.0001	0.0001	0.0001	0.0001		0.0001		0.05	0.0001						
ANZECC 2000, Marine Waters, 95% of Species								0.05			0.4								0.011
ANZECC 2000 LOW RELIABILITY MW					0.0014					0.002									
ANZECC 2000 Fresh Waters GILs for 95% of Species								0.016			0.32				0.003	0.12		0.34	0.0036
ANZECC 2000 LOW RELIABILITY FRESH WATER																			
ADWG 2011 Aesthetic															0.002	0.0003		0.0001	
ADWG 2011 Drinking Water									0.00001						0.02	0.2		0.3	0.01
ANZECC 2000 Recreational water quality and aesthetics														0.001	0.01				0.01
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand																			
2-4m								NL											
4-8m								NL											
>8m								NL											
Field_ID	**LocCode**	**Sampled_Date-Time**																	
BH/MW216	BH/MW216	1-Oct-15	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	-	<0.0001	-	<0.05	<0.0001	-	-	-	-	-	-
BH/MW218	BH/MW218	1-Oct-15	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	-	<0.0001	-	<0.05	<0.0001	-	-	-	-	-	-
JKBH/MW1	JKBH/MW1	2-Oct-15	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	-	<0.0001	-	<0.05	<0.0001	-	-	-	-	-	-
BD1/021015	BD1/021015	2-Oct-15	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.0001	<0.001	-	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002
JKBH/MW107A	JKBH/MW107A	1-Oct-15	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	-	0.0001	-	<0.05	<0.0001	-	-	-	-	-	-
JKBH/MW16	JKBH/MW16	1-Oct-15	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	-	<0.0001	-	<0.05	<0.0001	-	-	-	-	-	-
R1/021015	R1/021015	2-Oct-15	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	-	<0.0001	-	<0.05	<0.0001	-	-	-	-	-	-
SW1	SW1	1-Oct-15	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	-	<0.0001	-	<0.05	<0.0001	-	-	-	-	-	-
SW2	SW2	1-Oct-15	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	-	<0.0001	-	<0.05	<0.0001	-	-	-	-	-	-
BD2/011015	SW2	1-Oct-15	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	-	<0.0001	-	<0.05	<0.0001	-	-	-	-	-	-
SW3	SW3	2-Oct-15	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	-	<0.0001	-	<0.05	<0.0001	-	-	-	-	-	-

			Polychlorinated Biphenyls								SVOCs				
			Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Benzo(e)pyrene	Coronene	EPN	Perylene	4,4-DDE
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL			0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001					0.000001
ANZECC 2000, Marine Waters, 95% of Species															
ANZECC 2000 LOW RELIABILITY MW															
ANZECC 2000 Fresh Waters GILs for 95% of Species						0.0003		0.00001							
ANZECC 2000 LOW RELIABILITY FRESH WATER			0.000009	0.001	0.0003	0.0006	0.00003	0.00003	0.025						
ADWG 2011 Aesthetic															
ADWG 2011 Drinking Water															
ANZECC 2000 Recreational water quality and aesthetics															
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand															
2-4m															
4-8m															
>8m															
Field_ID	**LocCode**	**Sampled_Date-Time**													
BH/MW216	BH/MW216	1-Oct-15	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	-	<0.000001
BH/MW218	BH/MW218	1-Oct-15	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	-	<0.000001
JKBH/MW1	JKBH/MW1	2-Oct-15	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	-	<0.000001
BD1/021015	BD1/021015	2-Oct-15	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.0001	<0.00001
JKBH/MW107A	JKBH/MW107A	1-Oct-15	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	-	<0.000001
JKBH/MW16	JKBH/MW16	1-Oct-15	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	-	<0.000001
R1/021015	R1/021015	2-Oct-15	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	-	<0.000001
SW1	SW1	1-Oct-15	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	-	<0.000001
SW2	SW2	1-Oct-15	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	-	<0.000001
BD2/011015	SW2	1-Oct-15	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	-	<0.000001
SW3	SW3	2-Oct-15	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	-	<0.000001

														Organochlorine Pesticide
			a-BHC	Aldrin	b-BHC	chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL			0.000001	0.000001	0.000001		0.000001	0.000001	0.000001	0.000001	0.000001		0.000001	
ANZECC 2000, Marine Waters, 95% of Species														0.000005
ANZECC 2000 LOW RELIABILITY MW				0.000003			0.000001	0.000001			0.0000004	0.0000005	0.00001	
ANZECC 2000 Fresh Waters GILs for 95% of Species						0.00003					0.000006			0.00003
ANZECC 2000 LOW RELIABILITY FRESH WATER														
ADWG 2011 Aesthetic														
ADWG 2011 Drinking Water											0.009			0.02
ANZECC 2000 Recreational water quality and aesthetics				0.001		0.006					0.003		0.001	0.04
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand														
2-4m														
4-8m														
>8m														
Field_ID	**LocCode**	**Sampled_Date-Time**												
BH/MW216	BH/MW216	1-Oct-15	<0.000001	<0.000001	<0.000001	-	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	-	0.000008	-
BH/MW218	BH/MW218	1-Oct-15	<0.000001	<0.000001	<0.000001	-	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	-	0.000076	-
JKBH/MW1	JKBH/MW1	2-Oct-15	<0.000001	<0.000001	<0.000001	-	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	-	0.000001	-
BD1/021015	BD1/021015	2-Oct-15	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
JKBH/MW107A	JKBH/MW107A	1-Oct-15	<0.000001	<0.000001	<0.000001	-	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	-	0.000003	-
JKBH/MW16	JKBH/MW16	1-Oct-15	<0.000001	<0.000001	<0.000001	-	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	-	0.000003	-
R1/021015	R1/021015	2-Oct-15	<0.000001	<0.000001	<0.000001	-	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	-	<0.000001	-
SW1	SW1	1-Oct-15	<0.000001	<0.000001	<0.000001	-	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	-	0.000001	-
SW2	SW2	1-Oct-15	<0.000001	<0.000001	<0.000001	-	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	-	0.000004	-
BD2/011015	SW2	1-Oct-15	<0.000001	<0.000001	<0.000001	-	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	-	0.000004	-
SW3	SW3	2-Oct-15	<0.000001	<0.000001	<0.000001	-	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	-	<0.000001	-

	s											
	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Oxychlordane	Azinophos methyl
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.00001
ANZECC 2000, Marine Waters, 95% of Species				0.000004								
ANZECC 2000 LOW RELIABILITY MW	0.000005	0.000005						0.0000004		0.000004		
ANZECC 2000 Fresh Waters GILs for 95% of Species				0.00001			0.0002	0.00001				
ANZECC 2000 LOW RELIABILITY FRESH WATER												
ADWG 2011 Aesthetic												
ADWG 2011 Drinking Water							0.01	0.0003		0.3		0.03
ANZECC 2000 Recreational water quality and aesthetics				0.001			0.01	0.003				0.01
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand												
2-4m												
4-8m												
>8m												
Field_ID	**LocCode**	**Sampled_Date-Time**										
BH/MW216	BH/MW216	1-Oct-15	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.00001
BH/MW218	BH/MW218	1-Oct-15	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.00001
JKBH/MW1	JKBH/MW1	2-Oct-15	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.00001
BD1/021015	BD1/021015	2-Oct-15	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.000005	<0.00001	<0.00001	<0.00001	<0.00002
JKBH/MW107A	JKBH/MW107A	1-Oct-15	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.00001
JKBH/MW16	JKBH/MW16	1-Oct-15	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.00001
R1/021015	R1/021015	2-Oct-15	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.00001
SW1	SW1	1-Oct-15	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.00001
SW2	SW2	1-Oct-15	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.00001
BD2/011015	SW2	1-Oct-15	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.00001
SW3	SW3	2-Oct-15	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.000001	<0.00001

	Bolstar (Sulprofos)	Bromophos-ethyl	Carbophenothion	Azinphos Ethyl	Chlorfenvinphos	Chlorfenvinphos E	Chlorfenvinphos Z	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL				0.00001		0.00001	0.00001	0.00001	0.00001				0.00001	0.00001
ANZECC 2000, Marine Waters, 95% of Species								0.000009						
ANZECC 2000 LOW RELIABILITY MW														
ANZECC 2000 Fresh Waters GILs for 95% of Species								0.00001					0.00001	
ANZECC 2000 LOW RELIABILITY FRESH WATER														
ADWG 2011 Aesthetic														
ADWG 2011 Drinking Water	0.01	0.01						0.01					0.004	0.005
ANZECC 2000 Recreational water quality and aesthetics	0.02	0.02	0.001		0.01			0.002					0.01	0.02
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand														
2-4m														
4-8m														
>8m														
Field_ID	**LocCode**	**Sampled_Date-Time**												
BH/MW216	BH/MW216	1-Oct-15	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001
BH/MW218	BH/MW218	1-Oct-15	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001
JKBH/MW1	JKBH/MW1	2-Oct-15	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001
BD1/021015	BD1/021015	2-Oct-15	<0.00005	<0.0001	<0.00002	<0.00002	<0.00002	-	-	<0.00002	<0.0002	<0.00001	<0.00002	<0.00002	<0.00001	<0.0002
JKBH/MW107A	JKBH/MW107A	1-Oct-15	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001
JKBH/MW16	JKBH/MW16	1-Oct-15	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001
R1/021015	R1/021015	2-Oct-15	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001
SW1	SW1	1-Oct-15	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001
SW2	SW2	1-Oct-15	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001
BD2/011015	SW2	1-Oct-15	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001
SW3	SW3	2-Oct-15	-	-	-	<0.00001	-	<0.00001	<0.00001	<0.00001	<0.00001	-	-	-	<0.00001	<0.00001

			Organophosphorous Pesticides												
			Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Methidathion	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Omethoate	Phorate
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL			0.00001		0.00001		0.00001		0.00001	0.00001		0.00001				
ANZECC 2000, Marine Waters, 95% of Species																
ANZECC 2000 LOW RELIABILITY MW																
ANZECC 2000 Fresh Waters GILs for 95% of Species			0.00015				0.0002			0.00005						
ANZECC 2000 LOW RELIABILITY FRESH WATER																
ADWG 2011 Aesthetic																
ADWG 2011 Drinking Water			0.007	0.004	0.004	0.001	0.007	0.01	0.007	0.07	0.006	0.0007	0.005	0.002	0.001	
ANZECC 2000 Recreational water quality and aesthetics			0.1	0.006	0.006	0.001	0.02	0.02		0.1	0.06	0.006	0.006	0.002	0.0004	
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand																
2-4m																
4-8m																
>8m																
Field_ID	**LocCode**	**Sampled_Date-Time**														
BH/MW216	BH/MW216	1-Oct-15	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001	-	<0.00001	-	-	-	-
BH/MW218	BH/MW218	1-Oct-15	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001	-	<0.00001	-	-	-	-
JKBH/MW1	JKBH/MW1	2-Oct-15	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001	-	<0.00001	-	-	-	-
BD1/021015	BD1/021015	2-Oct-15	<0.00002	<0.00005	<0.00002	<0.00001	<0.002	<0.00001	<0.00005	<0.00002	<0.0001	<0.0005	<0.00002	<0.00002	<0.00001	<0.0001
JKBH/MW107A	JKBH/MW107A	1-Oct-15	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001	-	<0.00001	-	-	-	-
JKBH/MW16	JKBH/MW16	1-Oct-15	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001	-	<0.00001	-	-	-	-
R1/021015	R1/021015	2-Oct-15	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001	-	<0.00001	-	-	-	-
SW1	SW1	1-Oct-15	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001	-	<0.00001	-	-	-	-
SW2	SW2	1-Oct-15	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001	-	<0.00001	-	-	-	-
BD2/011015	SW2	1-Oct-15	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001	-	<0.00001	-	-	-	-
SW3	SW3	2-Oct-15	<0.00001	-	<0.00001	-	<0.00001	-	<0.00001	<0.00001	-	<0.00001	-	-	-	-

																	Pesticides
			Prothiofos	Pyrazophos	Ronnel	Terbufos	Thiometon	Trichloronate	Tetrachlorvinphos	Acephate	Demeton-S-methyl	Fenamiphos	Formothion	Parathion	Pirimiphos-methyl	Pirimphos-ethyl	Profenofos
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
PQL											0.00001			0.00001	0.00001	0.00001	
ANZECC 2000, Marine Waters, 95% of Species																	
ANZECC 2000 LOW RELIABILITY MW																	
ANZECC 2000 Fresh Waters GILs for 95% of Species														0.000004			
ANZECC 2000 LOW RELIABILITY FRESH WATER																	
ADWG 2011 Aesthetic																	
ADWG 2011 Drinking Water				0.02		0.0009	0.004		0.1	0.008		0.0005	0.05	0.02	0.09	0.0005	0.0003
ANZECC 2000 Recreational water quality and aesthetics				1	0.06		0.02			0.02			0.1	0.03	0.06	0.001	0.0006
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand																	
2-4m																	
4-8m																	
>8m																	
Field_ID	**LocCode**	**Sampled_Date-Time**															
BH/MW216	BH/MW216	1-Oct-15	-	-	-	-	-	-	-	-	<0.00001	-	-	<0.00001	<0.00001	<0.00001	-
BH/MW218	BH/MW218	1-Oct-15	-	-	-	-	-	-	-	-	<0.00001	-	-	<0.00001	<0.00001	<0.00001	-
JKBH/MW1	JKBH/MW1	2-Oct-15	-	-	-	-	-	-	-	-	<0.00001	-	-	<0.00001	<0.00001	<0.00001	-
BD1/021015	BD1/021015	2-Oct-15	<0.0001	<0.0001	<0.01	<0.00001	<0.0005	<0.0005	<0.00001	<0.0005	<0.00002	<0.00001	<0.02	<0.0002	<0.00001	<0.00001	<0.00001
JKBH/MW107A	JKBH/MW107A	1-Oct-15	-	-	-	-	-	-	-	-	<0.00001	-	-	<0.00001	<0.00001	<0.00001	-
JKBH/MW16	JKBH/MW16	1-Oct-15	-	-	-	-	-	-	-	-	<0.00001	-	-	<0.00001	<0.00001	<0.00001	-
R1/021015	R1/021015	2-Oct-15	-	-	-	-	-	-	-	-	<0.00001	-	-	<0.00001	<0.00001	<0.00001	-
SW1	SW1	1-Oct-15	-	-	-	-	-	-	-	-	<0.00001	-	-	<0.00001	<0.00001	<0.00001	-
SW2	SW2	1-Oct-15	-	-	-	-	-	-	-	-	<0.00001	-	-	<0.00001	<0.00001	<0.00001	-
BD2/011015	SW2	1-Oct-15	-	-	-	-	-	-	-	-	<0.00001	-	-	<0.00001	<0.00001	<0.00001	-
SW3	SW3	2-Oct-15	-	-	-	-	-	-	-	-	<0.00001	-	-	<0.00001	<0.00001	<0.00001	-

								Fungicides	Other
		Sulfotepp	Temephos	Trichlorfon	Bensulide	Demeton-O & Demeton-S	Naftalofos	Fosetyl-al	Triazophos
		mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	mg/L	mg/L
PQL									
ANZECC 2000, Marine Waters, 95% of Species			0.00005						
ANZECC 2000 LOW RELIABILITY MW									
ANZECC 2000 Fresh Waters GILs for 95% of Species									
ANZECC 2000 LOW RELIABILITY FRESH WATER									
ADWG 2011 Aesthetic									
ADWG 2011 Drinking Water			0.4	0.007					
ANZECC 2000 Recreational water quality and aesthetics			0.03	0.01					
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Sand									
2-4m									
4-8m									
>8m									
Field_ID	**LocCode**	**Sampled_Date-Time**							
BH/MW216	BH/MW216	1-Oct-15	-	-	-	-	-	-	-	-
BH/MW218	BH/MW218	1-Oct-15	-	-	-	-	-	-	-	-
JKBH/MW1	JKBH/MW1	2-Oct-15	-	-	-	-	-	-	-	-
BD1/021015	BD1/021015	2-Oct-15	<0.000005	<0.00002	<0.00002	<0.1	<0.02	<1	<0.01	<0.000005
JKBH/MW107A	JKBH/MW107A	1-Oct-15	-	-	-	-	-	-	-	-
JKBH/MW16	JKBH/MW16	1-Oct-15	-	-	-	-	-	-	-	-
R1/021015	R1/021015	2-Oct-15	-	-	-	-	-	-	-	-
SW1	SW1	1-Oct-15	-	-	-	-	-	-	-	-
SW2	SW2	1-Oct-15	-	-	-	-	-	-	-	-
BD2/011015	SW2	1-Oct-15	-	-	-	-	-	-	-	-
SW3	SW3	2-Oct-15	-	-	-	-	-	-	-	-

Appendix E

Borehole Logs

Notes and Descriptive Terms

Sampling Methods

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Sampling

Sampling is carried out during drilling or test pitting to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of, say, 4, 6 and 7 as:

  4,6,7
  N=13

- In the case where the test is discontinued before the full penetration depth, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm as:

  15, 30/40 mm

The results of the SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

Soil Descriptions

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Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard AS 1726, Geotechnical Site Investigations Code. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	20 - 63
Medium gravel	6 - 20
Fine gravel	2.36 - 6
Coarse sand	0.6 - 2.36
Medium sand	0.2 - 0.6
Fine sand	0.075 - 0.2

The proportions of secondary constituents of soils are described as:

Term	Proportion	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	20 - 35%	Sandy Clay
Slightly	12 - 20%	Slightly Sandy Clay
With some	5 - 12%	Clay with some sand
With a trace of	0 - 5%	Clay with a trace of sand

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	vs	<12
Soft	s	12 - 25
Firm	f	25 - 50
Stiff	st	50 - 100
Very stiff	vst	100 - 200
Hard	h	>200

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	SPT N value	CPT qc value (MPa)
Very loose	vl	<4	<2
Loose	l	4 - 10	2 -5
Medium dense	md	10 - 30	5 - 15
Dense	d	30 - 50	15 - 25
Very dense	vd	>50	>25

Soil Descriptions

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Transported soils - formed somewhere else and transported by nature to the site; or
- Filling - moved by man.

Transported soils may be further subdivided into:

- Alluvium - river deposits
- Lacustrine - lake deposits
- Aeolian - wind deposits
- Littoral - beach deposits
- Estuarine - tidal river deposits
- Talus - scree or coarse colluvium
- Slopewash or Colluvium - transported downslope by gravity assisted by water. Often includes angular rock fragments and boulders.

Rock Strength

Rock strength is defined by the Point Load Strength Index ($Is_{(50)}$) and refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects. The test procedure is described by Australian Standard 4133.4.1 - 1993. The terms used to describe rock strength are as follows:

Term	Abbreviation	Point Load Index $Is_{(50)}$ MPa	Approx Unconfined Compressive Strength MPa*
Extremely low	EL	<0.03	<0.6
Very low	VL	0.03 - 0.1	0.6 - 2
Low	L	0.1 - 0.3	2 - 6
Medium	M	0.3 - 1.0	6 - 20
High	H	1 - 3	20 - 60
Very high	VH	3 - 10	60 - 200
Extremely high	EH	>10	>200

* Assumes a ratio of 20:1 for UCS to $Is_{(50)}$

Degree of Weathering

The degree of weathering of rock is classified as follows:

Term	Abbreviation	Description
Extremely weathered	EW	Rock substance has soil properties, i.e. it can be remoulded and classified as a soil but the texture of the original rock is still evident.
Highly weathered	HW	Limonite staining or bleaching affects whole of rock substance and other signs of decomposition are evident. Porosity and strength may be altered as a result of iron leaching or deposition. Colour and strength of original fresh rock is not recognisable
Moderately weathered	MW	Staining and discolouration of rock substance has taken place
Slightly weathered	SW	Rock substance is slightly discoloured but shows little or no change of strength from fresh rock
Fresh stained	Fs	Rock substance unaffected by weathering but staining visible along defects
Fresh	Fr	No signs of decomposition or staining

Degree of Fracturing

The following classification applies to the spacing of natural fractures in diamond drill cores. It includes bedding plane partings, joints and other defects, but excludes drilling breaks.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with some fragments
Fractured	Core lengths of 40-200 mm with some shorter and longer sections
Slightly Fractured	Core lengths of 200-1000 mm with some shorter and loner sections
Unbroken	Core lengths mostly > 1000 mm

Rock Descriptions

Rock Quality Designation

The quality of the cored rock can be measured using the Rock Quality Designation (RQD) index, defined as:

$$\text{RQD \%} = \frac{\text{cumulative length of 'sound' core sections} \geq \text{100 mm long}}{\text{total drilled length of section being assessed}}$$

where 'sound' rock is assessed to be rock of low strength or better. The RQD applies only to natural fractures. If the core is broken by drilling or handling (i.e. drilling breaks) then the broken pieces are fitted back together and are not included in the calculation of RQD.

Stratification Spacing

For sedimentary rocks the following terms may be used to describe the spacing of bedding partings:

Term	Separation of Stratification Planes
Thinly laminated	< 6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	> 2 m

Symbols & Abbreviations

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Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core Drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

Water

▷	Water seep
▽	Water level

Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U_{50}	Undisturbed tube sample (50mm)
W	Water sample
pp	pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	lamination
Pt	Parting
Sz	Sheared Zone
V	Vein

Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
bnd	band
qtz	quartz

Symbols & Abbreviations

Graphic Symbols for Soil and Rock

General

Asphalt

Road base

Concrete

Filling

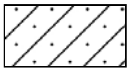
Soils

Topsoil

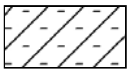
Peat

Clay

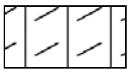
Silty clay

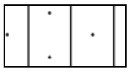

Sandy clay

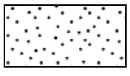
Gravelly clay

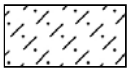

Shaly clay

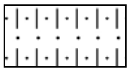
Silt


Clayey silt


Sandy silt

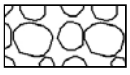

Sand

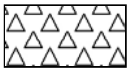

Clayey sand


Silty sand

Gravel

Sandy gravel


Cobbles, boulders

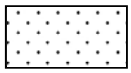

Talus

Sedimentary Rocks

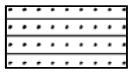
Boulder conglomerate

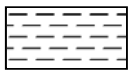
Conglomerate

Conglomeratic sandstone

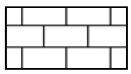

Sandstone

Siltstone


Laminite

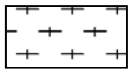

Mudstone, claystone, shale

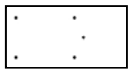
Coal


Limestone

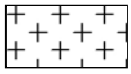
Metamorphic Rocks

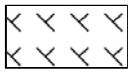
Slate, phyllite, schist

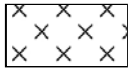

Gneiss

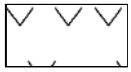

Quartzite

Igneous Rocks


Granite


Dolerite, basalt, andesite


Dacite, epidote


Tuff, breccia

Porphyry

BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 6.7 AHD
EASTING: 311924
NORTHING: 6243802
DIP/AZIMUTH: 90°/--

BORE No: BH201
PROJECT No: 71459.03
DATE: 10/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - light brown, fine to medium sand filling with some silt and fine to coarse gravel, crushed glass and sandstone fragments		A	0.1 0.2		PID<5		
	0.4 0.5	FILLING - light brown, fine to medium sand filling with some small silty clay clumps, fine gravel and crushed glass			0.9				
		FILLING - dark brown and grey, clay filling with some fine to medium gravel and crushed glass		S*			3,5,7 N = 12 PID<5		
		FILLING - orange, red and brown, silty clay filling with some fine gravel - brick at 1.35m			1.35				
					1.9				
	2.1	FILLING - brown, clayey sand filling with some fine to medium gravel - 300mm collapse		S			4,3,6 N = 9 PID<5		
					2.35				
					2.6				
				S			5,5,8 N = 13 PID<5		
		- white sandstone at 3.0m			3.05				
	3.8	Bore discontinued at 3.8m - refusal on concrete fragment and heavy wire cables							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *BD4-100915 taken at 0.9-1.35m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 7.3 AHD
EASTING: 311817
NORTHING: 6243778
DIP/AZIMUTH: 90°/--

BORE No: BH202
PROJECT No: 71459.03
DATE: 3/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - fine to medium gravel and crushed glass							1.0m monument stickup Concrete plug
		FILLING - dark brown, silty clay with some fine gravel and asphalt							
		- wet at 0.9m			0.9			▼	0.1-1.5m: 50mm diameter Class 18 PVC Casing
1	1.0	FILLING - orange and red, silty clay filling with some fine gravel and asphalt		S			7,7,8 N = 15 PID<5		
					1.35				
					1.9				
2		- colour change to brown at 2.1m		S			3,4,7 N = 11 PID=11.2		1.3-6.1m: 5/2mm graded gravel/sand
		- foam, steel reinforcement and brick fragments at 2.15m			2.35				
					2.9				
3				S			5,6,5 N = 11 PID<5		
					3.35				
					3.9				1.5-6.1m: 50mm diameter Class 18 Machine-Slotted PVC Screen
4		- wood pieces at 3.9m		S			5,8,5 N = 13 PID<5		
					4.35				
					4.9				
5		- concrete fragments at 5.1m		S			3,3,6 N = 9 PID<5		
					5.35				
					5.9		3,4,1 N = 5		
6	6.1			S	6.1		No PID bag		End cap
		Bore discontinued at 6.1m - refusal on steel reinforcement							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 0.9m

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 7.6 AHD
EASTING: 311817
NORTHING: 6243757
DIP/AZIMUTH: 90°/--

BORE No: BH203
PROJECT No: 71459.03
DATE: 10/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.4	FILLING - light brown, fine to medium sand filling with some crushed glass and fine to medium gravel		A	0.1 0.2		PID<5		
		FILLING - dark brown, clayey sand with some fine gravel			0.9			▼	
	1.2			S			8,7,7 N = 14 PID<5		
		FILLING - dark grey and brown, silty clay with some sand and fine to medium gravel and brick			1.35				
					1.9				
				S			5,6,7 N = 13 PID<5		
		- slight odour at 2.2m			2.35				
		- concrete fragment at 2.7-2.9m			2.9				
				S			5,5,5 N = 10 PID<5		
		- yellow and white sandstone at 3.25m			3.35				
					3.9				
		- metal wire at 3.9m - concrete and steel fragments at 4.1m - steel at 4.1m		S			15,23,15 N = 38 PID<5		
	4.5				4.35				
		Bore discontinued at 4.5m - refusal on steel (1.5cm thick?)							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 0.8m

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 7.2 AHD
EASTING: 311852
NORTHING: 6243749
DIP/AZIMUTH: 90°/--

BORE No: BH204
PROJECT No: 71459.03
DATE: 9/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - light brown, clayey sand filling with some fine to medium gravel, tile fragments and some crushed glass		A	0.1 0.2		PID<5		
		FILLING - dark brown, clayey sand filling with some fine gravel and crushed glass							
	0.7	FILLING - dark brown, sandy clay filling with some fine gravel and some wood fragments		S	0.9 1.35		5,22,25 N = 47 PID<5		
	1.8	- brick fragments and wood fragments at 1.8m - steel reinforcement at 1.85m		S	1.9 2.35		7,8,4 N = 12 PID<5		
	3.1	- terracotta pipe at 3.1m		S	2.9 3.35		3,4,4 N = 8 PID<5		
	3.85	- medal alloy fragment at 3.85m		S	3.9 4.35		4,13,7 N = 20 PID<5		
	4.2	- wood fragments at 4.2m							
	4.6	- cotton material at 4.6m		S	4.9 5.35		7,8,10 N = 18 PID<5		
	5.35	- cement and wood fragments at 5.35m, slight H_2S odour - roots and wood chips at 5.4-5.9m		S	5.9 6.35		2,12,15 N = 27 PID<5		
	6.1	- brick at 6.1m							
	6.9	- groundwater at 6.9m		S	6.9 7.35		7,14,16 N = 30 PID<5	▼	
	7.9	- saturated at 7.9m - large wood fragments at 8.0-8.35m		S	7.9 8.35		1,15,7 N = 22 No PID bag		
	8.9			S	8.9 9.35		3 refusal No PID bag 300mm slump		
	9.2	SILTY CLAY - yellow and light orange, silty clay							
	9.7	Bore discontinued at 9.7m - target depth reached							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 6.9m

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 6.9 AHD
EASTING: 311891
NORTHING: 6243767
DIP/AZIMUTH: 90°/--

BORE No: BH205
PROJECT No: 71459.03
DATE: 7/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
6.9	0.0	FILLING - dark brown, sandy clay with some fine to medium gravel, asphalt, crushed brick and crushed glass		A	0.1 0.2		PID<5		
5.9	1.0				0.9				
	1.1	FILLING - yellow, fine to medium sand filling with some fine gravel		S			5,12,8 N = 20 PID<5		
		FILLING - brown and yellow mottled, clayey sand filling with some fine to medium gravel and crushed brick			1.35				
5.1	1.8	FILLING - red, light grey and yellow, silty clay filling with some fine gravel		S	1.9 2.35		0,2,3 N = 5 PID<5		
4.3	2.6	FILLING - brown, silty clay filling with some fine gravel and crushed brick - dark grey and yellow mottled below 3.2m		S	2.9 3.35		0,0,0 N = 0 PID<5		
3.0	3.9				3.9				
	4.0	FILLING - yellow and light grey, fine to medium sand filling		S			0,3,7 N = 10 PID<5		
		FILLING - red, orange and light grey, silty clay filling			4.35				
2.0	4.9	Bore discontinued at 4.9m - refusal on concrete							

RIG: Scout 4 **DRILLER:** RKE **LOGGED:** CB **CASING:** Uncased
TYPE OF BORING: 110mm diameter solid flight auger
WATER OBSERVATIONS: No free groundwater observed
REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 6.6 AHD
EASTING: 311895
NORTHING: 6243793
DIP/AZIMUTH: 90°/--

BORE No: BH206
PROJECT No: 71459.03
DATE: 10/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - light brown, clayey sand filling with some fine gravel and brick fragments		A	0.1 - 0.2				
	0.4	FILLING - dark brown, sandy clay filling with fine to medium gravel and some3 fine brick fragments							
		FILLING - orange and brown, silty clay filling with some fine gravel - dark brown below 0.9m - yellow and brown below 1.1m - yellow, brown and red mottled below 1.9m - light grey, red and yellow mottled below 2.9m		S	0.9 - 1.35		3,3,6 N = 9 PID<5		
				S	1.9 - 2.35		2,4,3 N = 7 PID<5		
				S	2.9 - 3.35		2 refusal PID<5 Clump 350mm		
				S	3.9 - 4.35		4,6,7 N = 13 PID<5		
		- apparently in a soft condition below 5.1m - dark grey with fine asphalt below 5.15m		S	4.9 - 5.35		5,5,3 N = 8 PID<5		
	6.1	SILTY CLAY - stiff, light grey and red, silty clay		S	5.9 - 6.35		2,9,12 N = 21 PID<5 Clump 100mm		
	6.7	Bore discontinued at 6.7m - target depth reached							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *BD6-100915 taken at 0.9-1.35m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 6.5 AHD
EASTING: 311926
NORTHING: 6243802
DIP/AZIMUTH: 90°/--

BORE No: BH207
PROJECT No: 71459.03
DATE: 10/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - light brown, clayey sand filling with some fine gravel and brick fragments		A	0.1 0.2		PID<5		
		FILLING - dark brown, clayey sand filling with some fine to medium gravel and brick fragments			0.9				
	1.0	FILLING - dark brown and yellow, fine to medium sand filling with some fine gravel		S*	1.35		8,8,7 N = 15 PID<5		
				S	1.9 2.35		3,3,2 N = 5 PID<5	▼	
	3.0	FILLING - dark brown and red mottled, silty sandy clay with some fine gravel, wet		S	2.9 3.35		2 refusal PID<5 300mm clump		
	4.05	SILTY CLAY - stiff, light grey and red mottled, silty clay		S	3.9 4.35		3,3,5 N = 8 PID<5		
	4.9	Bore discontinued at 4.9m - target depth reached							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 2.3m

REMARKS: *BD5-100915 taken at 0.9-1.35m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 6.7 AHD
EASTING: 311964
NORTHING: 6243738
DIP/AZIMUTH: 90°/--

BORE No: BH208
PROJECT No: 71459.03
DATE: 10/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - light brown, clayey sand filling with some fine to medium gravel, crushed glass, brick fragments and asphalt		A	0.1 0.2		PID<5		
	0.6	FILLING - dark brown, clayey sand filling with some fine to medium gravel and brick							
		FILLING - light and dark grey, silty clay filling with some fine gravel and asphalt - white sandstone at 1.1-1.2m		S	0.9 1.35		9,5,2 N = 7 PID<5		
		- yellow sandstone at 2.0-2.1m - dark brown with medium asphalt below 2.15m		S	1.9 2.35		4,18,16 N = 34 PID<5		
		- brown and yellow, wet below 2.6m						▼	
				S	2.9 3.35		PID<5 full stump		
	4.0	SILTY CLAY - stiff, red and light grey mottled, silty clay		S*	3.9 4.35		3,9,6 N = 15		
	4.9	Bore discontinued at 4.9m - target depth reached							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 2.7m

REMARKS: *BD7-100915 taken at 3.9-4.35m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 8.1 AHD
EASTING: 311835
NORTHING: 6243722
DIP/AZIMUTH: 90°/--

BORE No: BH209
PROJECT No: 71459.03
DATE: 9/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
8	0.05	FILLING - light brown, clayey sand filling with some fine gravel		A	0.1 0.2		PID<5		
		FILLING - dark brown, clayey sand filling with some fine to medium gravel, asphalt and crushed glass							
7	1			S	0.9 1.35		40/150mm refusal No PID bag		1
	1.5	FILLING - dark brown, grey and orange, silty clay with some fine gravel							
6	2	- colour change to dark grey at 2.0m - brick at 2.2m - wood fragments at 2.3m - medium to coarse gravel and asphalt at 2.8m		S	1.9 2.35		5,7,8 N = 15 PID<5		2
	2.8	FILLING - dark grey and yellow mottled, silty sandy clay filling with some fine to medium gravel							
5	3	- wood fragments at 3.25m		S	2.9 3.35		4,3,5 N = 8 PID<5		3
4	4	- concrete boulder at 4.2-4.8m		S	3.9 4.35		5,16,20/100mm refusal PID<5		4
3	5			S	4.9 5.1		10/20mm refusal No PID bag		5
	5.4	- brick fragments at 5.3m Bore discontinued at 5.4m - refusal on concrete boulder							
2	6								6
1	7								7
0	8								8
-1	9								9

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▽	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 7.0 AHD
EASTING: 311949
NORTHING: 6243675
DIP/AZIMUTH: 90°/--

BORE No: BH210
PROJECT No: 71459.03
DATE: 4/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
7	0.0	FILLING - brown, gravelly sand filling		A	0.1 0.2		PID<5		
6	1			S	1.0 1.45		20/20mm refusal PID<5 Limited sample return		1
	1.6	FILLING - orange-brown, silty clay filling with trace fine ironstone gravel, damp							
5	2			S	2.0 2.45		3,4,5 N = 9 PID<5		2
	2.1	FILLING - brown, sandy clay with trace fine to medium gravel, moist - evidently in a firm condition							
	2.7	FILLING - orange-brown and grey, silty clay with some sand and gravel, damp							
4	3			S	3.0 3.45		3,5,6 N = 11 PID<5		3
3	4			S	4.0 4.05		3/50mm refusal bouncing, limited return		4
	4.05	Bore discontinued at 4.05m - refusal on concrete							
2	5								5
1	6								6
0	7								7
-1	8								8
-2	9								9

RIG: Scout 4 **DRILLER:** RKE **LOGGED:** MW **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Second hole attempted 2.5m to north, also concrete refusal at 4.1m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 6.7 AHD
EASTING: 312006
NORTHING: 6243707
DIP/AZIMUTH: 90°/--

BORE No: BH211
PROJECT No: 71459.03
DATE: 8/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - brown, sandy clay filling with some fine gravel and some crushed glass		A	0.1 0.2		PID<5		0.8m monument stickup
	0.7	FILLING - light brown, sandy clay filling with some fine to medium gravel and fine to medium crushed brick							0.1-1.3m: Bentonite plug
		FILLING - red, brown, yellow and light grey, silty clay filling with some fine to medium gravel, fine to medium asphalt and fine crushed brick		S	0.9 1.35		5,5,5 N = 10 PID<5		0.0-1.5m: 50mm diameter Class 18 PVC casing
	1.5	FILLING - red and brown, silty clay filling with some fine gravel - light grey sandy clay layer at 2.1m to 2.2m		S	1.9 2.35		1,4,5 N = 9 PID<5		
	3.1	SILTY CLAY - stiff to very stiff, red and light grey, silty clay		S	2.9 3.35		3,5,8 N = 13 PID<5		1.5-6.4m: 50mm diameter Class 18 Machine-slotted PVC screen
		- red and dark grey below 4.0m		S S	3.9 4.0 4.35		2,5,7 N = 12 PID<5 4,7,9 N = 16 PID<5		1.5-10.4m: 5/2mm graded gravel/sand
					5.35				
	6.4	- light grey below 6.15m		S	5.9 6.35		4,1,12 N = 13 PID<5		End cap
		Bore discontinued at 6.4m - target depth reached							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 6.7 AHD
EASTING: 312006
NORTHING: 6243707
DIP/AZIMUTH: 90°/--

BORE No: BH211B
PROJECT No: 71459.03
DATE: 8/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - brown, sandy clay filling with some fine gravel and some crushed glass							0.5m Stickup; 0.0-0.1m: Concrete plug; 0.1-0.7m: Bentonite plug; 0.0-1.0m: 50mm diameter Class 18 PVC casing; 0.7-2.0m: 5/2mm graded gravel/sand; 1.0-2.0m: 50mm diameter Class 18 Machine-Slotted PVC screen; End cap
	0.7	FILLING - light brown, sandy clay filling with some fine to medium gravel and fine to medium crushed brick							
	1	FILLING - red, brown, yellow and light grey, silty clay filling with some fine to medium gravel, fine to medium asphalt and fine crushed brick							
	1.5	FILLING - red and brown, silty clay filling with some fine gravel							
	2.0	Bore discontinued at 2.0m - target depth reached							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 6.9 AHD
EASTING: 311835
NORTHING: 6243674
DIP/AZIMUTH: 90°/--

BORE No: BH212
PROJECT No: 71459.03
DATE: 9/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - light brown, fine to medium sand filling with some fine to medium gravel and asphalt		A	0.1 – 0.2				
	0.4	FILLING - dark brown, clayey sand filling with some fine to medium gravel and roadbase							
		FILLING - light brown and orange, silty clay filling with some fine gravel - dark brown below 0.7m - brick at 1.0m - concrete at 1.35m		S	0.9 – 1.35		7,14,10/50mm refusal PID<5		
		- strong H_2S odour at 2.0m		S	1.9 – 2.35		12,13,6 N = 19 No PID bag		
				S*	2.9 – 3.35		9,11,5 N = 16 PID<5		
		- crushed sandstone and asphalt gravel at 4.1m - concrete fragment at 4.4-4.8m		S	3.9 – 4.35		30,23,20/100mm refusal PID<5		
		- steel fragment (10cm?) at 4.9m		S**	4.9 – 5.35		2,30,17 N = 47 100mm clump		
	6.0	Bore discontinued at 6.0m - refusal on concrete and brick rubble							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *BD3-090915 taken at 2.9-3.35m. **No SPT sample recovered

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 7.1 AHD
EASTING: 311938
NORTHING: 6243656
DIP/AZIMUTH: 90°/--

BORE No: BH213
PROJECT No: 71459.03
DATE: 8/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
7	0.05	FILLING - light brown, fine to medium sand filling with some fine to medium gravel and crushed glass		A	0.1 0.2		PID<5		
		FILLING - dark brown, fine to medium sand filling with some fine to medium gravel and brick fragments							
6	1			S	0.9 1.35		9,6,6 N = 12 PID<5		1
5	2	- crushed glass at 2.2m - plastic and wire at 2.5m		S	1.9 2.35		3,5,4 N = 9 PID<5		2
	2.6	FILLING - dark brown, sandy clay with some fine gravel and asphalt							
4	3	- light grey, brown and dark yellow mottled below 2.95m		S*	2.9 3.35		4,4,4 N = 8 PID<5		3
	3.8	Bore discontinued at 3.8m - refusal on concrete slab with reinforced steel top							
3	4								4
2	5								5
1	6								6
0	7								7
-1	8								8
-2	9								9

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *BD2-080915 taken at 2.9-3.35m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 7.0 AHD
EASTING: 311999
NORTHING: 6243663
DIP/AZIMUTH: 90°/--

BORE No: BH214
PROJECT No: 71459.03
DATE: 8/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - crushed glass and fine to medium gravel		A	0.1		PID<5		
		FILLING - light brown, fine to medium sand filling with a trace of clay and medium to coarse gravel			0.2				
		- bricks and brick fragments at 0.7m							
	1.0	CONCRETE SLAB							
	1.2	FILLING - dark brown, fine to m4edium sand filling with some clay and fine to medium gravel and brick fragments			1.2				
	1.4			S			12,9,13 N = 22 PID<5		
		FILLING - brown, red and yellow, silty clay filling with some fine to medium gravel			1.65				
	2.2	FILLING - black, fine to medium sand filling with some fine to medium gravel and brick fragments		S	2.2		6,12,13 N = 25 PID<5		
	2.6	FILLING - light grey and brown, silty clay filling with some fine to medium gravel			2.65				
		- dark brown below 3.2m - brick fragments at 3.4m		S	3.2		7,4,7 N = 11 PID<5		
	3.8	SILTY CLAY - stiff, red and light grey, silty clay			3.65				
				S	4.2		3,5,7 N = 12 PID<5		
					4.65				
	5.1	Bore discontinued at 5.1m - target depth reached							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 6.8 AHD
EASTING: 311952
NORTHING: 6243640
DIP/AZIMUTH: 90°/--

BORE No: BH215
PROJECT No: 71459.03
DATE: 3/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.1	FILLING - brown, sandy clay filling with some fine to medium gravel, plastic, crushed glass and metal pieces							
		FILLING - dark brown and grey, sandy clay filling with some gravel and crushed glass and fine asphalt - brick fragments at 0.8m							
	0.85	FILLING - yellow, white and brown, sand filling with some fine gravel and fine brick fragments		S	0.9 1.35		32,28,22 N = 50 PID=8.3		
	1.8	FILLING - red and brown, silty sandy clay with some fine gravel and fine crushed glass and fine brick fragments - light grey below 2.1m		S	1.9 2.35		3,3,5 N = 8 PID<5		
	2.5	FILLING - light brown, silty clay filling with fine gravel							
	3.0	FILLING - red and orange, clay filling with a trace of silt		S	2.9 3.35		4,5,7 N = 12 PID<5		
	3.7	Bore discontinued at 3.7m - refusal on concrete slab							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 7.3 AHD
EASTING: 311888
NORTHING: 6423631
DIP/AZIMUTH: 90°/--

BORE No: BH216
PROJECT No: 71459.03
DATE: 4/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.1	FILLING - light brown, fine to medium sand filling with some fine to medium gravel, fine brick fragments and crushed glass		A	0.1		PID<5		Stickup 1.0m Casing 0.0-2.0m
	0.2				0.2				
	0.3	FILLING - dark brown, fine to medium sand filling with some medium gravel, asphalt and brick							0.0-1.0m: Bentonite
	1	FILLING - dark yellow, fine to medium sand filling with some fine gravel		S	0.9		13,12,5 N = 17 PID<5		
	1.2	FILLING - dark grey and brown, sand filling with some fine gravel and asphalt			1.35				
	2	FILLING - dark brown, sandy clay filling with some fine to medium gravel and medium brick fragments - wood fragments at 1.9m - dark grey below 2.2m		S	1.9		23,22,17 N = 39 PID<5		
					2.35				
	3			S	2.9		1,2,2 N = 4 PID<5		1.0-8.0m: Gravel pack
	3.0	FILLING - light grey, sandy clay with so me medium concrete fragments, crushed sandstone, fine gravel and wood fragments, damp			3.35				
	4	- dark grey below 3.9m - strong methane reading at 0.4m (18.8%)		S	3.9		10,1,5 N = 6 No PID bag, minimal sample return		
					4.35				
	5	- groundwater at 5.1m - concrete boulder at 5.5m		S	4.9		6,7,3 N = 10 PID<5	▼	2.0-8.0m: Machine slotted PVC screen
					5.35				
	5.8	FILLING - dark grey and black, silty sandy clay with some fine gravel and asphalt		S	5.9		2,2,2 N = 4 PID<5		
	6.3	FILLING - light grey, silty clay filling, wet			6.35				
	7			S	7.0		3,6,8 N = 14 Minimal return of fill material		
	7.35	SILTY CLAY - stiff, grey mottled yellow, silty clay, damp (yellow colour, pyrite)			7.45				
	8								End cap
	8.0	Bore discontinued at 8.0m - target depth reached							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 5.1m

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 7.7 AHD
EASTING: 311896
NORTHING: 6243567
DIP/AZIMUTH: 90°/--

BORE No: BH218
PROJECT No: 71459.03
DATE: 3/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.1	FILLING - light brown, sand filling with some fine gravel, fine asphalt and some crushed glass							1.0m monument stickup
	0.3	FILLING - dark brown-black, silty clay filling with some fine asphalt							0.0-0.1m: concrete plug
		FILLING - brown, sand filling with fine to medium gravel, fine to medium asphalt and brick fragments							0.6-1.0m: 50mm diameter Class 18 PVC casing
		- large brick fragments (5cm-8cm) encountered at 0.6m			0.9				
	1.2	FILLING - brown, sandy clay filling with a lot of fine brick and some fine gravel, wet		S			32,27,30 N = 57 PID<5	▼	
		- water at 1.3m			1.35				
					1.9				
				S			5,6,4 N = 10 PID<5		
					2.35				
	2.6	FILLING - dark grey, silty clay clay filling with a trace of fine gravel and brick fragments, wet			2.9				
				S			1,2,3 N = 5 PID<5		0.6-8.0m: 50mm diameter Class 18 Machine-slotted PVC screen
	3.5	FILLING - brown, sandy clay filling with some fine gravel, wet			3.35				
					3.9				
				S			2,2,3 N = 5 PID<5		
					4.35				
		- brick fragments, crushed asphalt and metal wire at 4.85m			4.9				1.5-8.0m: 5/2mm graded gravel/sand
				S			3,4,4 N = 8		
					5.35				
					5.9				
		- dark grey, red and brown mottled below 6.0m		S			2,3,6 N = 9 PID<5		
					6.35				
		- saturated at 6.8m							
	6.9	FILLING - light grey, sand filling (possibly natural)			6.9				
	7.1	FILLING - orange, red and light grey, silty clay filling		S			8,5,4 N = 9 PID<5		
					7.35				
					7.9				End cap
				S			5,10,12 N = 22 PID<5		
	8.35	Bore discontinued at 8.35m			8.35				
		- refusal on concrete							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 1.3m

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 5.7 AHD
EASTING: 311853
NORTHING: 6243524
DIP/AZIMUTH: 90°/--

BORE No: BH220
PROJECT No: 71459.03
DATE: 9/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILLING - dark brown, clayey sand filling with white bricks, large concrete fragments (15-45cm) and medium to coarse gravel		A	0.1 0.2		PID<5		
				S	0.9 1.35		17,38,7 N = 45		
	2.6	Bore discontinued at 2.6m - refusal on concrete and building rubble							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Note: 2.5m have been excavated prior to sampling

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 7.9 AHD
EASTING: 311907
NORTHING: 6243483
DIP/AZIMUTH: 90°/--

BORE No: BH221
PROJECT No: 71459.03
DATE: 8/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - light brown, fine to medium sand filling with some fine to medium gravel		A	0.1 0.2		PID<5		
		FILLING - dark brown, clayey sand filling with some fine to medium gravel and brick fragments							
		- large brick and asphalt fragments at 0.9m		S	0.9 1.35		35,35/70mm refusal PID<5		
	1.8	FILLING - light grey and brown, sand filling with some clay and fine gravel		S	1.9 2.35		27,37,15 N = 52 PID<5		
		- dark brown below 2.9m - wood fragments at 3.1m		S	2.9 3.35		4,9,18 N = 27 PID<5		
		- large brick fragments at 3.35m - wood fragments at 3.6m							
		- slight odour at 4.0m		S	3.9 4.35		13,7,10 N = 17		
	4.9	Bore discontinued at 4.9m - refusal on concrete fragment or slab							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 6.4 AHD
EASTING: 311821
NORTHING: 6243438
DIP/AZIMUTH: 90°/--

BORE No: BH222
PROJECT No: 71459.03
DATE: 9/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - light brown, fine to medium sand filling with some fine to coarse gravel		A	0.1 0.2		PID<5		
		FILLING - light and dark brown, fine to medium sand filling with some fine to medium gravel and large bricks							
	0.8	- concrete, tiles and building rubble at 0.6m							
	1	FILLING - dark brown, clayey sand filling with some fine to medium gravel and brick		S	0.9		12,7,6 N = 13 PID<5		
		- medium to coarse gravel at 1.5m			1.35				
	2	- concrete at 2.0-2.1m		S	1.9		7,7,10 N = 17 PID<5		
					2.35				
	2.9	Bore discontinued at 2.9m - refusal on concrete fragments							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 8.5 AHD
EASTING: 311858
NORTHING: 6243435
DIP/AZIMUTH: 90°/--

BORE No: BH223
PROJECT No: 71459.03
DATE: 4/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.0			A	0.0				Stickup
		FILLING - brown, silty gravel sand filling			0.2				0.0-0.5m: Concrete
	0.5								
		FILLING - dark grey, gravelly (fine to medium crushed glass), sand filling		S	1.0		28,40 refusal		0.5-1.5m: Bentonite
	1.5				1.3				
		FILLING - brown, clayey sand filling with some fine to coarse gravel, damp		S	2.0		4,4,4 N = 8		
					2.45				
		- moist from 3.0m		S	3.0		0,0,0 N = 0		1.0-5.8m: Gravel pack
	3.75				3.45				
		SAND - brown, fine to medium grained sand with trace clay, moist		S	4.0		1,2,5 N = 7		1.8-5.8m: Machine slotted PVC screen
					4.45				
				S	5.0		1,2,2 N = 4		
					5.45				End cap
				S	6.0		1,1,3 N = 4		
	6.45				6.45				
		Bore discontinued at 6.45m - target depth reached							

RIG: Scout 4 **DRILLER:** RKE **LOGGED:** MW **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 1.9 AHD
EASTING: 312080
NORTHING: 6243474
DIP/AZIMUTH: 90°/--

BORE No: BH224
PROJECT No: 71459.03
DATE: 14/10/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.3	FILLING - light brown, clayey sand filling with some concrete, subangular and angular igneous gravel and rootlets							Stick-up of 0.9m
	0.4								0.0-0.5m: filling
	0.7	FILLING - dark brown, sandy clay filling with trace subangular and angular gravel							
	1	FILLING - brown, silty sandy clay filling							0.5-2.3m: Sand
		SAND - light grey and orange, fine to medium sand							0.8-2.3m: Machine slotted PVC screen
	2.3	Bore discontinued at 2.3m - target depth reached							End cap

RIG: Komatsu PL 350LC **DRILLER:** Benedict Industries **LOGGED:** RJL **CASING:** Uncased

TYPE OF BORING: Excavated with 1500mm wide bucket

WATER OBSERVATIONS: Seepage at 2.3m

REMARKS: Well constructed in Test Pit

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 1.7 AHD
EASTING: 312086
NORTHING: 6243453
DIP/AZIMUTH: 90°/--

BORE No: BH225
PROJECT No: 71459.03
DATE: 14/10/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.3	FILLING - light brown, clayey sand filling with subangular and angular gravel, trace rootlets, concrete							Stickup of 0.55m
	0.4	FILLING - dark brown, sandy clay filling with trace subangular and angular igneous gravel							0.0-0.5m: filling
	0.7	FILLING - brown, silty sandy clay							
	1	SAND - light grey and orange, fine to medium sand							0.5-2.2m: Sand
									0.5-2.2m: Machine slotted PVC screen
	2.2	Bore discontinued at 2.2m - target depth reached							End cap

RIG: Komatsu PL 350LC **DRILLER:** Benedict Industries **LOGGED:** RJL **CASING:** Uncased

TYPE OF BORING: Excavated with 1500mm wide bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Well constructed in Test Pit

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: JK103a
PROJECT No: 71459.03
DATE: 7/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.1	FILLING - light brown and brown, sand filling with some fine to medium gravel, fine asphalt and medium crushed concrete		A	0.1 0.2		PID<5		0.8m: monument stickup 0.0-0.1m: Concrete plug
		FILLING - dark brown, sand filling with some crushed concrete, fine to medium gravel and medium brick fragments - light brown below 0.25m - groundwater at 0.9m		S	0.9		5,7,5 N = 12 PID<5	▼	0.1-1.0m: Bentonite plug
	1.4	FILLING - brown and light grey, sandy clay filling with some fine gravel and brick fragments, wet			1.35				
		- bolt at 2.2m - crushed sandstone fragment (3cm) at 2.3m - concrete fragment at 2.6m		S	1.9 2.35		4,7,4 N = 11 PID<5		0.0-4.9m: 50mm diameter Class 18 PVC casing
				S	2.9 3.25		6,7,8 N = 15 PID<5		1.0-6.4m: 5/2mm graded gravel/sand
	3.4	FILLING - light brown, sandy clay filling with some fine gravel, wet							
	3.7	FILLING - brown and red, silty clay filling - red, orange, brown and light grey below 4.2m - wood fragments at 4.3m		S	3.9 4.35		3,4,6 N = 10 PID<5		1.5-6.4m: 50mm diameter Class 18 Machine-Slotted PVC screen
	5.1	- red and brown below 5.0m SILTY CLAY - light grey and red, silty clay		S	4.9 5.35		4,7,12 N = 19 PID<5		
	6.2	SAND - light grey and yellow, fine to medium sand		S	5.9 6.35		11,8,16 N = 24 PID<5		End Cap
	6.4	Bore discontinued at 6.4m - target depth reached							

RIG: Scout 4 **DRILLER:** RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 0.9m

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: JK103b
PROJECT No: 71459.03
DATE: 7/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.1	FILLING - light brown and brown, sand filling with some fine to medium gravel, fine asphalt and medium crushed concrete							0.5m Stickup; 0.0-0.1m: Concrete plug; 0.1-0.7m: Bentonite plug; 0.0-1.0m: 50mm diameter Class 18 PVC casing; 0.7-2.0m: 5/2mm graded gravel/sand; 1.0-2.0m: 50mm diameter Class 18 Machine-Slotted PVC screen; End cap
		FILLING - dark brown, sand filling with some crushed concrete, fine to medium gravel and medium brick fragments							
1		- light brown below 0.25m						▼	
		- groundwater at 0.9m							
	1.4	FILLING - brown and light grey, sandy clay filling with some fine gravel and brick fragments, wet							
2	2.0	Bore discontinued at 2.0m							

RIG: Scout 4 **DRILLER:** **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 0.9m

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 7.2 AHD
EASTING: 311905
NORTHING: 6242666
DIP/AZIMUTH: 90°/--

BORE No: JK107a
PROJECT No: 71459.03
DATE: 7/9/2015
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - brown, fine to medium sand filling with some fine gravel and some crushed glass		A	0.1 0.2		PID<5		0.8m monument stickup
		FILLING - brown, fine to medium sand filling with some fine gravel		S	0.9 1.35		5,3,2 N = 5 PID<5		0.1-1.5m: Bentonite plug 0.0-1.5m: 50mm diameter Class 18 PVC casing
	1.5	FILLING - dark grey and brown, sandy clay filling with some fine gravel, crushed brick fragments and crushed glass		S*	1.9 2.35		0,2,3 N = 5 PID<5		
		- rotting wood fragments at 2.2m		S	2.9 3.35		2,8,5 N = 13 PID<5		1.5-10.4m: 50mm diameter Class 18 Machine-slotted PVC screen
		- red sandstone boulder at 4.15m		S	3.9 4.35		19,12,17 N = 29 PID<5		
	4.5	FILLING - brown and dark brown, silty sandy clay filling with some fine gravel and crushed brick fragments		S	4.9 5.35		8,5,8 N = 13 PID=5.4		
		- asphalt and crushed concrete at 5.0m							1.5-10.4m: 5/2mm graded gravel/sand
	6.0	FILLING - grey, fine to medium sand filling with a trace of clay and fine gravel		S	5.9 6.35		5,8,11 N = 19 PID<5	▼	
		- reinforcement at 6.8m		S	6.9 7.35		5,6,8 N = 14 PID<5		
	7.5	FILLING - grey, clayey silty fine to medium sand filling - saturated at 7.65m		S	7.9 8.35		13,20,18 N = 38 PID<5		
		- very slight odour at 7.95m		S	8.9 9.35		2,1,2 N = 3 PID<5		
	9.2	CLAYEY SAND - light grey, clayey sand, saturated							

RIG: Scout 4 **DRILLER:** RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 6.4m

REMARKS: *BD1-070815 taken at 1.9-2.35m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 7.2 AHD
EASTING: 311905
NORTHING: 6242666
DIP/AZIMUTH: 90°/--

BORE No: JK107a
PROJECT No: 71459.03
DATE: 7/9/2015
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
-3		CLAYEY SAND - light grey, clayey sand, saturated *(continued)*		S	10.0		No PID sample		
	10.4				10.35				End cap
		Bore discontinued at 10.4m - borehole collapse, target depth reached							
-4	11								11
-5	12								12
-6	13								13
-7	14								14
-8	15								15
-9	16								16
-10	17								17
-11	18								18
-12	19								19

RIG: Scout 4 **DRILLER:** RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 6.4m

REMARKS: *BD1-070815 taken at 1.9-2.35m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: 7.1 AHD
EASTING: 311904
NORTHING: 6243666
DIP/AZIMUTH: 90°/--

BORE No: JK107b
PROJECT No: 71459.03
DATE: 7/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	FILLING - brown, fine to medium sand filling with some fine gravel and some crushed glass							0.5m Stickup; 0.0-0.1m: Concrete plug; 0.1-0.7m: Bentonite plug; 0.0-1.0m: 50mm diameter Class 18 PVC casing; 0.7-2.0m: 5/2mm graded gravel/sand; 1.0-2.0m: 50mm diameter Class 18 Machine-Slotted PVC screen; End cap
		FILLING - brown, fine to medium sand filling with some fine gravel							
	1.5	FILLING - dark grey and brown, sandy clay filling with some fine gravel, crushed brick fragments and crushed glass							
	2.0	Bore discontinued at 2.0m target depth reached						▼	

RIG: Scout 4 **DRILLER:** RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: JK114b
PROJECT No: 71459.03
DATE: 8/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.0	FILLING - light brown, clayey sand filling with some medium to coarse gravel, brick fragments, concrete fragments and metal pieces							0.5m Stickup; 0.0-0.1m: Concrete plug; 0.1-0.7m: Bentonite plug; 0.0-1.0m: 50mm diameter Class 18 PVC casing; 0.7-2.0m: 5/2mm graded gravel/sand; 1.0-2.0m: 50mm diameter Class 18 Machine-Slotted PVC screen; End cap
	1	- dark brown below 0.8m							
	1.3	FILLING - light brown and grey, fine to medium sand filling with some clay, fine gravel and fine brick fragments							
	2.0	Bore discontinued at 2.0m - target depth reached							
	3								
	4								
	5								
	6								
	7								
	8								
	9								

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: JK118a
PROJECT No: 71459.03
DATE: 8/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILLING - light brown, fine to medium sand filling with some fine gravel and a trace of crushed glass		A	0.1 0.2		PID<5		0.8m monument stickup
		- a trace of clay at 0.2m - dark brown below 0.6m							0.1-1.3m: Bentonite plug 0.0-1.5m: 50mm diameter Class 18 PVC casing
1	0.9	FILLING - highly compacted, fine to medium sand filling with a trace of clay and fine gravel		S	0.9 1.35		33,30/50mm refusal PID<5		
2	1.8	FILLING - brown, red and light grey, silty clay filling with some fine gravel - brick and asphalt fragments at 2.0m		S	1.9 2.35		30,25,16 N = 41 PID<5		
	2.4	FILLING - brown, yellow and grey, silty clay filling with some fine gravel, asphalt and crushed brick							
3	2.9	FILLING - dark brown, silty sandy clay filling with some fine to medium gravel, asphalt and crushed brick - crushed sandstone at 3.0m to 3.2m - terracotta tile fragments at 3.34m - blue plastic, coarse brick fragments, coarse gravel, metal fragments and wood fragments at 3.9m		S	2.9 3.35		6,11,8 N = 19 PID<5		1.5-6.4m: 50mm diameter Class 18 Machine-slotted PVC screen
4	4.0	FILLING - brown, yellow and light grey, silty clay filling with some wood fragments		S	3.9 4.35		3,5,10 N = 15 PID<5		1.5-10.4m: 5/2mm graded gravel/sand
5		- blue plastic, coarse gravel, coarse brick fragments and metal fragments at 4.8m - black sandstone at 5.0m to 5.1m - wood fragments at 5.3m - dark brown with slight odour below 5.9m		S	4.9 5.35		0,0,5 N = 5 PID<5		
6	6.4	Bore discontinued at 6.4m - target depth reached		S	5.9 6.35		2,10,15 N = 25 PID<5		End cap
7									
8									
9									

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Benedict Industries Pty Ltd
PROJECT: Detailed Site Investigation
LOCATION: 146 Newbridge Road, Moorebank

SURFACE LEVEL: --
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: JK118b
PROJECT No: 71459.03
DATE: 8/9/2015
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.0	FILLING - light brown, fine to medium sand filling with some fine gravel and a trace of crushed glass							0.5m Stickup; 0.0-0.1m: Concrete plug; 0.1-0.7m: Bentonite plug; 0.0-1.0m: 50mm diameter Class 18 PVC casing; 0.7-2.0m: 5/2mm graded gravel/sand; 1.0-2.0m: 50mm diameter Class 18 Machine-Slotted PVC screen; End cap
		- a trace of clay at 0.2m							
		- dark brown below 0.6m							
	0.9	FILLING - highly compacted, fine to medium sand filling with a trace of clay and fine gravel							
	1.8	FILLING - brown, red and light grey, silty clay filling with some fine gravel							
	2.0	Bore discontinued at 2.0m							
		- target depth reached							

RIG: Scout 4 **DRILLER:** KKE/RKE **LOGGED:** CB **CASING:** Uncased

TYPE OF BORING: 110mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
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Appendix F

Calibration Certificates

Douglas Partners
Geotechnics / Environment / Groundwater

Photoionisation Detector Calibration Record

Project Name:	MOOREBANK
Project No:	

PID Unit (circle):	MiniRAE 3000 MiniRAE Lite PhotoVAC 2020 Pro Plus (MiniRAE 2000)
Lamp:	10.6 eV

Calibration Details:	
Zero Air:	Ambient
Response Factor:	1.0
Span Gas Type:	Isobutylene
Span Gas Concentration:	100 ppm ⇒ 99.1 ppm

Operator Name:	Chris Bagia	**Signed:**		**Date:**	2/9/15

ThermoFisher SCIENTIFIC

The world leader in serving science

RENTALS

Equipment Certification Report – TPS 90FLMV Water Quality Meter

This Water Quality Meter has been performance checked and calibrated as follows:

Sensor	Concentration	Span 1	Span 2	Traceability Lot #	Pass?
pH	7.00H / pH 4.00	7.00 pH	4.00 pH	/	☑
Conductivity	12.88 mS/cm	0.00 mS/cm	12.88 mS/cm		☑
TDS	36 ppk	0.0 ppk	36.0 ppk		☑
Dissolved Oxygen	Sodium Sulphite / Air	ppm in Sodium Sulphite	8.96 ppm Saturation in Air		☑

Check only

Redox (ORP) *	Electrode operability test	240mV +/- 10%	235 mV		☑

* This meter uses an Ag/AgCl ORP electrode. To convert readings to SHE (Standard Hydrogen Electrode), add 199mV to the mV reading.

☑ Battery Status 7.4 (min 7.2V)
☑ Electrical Safety Tag attached (AS/NZS 3760)

☑ Temperature 21.3 °C
☑ Electrodes Cleaned and checked

Tag No: 000252

Valid to: 10/12/2015

Date: 30/09/2015

Signed: [signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	90FLMV Unit. Ops check/Battery status: 8.0
☑	☐	pH sensor with wetting cap, 5m
☑	☐	Conductivity/TDS/Temperature K=10 sensor, 5m
☑	☐	Dissolved oxygen YSI5739 sensor with wetting cap, 5m
☑	☐	Redox (ORP) sensor with wetting cap, 5m
☑	☐	Power supply 240V to 12V DC 200mA
☑	☐	Instruction Manual
☑	☐	Quick Guide
☑	☐	Plastic container with storage solution for pH and ORP sensors
☑	☐	Carry Case
☑	☐	Check to confirm electrical safety (tag must be valid)

Date: 30/09/2015

Signed: [signature]

TFS Reference	CS003436	Return Date:	/ /
Customer Reference		Return Time:	
Equipment ID	90FLMV SR	Condition on return:	
Equipment Serial No.	T5120		

ThermoFisher SCIENTIFIC

Equipment Report – Micropurge Kit (MP10)

This system has been performance checked as follows:

Sample Pro Pump		
☑ Components Cleaned / checked	☑ Ops check	
☑ MP10 Controller	☑ Included in kit	☐ Not included in kit
☑ Components Cleaned / checked	☑ Ops check	
☑ Battery check – On/Off	☑ Flow response	

Date: 30/09/2015 Checked by: MILENKO

Signed: JM

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Received	Returned	Item
✓			MP10Control
✓			Red hose
✓			Maintenance kit (O rings, fittings, SS check ball, collett & screen if applicable)
✓			Compressor : REN-6
✓			Quick Start Guide
✓			MP10 Users Guide + Pump operating instructions
✓			Sample Pro Stainless Steel Pump ID: QSP6P-17
✓			2 Bladder
✓			Flow cell ID: EFC500SE
✓			Stainless Steel Hanger Cable 45 m
✓			TUBE CUTTER
			:

Processors Signature/ Initials MS

EE Quote Reference	CS003436	Condition on return
Customer Ref		
Equipment ID	QMP10-6	
Equipment serial no.		
Return Date	/ /	
Return Time		

Appendix G

Landfill Gas Field Sampling Sheets

Douglas Partners
Geotechnics / Environment / Groundwater

Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project
Location Moorebank

Project No. 71459.02
Reporitng Date

Time *	Well ID					
	JK106		BH7		JK101	
	6.45	6.50	7.00	7.05	7.15	7.20
	Atmospheric pressure (mb)					
Initial	1024	FLOW	1024	FLOW	1024	FLOW
	% Methane					
Initial (T=0)	0.0	0.2	**14.0**	0.0	**8.6**	0.1
30 sec	**16.1**	0.2	**8.8**	0.2	**13.8**	0.2
1.00 min	**16.1**	0.2	**8.8**	0.2	**14.0**	0.2
1.30 min	**16.1**	0.1	**8.8**	0.2	**14.0**	0.2
2.00 min	**16.1**	0.2	**8.8**	0.2	**14.0**	0.2
2.30 min	**16.1**	0.2	**8.8**	0.2	**14.0**	0.2
3.00 min	**16.1**	0.2	**8.8**	0.2	**14.0**	0.2
3.30 min	**16.0**	0.2	**8.7**	0.2	**14.0**	0.2
4.00 min	**16.0**	0.2	**8.8**	0.2	**14.0**	0.1
4.30 min	**16.0**	0.2	**8.8**	0.2	**14.0**	0.1
5.00 min	**16.0**	0.2	**8.8**	0.2	**14.0**	0.1
	% Carbon-di-oxide					
Initial (T=0)	0.1		3.0		7.2	
30 sec	4.2		9.6		7.7	
1.00 min	4.2		9.6		7.7	
1.30 min	4.2		9.6		7.7	
2.00 min	4.2		9.6		7.7	
2.30 min	4.2		9.6		7.7	
3.00 min	4.2		9.6		7.7	
3.30 min	4.2		9.6		7.7	
4.00 min	4.2		9.6		7.6	
4.30 min	4.2		9.6		7.6	
5.00 min	4.2		9.6		7.6	
	% Oxygen					
Initial (T=0)	21.2		1.5		1.1	
30 sec	2.3		0.6		0.7	
1.00 min	0.5		0.6		0.7	
1.30 min	0.5		0.6		0.7	
2.00 min	0.5		0.6		0.7	
2.30 min	0.5		0.6		0.8	
3.00 min	0.5		0.6		0.8	
3.30 min	0.4		0.6		0.8	
4.00 min	0.4		0.6		0.8	
4.30 min	0.4		0.6		0.8	
5.00 min	0.4		0.6		0.8	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		1.0	
1.00 min	0.0		0.0		1.0	
1.30 min	0.0		0.0		1.0	
2.00 min	0.0		0.0		1.0	
2.30 min	0.0		0.0		1.0	
3.00 min	0.0		0.0		1.0	
3.30 min	0.0		0.0		1.0	
4.00 min	0.0		0.0		1.0	
4.30 min	0.0		0.0		1.0	
5.00 min	0.0		0.0		1.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	2.0		2.0		0.0	
30 sec	2.0		2.0		1.0	
1.00 min	2.0		2.0		1.0	
1.30 min	2.0		2.0		1.0	
2.00 min	2.0		2.0		0.0	
2.30 min	2.0		2.0		0.0	
3.00 min	2.0		1.0		0.0	
3.30 min	2.0		1.0		1.0	
4.00 min	2.0		1.0		0.0	
4.30 min	2.0		1.0		0.0	
5.00 min	2.0		1.0		0.0	
	Balance (%)					
Initial (T=0)	60.5		80.2		80.5	
30 sec	78.7		81.1		77.6	
1.00 min	79.2		81.1		77.6	
1.30 min	79.3		81.1		77.6	
2.00 min	79.3		81.1		77.6	
2.30 min	79.3		81.1		77.6	
3.00 min	79.4		81.1		77.6	
3.30 min	79.4		81.1		77.6	
4.00 min	79.4		81.1		77.6	
4.30 min	79.4		81.1		77.6	
5.00 min	79.4		81.1		77.6	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project
Location Moorebank

Project No. 71459.02
Reporitng Date
Page No. 2 of 5

Time *	Well ID					
	JK102		JK119		JK103	
	7.30	7.35	7.45	7.50	8.00	8.05
			Atmospheric pressure (mb)			
Initial	1024	FLOW	1024	FLOW	1024	FLOW
			% Methane			
Initial (T=0)	**13.2**	0.0	**10.5**	-0.1	0.8	0.0
30 sec	**11.0**	0.1	**8.8**	0.6	0.7	-0.1
1.00 min	**11.0**	0.1	**1.6**	0.8	0.6	0.0
1.30 min	**11.0**	0.1	0.2	0.9	0.6	0.0
2.00 min	**11.0**	0.1	0.0	0.8	0.6	0.1
2.30 min	**11.0**	0.1	0.0	0.9	0.5	0.1
3.00 min	**11.0**	0.1	0.0	0.9	0.5	0.0
3.30 min	**11.0**	0.0	0.0	0.8	0.5	0.0
4.00 min	**11.0**	0.1	0.0	0.9	0.4	0.0
4.30 min	**11.0**	0.1	0.0	0.9	0.4	-0.1
5.00 min	**11.0**	0.1	0.0	0.9	0.4	-0.1
			% Carbon-di-oxide			
Initial (T=0)	6.6		6.7		1.9	
30 sec	7.8		2.4		1.5	
1.00 min	7.8		0.7		1.3	
1.30 min	7.8		0.2		1.3	
2.00 min	7.8		0.1		1.2	
2.30 min	7.8		0.1		1.1	
3.00 min	7.8		0.1		1.0	
3.30 min	7.8		0.1		1.0	
4.00 min	7.8		0.1		1.0	
4.30 min	7.8		0.1		0.9	
5.00 min	7.8		0.1		0.9	
			% Oxygen			
Initial (T=0)	1.3		1.1		21.0	
30 sec	0.4		16.9		14.4	
1.00 min	0.4		20.5		14.7	
1.30 min	0.4		21.5		15.1	
2.00 min	0.4		21.7		15.4	
2.30 min	0.4		21.8		15.8	
3.00 min	0.4		21.8		16.3	
3.30 min	0.4		21.8		16.4	
4.00 min	0.4		21.9		16.8	
4.30 min	0.4		21.9		17.0	
5.00 min	0.5		21.9		17.3	
			Hydrogen sulphide (ppm)			
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
			Carbon-monoxide (ppm)			
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
			Balance (%)			
	80.0		75.4		77.4	
30 sec	80.8		76.3		83.5	
1.00 min	80.8		78.0		83.3	
1.30 min	80.8		78.3		83.1	
2.00 min	80.8		78.2		82.8	
2.30 min	80.8		78.1		82.5	
3.00 min	80.8		78.1		82.1	
3.30 min	80.8		78.1		82.0	
4.00 min	80.8		78.1		81.8	
4.30 min	80.8		78.0		81.6	
5.00 min	80.8		78.0		81.4	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project
Location Moorebank

Project No. 71459.02
Reporitng Date

Time *	Well ID					
	JK104		JK113		JK115	
	8.15	8.20	8.30	8.35	8.55	9.00
	Atmospheric pressure (mb)					
Initial	1024	FLOW	1024	FLOW	1024	FLOW
	% Methane					
Initial (T=0)	0.5	0.0	0.0	0.1	**8.6**	0.1
30 sec	0.0	0.0	**9.8**	0.1	0.0	0.1
1.00 min	0.0	0.0	**9.8**	0.1	0.0	0.2
1.30 min	0.0	0.1	**9.8**	0.1	0.0	0.1
2.00 min	0.0	0.0	**9.8**	0.1	0.0	0.1
2.30 min	0.0	0.0	**9.9**	0.1	0.0	0.1
3.00 min	0.0	0.0	**9.9**	0.0	0.0	0.1
3.30 min	0.0	0.0	**9.9**	0.0	0.0	0.1
4.00 min	0.0	0.0	**9.9**	0.0	0.0	0.1
4.30 min	0.0	0.0	**9.9**	0.1	0.0	0.1
5.00 min	0.0	0.0	**9.9**	0.1	0.0	0.1
	% Carbon-di-oxide					
Initial (T=0)	1.7		15.5		11.1	
30 sec	3.1		15.8		9.3	
1.00 min	3.0		15.8		9.4	
1.30 min	2.7		15.8		9.5	
2.00 min	2.2		15.8		9.5	
2.30 min	2.1		15.9		9.5	
3.00 min	1.9		15.9		9.4	
3.30 min	1.8		15.9		9.4	
4.00 min	1.5		15.9		9.4	
4.30 min	1.2		15.9		9.4	
5.00 min	1.0		15.9		9.4	
	% Oxygen					
Initial (T=0)	17.2		16.3		2.2	
30 sec	10.1		1.0		7.8	
1.00 min	10.1		0.9		7.6	
1.30 min	10.9		0.9		7.6	
2.00 min	12.6		0.9		7.6	
2.30 min	13.0		0.8		7.6	
3.00 min	13.7		0.7		7.6	
3.30 min	14.4		0.7		7.7	
4.00 min	15.6		0.7		7.7	
4.30 min	16.9		0.7		7.7	
5.00 min	17.6		0.7		7.7	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		1.0		0.0	
1.00 min	0.0		1.0		0.0	
1.30 min	0.0		1.0		0.0	
2.00 min	0.0		1.0		0.0	
2.30 min	0.0		2.0		0.0	
3.00 min	0.0		2.0		0.0	
3.30 min	0.0		2.0		0.0	
4.00 min	0.0		2.0		0.0	
4.30 min	0.0		2.0		0.0	
5.00 min	0.0		2.0		0.0	
Initial (T=0)	80.8		64.1		85.7	
30 sec	86.9		73.4		82.9	
1.00 min	86.8		73.5		82.9	
1.30 min	86.3		73.5		82.9	
2.00 min	85.0		73.5		82.9	
2.30 min	84.7		73.5		82.9	
3.00 min	84.2		73.5		82.9	
3.30 min	83.7		73.5		82.9	
4.00 min	82.8		73.5		82.9	
4.30 min	81.7		73.5		82.9	
5.00 min	81.3		73.5		82.9	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project
Location Moorebank

Project No. 71459.02
Reporitng Date
Page No. 4 of 5

Time *	Well ID					
	JK114		BH16		JK110	
	9.10	9.15	9.25	9.30	9.40	9.45
	Atmospheric pressure (mb)					
Initial	1024	FLOW	1024	FLOW	1024	FLOW
	% Methane					
Initial (T=0)	0.5	0.1	**22.0**	0.1	0.8	0.2
30 sec	**24.6**	0.2	0.0	0.2	**23.1**	0.2
1.00 min	**24.6**	0.2	0.0	0.2	**23.2**	0.4
1.30 min	**24.6**	0.2	0.0	0.1	**23.2**	0.4
2.00 min	**24.6**	0.2	0.0	0.1	**23.2**	0.3
2.30 min	**24.6**	0.2	0.0	0.1	**23.2**	0.3
3.00 min	**24.5**	0.2	0.0	0.1	**23.2**	0.3
3.30 min	**24.5**	0.2	0.0	0.0	**23.2**	0.3
4.00 min	**24.5**	0.2	0.0	0.0	**23.1**	0.3
4.30 min	**24.5**	0.1	0.0	0.0	**23.1**	0.3
5.00 min	**24.5**	0.2	0.0	-0.1	**23.1**	0.3
	% Carbon-di-oxide					
Initial (T=0)	8.0		6.7		2.9	
30 sec	6.2		6.7		6.3	
1.00 min	6.2		0.5		6.3	
1.30 min	6.2		0.4		6.3	
2.00 min	6.2		2.7		6.3	
2.30 min	6.1		0.9		6.3	
3.00 min	6.1		0.7		6.3	
3.30 min	6.1		0.7		6.3	
4.00 min	6.1		0.6		6.3	
4.30 min	6.2		0.7		6.3	
5.00 min	6.1		0.6		6.3	
	% Oxygen					
Initial (T=0)	8.0		0.9		6.6	
30 sec	0.1		19.6		0.5	
1.00 min	0.1		20.9		0.4	
1.30 min	0.1		21.0		0.3	
2.00 min	0.1		19.3		0.4	
2.30 min	0.1		20.5		0.3	
3.00 min	0.1		20.8		0.2	
3.30 min	0.1		20.8		0.3	
4.00 min	0.1		20.9		0.3	
4.30 min	0.1		20.8		0.3	
5.00 min	0.1		20.9		0.2	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Balance (%)					
Initial (T=0)	61.8		91.7		59.4	
30 sec	69.1		79.0		70.0	
1.00 min	69.2		78.6		70.1	
1.30 min	69.2		78.5		70.2	
2.00 min	69.2		78.9		70.2	
2.30 min	69.2		78.5		70.2	
3.00 min	69.2		78.5		70.2	
3.30 min	69.2		78.5		70.4	
4.00 min	69.2		78.5		70.3	
4.30 min	69.2		78.5		70.3	
5.00 min	69.2		78.5		70.3	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project
Location Moorebank

Project No. 71459.02
Reporitng Date

Time *	Well ID					
	BH9		BH1			
	9.55	10.00	10.20	10.25		
	Atmospheric pressure (mb)					
Initial	1024	FLOW	1024	FLOW		
	% Methane					
Initial (T=0)	**20.9**	0.2	1.3	0.1		
30 sec	**5.2**	0.3	0.0	0.2		
1.00 min	**2.7**	0.3	0.0	0.1		
1.30 min	**2.2**	0.3	0.0	0.1		
2.00 min	**2.1**	0.2	0.0	0.1		
2.30 min	**2.2**	0.2	0.0	0.1		
3.00 min	1.3	0.2	0.0	0.0		
3.30 min	1.4	0.2	0.0	0.1		
4.00 min	0.8	0.2	0.0	0.1		
4.30 min	0.8	0.2	0.0	0.1		
5.00 min	0.9	0.3	0.0	0.0		
	% Carbon-di-oxide					
Initial (T=0)	6.1		1.7			
30 sec	3.2		0.3			
1.00 min	2.6		0.2			
1.30 min	2.3		0.2			
2.00 min	1.8		0.1			
2.30 min	2.2		0.1			
3.00 min	1.2		0.2			
3.30 min	1.4		0.1			
4.00 min	0.8		0.1			
4.30 min	0.9		0.1			
5.00 min	0.9		0.1			
	% Oxygen					
Initial (T=0)	1.5		19.7			
30 sec	16.0		20.4			
1.00 min	17.1		20.8			
1.30 min	17.6		20.9			
2.00 min	17.9		20.9			
2.30 min	17.5		20.9			
3.00 min	18.7		20.8			
3.30 min	18.6		20.9			
4.00 min	19.3		21.0			
4.30 min	19.4		21.1			
5.00 min	19.3		21.0			
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0			
30 sec	0.0		0.0			
1.00 min	0.0		0.0			
1.30 min	0.0		0.0			
2.00 min	0.0		0.0			
2.30 min	0.0		0.0			
3.00 min	0.0		0.0			
3.30 min	0.0		0.0			
4.00 min	0.0		0.0			
4.30 min	0.0		0.0			
5.00 min	0.0		0.0			
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		0.0			
30 sec	0.0		0.0			
1.00 min	0.0		0.0			
1.30 min	0.0		0.0			
2.00 min	0.0		0.0			
2.30 min	0.0		0.0			
3.00 min	0.0		0.0			
3.30 min	0.0		0.0			
4.00 min	0.0		0.0			
4.30 min	0.0		0.0			
5.00 min	0.0		0.0			
	Balance (%)					
Initial (T=0)	7.5		79.6			
30 sec	78.0		79.1			
1.00 min	78.1		79.0			
1.30 min	77.8		79.0			
2.00 min	78.6		79.0			
2.30 min	78.2		79.0			
3.00 min	78.9		79.0			
3.30 min	78.8		79.0			
4.00 min	79.1		78.9			
4.30 min	78.9		78.8			
5.00 min	79.1		78.9			

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

Project No. 71459.03
Reporting Date

Time *	Well ID					
	BH1		BH202		JK101	
	6.20		6.40		7.00	
	Atmospheric pressure (mb)					
Initial	1023	FLOW	1023	FLOW	1025	FLOW
	% Methane					
Initial (T=0)	0.0	0.0	0.0	0.0	0.0	0.0
30 sec	0.0	0.1	1.1	0.1	**14.2**	0.2
1.00 min	0.0	0.1	1.1	0.1	**14.0**	0.2
1.30 min	0.0	0.1	1.1	0.2	**14.0**	0.3
2.00 min	0.0	0.1	1.1	0.2	**14.0**	0.2
2.30 min	0.0	0.2	1.1	0.2	**14.0**	0.2
3.00 min	0.0	0.2	1.1	0.3	**14.5**	0.3
3.30 min	0.0	0.2	1.1	0.2	**14.2**	0.2
4.00 min	0.0	0.2	1.1	0.2	**14.2**	0.1
4.30 min	0.0	0.2	1.1	0.2	**14.3**	0.2
5.00 min	0.0	0.2	1.1	0.2	**14.1**	0.2
	% Carbon-di-oxide					
Initial (T=0)	3.5		0.1		0.1	
30 sec	2.3		11.9		7.2	
1.00 min	1.2		12.2		7.2	
1.30 min	1.5		12.2		7.3	
2.00 min	1.9		12.4		7.1	
2.30 min	1.9		12.2		7.2	
3.00 min	2.0		12.3		7.4	
3.30 min	2.0		12.4		7.3	
4.00 min	2.0		12.3		7.3	
4.30 min	2.0		12.4		7.3	
5.00 min	1.8		12.4		7.3	
	% Oxygen					
Initial (T=0)	20.3		21.5		21.0	
30 sec	19.7		2.0		1.3	
1.00 min	20.2		0.9		1.2	
1.30 min	20.2		0.9		1.0	
2.00 min	20.0		0.7		1.1	
2.30 min	20.0		0.9		1.1	
3.00 min	20.1		0.9		0.4	
3.30 min	20.0		0.7		0.8	
4.00 min	20.0		0.8		0.7	
4.30 min	20.0		0.7		0.6	
5.00 min	20.2		0.6		0.8	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		1.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	18.0		2.0		0.0	
30 sec	12.0		9.0		3.0	
1.00 min	8.0		14.0		5.0	
1.30 min	6.0		16.0		7.0	
2.00 min	5.0		16.0		8.0	
2.30 min	4.0		17.0		9.0	
3.00 min	3.0		18.0		10.0	
3.30 min	2.0		19.0		10.0	
4.00 min	2.0		19.0		10.0	
4.30 min	1.0		19.0		11.0	
5.00 min	1.0		19.0		11.0	
	Balance (%)					
Initial (T=0)	78.0		67.8		56.6	
30 sec	78.0		85.4		77.7	
1.00 min	78.3		85.8		77.7	
1.30 min	78.2		85.7		77.6	
2.00 min	78.2		86.0		77.7	
2.30 min	78.1		85.7		77.5	
3.00 min	78.1		85.8		77.8	
3.30 min	78.0		85.9		77.8	
4.00 min	78.1		85.8		77.8	
4.30 min	77.9		85.9		77.9	
5.00 min	78.1		85.9		77.9	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

Project No. 71459.03
Reporting Date
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Time *	Well ID					
	JK7		JK106		JK119	
	7.20		7.35		7.55	
	Atmospheric pressure (mb)					
Initial	1025	FLOW	1025	FLOW	1026	FLOW
	% Methane					
Initial (T=0)	0.1	0.1	**5.7**	0.1	0.0	0.0
30 sec	2.2	0.2	**12.6**	0.4	**11.9**	0.4
1.00 min	**2.7**	0.2	**13.2**	0.4	**3.0**	0.6
1.30 min	**3.1**	0.2	**12.9**	0.3	1.4	0.7
2.00 min	**3.3**	0.1	**13.2**	0.3	0.9	0.7
2.30 min	**3.3**	0.2	**13.2**	0.3	0.9	0.7
3.00 min	**3.5**	0.2	**13.2**	0.4	0.8	0.7
3.30 min	**3.5**	0.0	**13.2**	0.3	0.6	0.6
4.00 min	**3.7**	0.1	**12.9**	0.3	0.5	0.7
4.30 min	**3.9**	0.0	**12.7**	0.4	0.3	0.7
5.00 min	**4.1**	0.0	**13.0**	0.4	0.3	0.7
	% Carbon-di-oxide					
Initial (T=0)	0.2		4.5		0.2	
30 sec	4.1		3.7		3.1	
1.00 min	4.8		3.6		1.2	
1.30 min	5.5		3.5		0.6	
2.00 min	5.8		3.6		0.4	
2.30 min	5.9		3.6		0.5	
3.00 min	6.0		3.6		0.4	
3.30 min	6.1		3.6		0.3	
4.00 min	6.5		3.5		0.3	
4.30 min	6.7		3.5		0.2	
5.00 min	7.0		3.5		0.2	
	% Oxygen					
Initial (T=0)	21.4		4.0		20.3	
30 sec	12.3		0.6		16.5	
1.00 min	11.0		0.6		19.8	
1.30 min	9.4		0.9		20.6	
2.00 min	8.8		0.5		20.9	
2.30 min	8.7		0.7		20.9	
3.00 min	8.1		0.6		21.0	
3.30 min	8.0		0.6		21.1	
4.00 min	6.6		1.0		21.2	
4.30 min	6.0		1.3		21.2	
5.00 min	5.5		0.9		21.2	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		1.0		0.0	
4.30 min	0.0		1.0		0.0	
5.00 min	0.0		1.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		3.0		0.0	
30 sec	0.0		4.0		0.0	
1.00 min	0.0		5.0		0.0	
1.30 min	0.0		5.0		0.0	
2.00 min	0.0		6.0		0.0	
2.30 min	0.0		6.0		0.0	
3.00 min	0.0		6.0		0.0	
3.30 min	0.0		6.0		0.0	
4.00 min	0.0		6.0		0.0	
4.30 min	0.0		6.0		0.0	
5.00 min	1.0		6.0		0.0	
	Balance (%)					
Initial (T=0)	74.8		83.1		49.9	
30 sec	81.2		82.9		73.376.7	
1.00 min	81.5		82.8		77.6	
1.30 min	82.0		82.6		77.7	
2.00 min	82.1		82.6		77.9	
2.30 min	82.0		82.6		77.9	
3.00 min	82.4		82.7		78.0	
3.30 min	82.3		82.7		78.2	
4.00 min	83.1		82.6		78.3	
4.30 min	83.3		82.4		78.3	
5.00 min	83.4		82.5		78.2	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

Project No. 71459.03
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Time *	Well ID					
	JK103a		JK103b		JK104	
	8.15		8.25		8.55	
	Atmospheric pressure (mb)					
Initial	1027	FLOW	1027	FLOW	1028	FLOW
	% Methane					
Initial (T=0)	0.0	0.0	0.0	0.0	0.0	0.0
30 sec	0.7	0.5	1.4	0.2	0.0	0.1
1.00 min	0.0	0.6	0.8	0.2	0.0	0.1
1.30 min	0.0	0.6	0.8	0.2	0.0	0.2
2.00 min	0.0	0.6	0.7	0.2	0.0	0.1
2.30 min	0.0	0.6	0.6	0.3	0.0	0.1
3.00 min	0.0	0.7	0.7	0.2	0.0	0.1
3.30 min	0.0	0.6	0.7	0.3	0.0	0.1
4.00 min	0.0	0.7	0.7	0.3	0.0	0.0
4.30 min	0.0	0.6	0.7	0.2	0.0	0.0
5.00 min	0.0	0.6	0.7	0.2	0.0	0.0
	% Carbon-di-oxide					
Initial (T=0)	0.2		1.2		0.1	
30 sec	3.1		0.6		4.0	
1.00 min	0.7		0.4		4.0	
1.30 min	0.3		0.4		.3.8	
2.00 min	0.2		0.3		2.7	
2.30 min	0.2		0.3		2.4	
3.00 min	0.1		0.3		2.1	
3.30 min	0.1		0.3		1.7	
4.00 min	0.1		0.3		1.6	
4.30 min	0.1		0.3		1.4	
5.00 min	0.2		0.3		1.3	
	% Oxygen					
Initial (T=0)	21.2		21.1		21.7	
30 sec	18.2		20.5		14.2	
1.00 min	20.5		20.7		13.7	
1.30 min	21.1		20.7		13.9	
2.00 min	21.1		20.8		16.1	
2.30 min	21.2		20.9		16.7	
3.00 min	21.2		20.8		17.3	
3.30 min	21.2		20.9		18.3	
4.00 min	21.3		20.9		18.5	
4.30 min	21.3		20.9		18.3	
5.00 min	21.2		20.9		19.0	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Balance (%)					
Initial (T=0)	78.5		75.9		74.6	
30 sec	78.5		78.2		82.0	
1.00 min	78.8		78.2		82.3	
1.30 min	78.7		78.2		82.0	
2.00 min	78.7		78.2		81.1	
2.30 min	78.7		78.1		80.8	
3.00 min	78.6		78.1		80.4	
3.30 min	78.6		78.1		80.0	
4.00 min	78.6		78.1		79.9	
4.30 min	78.6		78.1		79.8	
5.00 min	78.6		78.1		79.6	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

Project No. 71459.03
Reporting Date

Time *	Well ID					
	BH211		BH211a		JK9	
	9.20		9.30		9.45	
	Atmospheric pressure (mb)					
Initial	1029		1029		1029	
	% Methane					
Initial (T=0)	0.0	0.0	0.0		0.0	0.0
30 sec	0.0	0.3	0.0		0.0	0.1
1.00 min	0.0	0.3	0.0		0.0	0.1
1.30 min	0.0	0.3	0.0		0.0	0.1
2.00 min	0.0	0.3	0.0		0.0	0.1
2.30 min	0.0	0.3	0.0		0.0	0.1
3.00 min	0.0	0.3	0.0		0.0	0.1
3.30 min	0.0	0.2	0.0		0.0	0.1
4.00 min	0.0	0.2	0.0		0.0	0.1
4.30 min	0.0	0.3	0.0		0.0	0.1
5.00 min	0.0	0.2	0.0		0.0	0.0
	% Carbon-di-oxide					
Initial (T=0)	0.1		1.1		2.9	
30 sec	1.5		3.6		0.0	
1.00 min	1.4		3.6		0.0	
1.30 min	1.4		3.6		0.0	
2.00 min	1.4		3.6		0.0	
2.30 min	1.4		3.6		0.0	
3.00 min	1.4		3.6		0.0	
3.30 min	1.0		3.6		0.0	
4.00 min	1.3		3.6		0.0	
4.30 min	1.3		3.7		0.0	
5.00 min	1.2		3.7		0.0	
	%Oxygen					
Initial (T=0)	21.5		20.6		18.8	
30 sec	20.7		18.8		21.1	
1.00 min	20.7		18.8		21.3	
1.30 min	20.7		18.8		21.3	
2.00 min	20.7		18.8		21.3	
2.30 min	20.7		18.8		21.3	
3.00 min	20.7		18.8		21.3	
3.30 min	20.7		18.8		21.3	
4.00 min	20.8		18.8		21.3	
4.30 min	20.8		18.8		21.3	
5.00 min	20.8		18.8		21.3	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	1.0		0.0		0.0	
1.00 min	1.0		0.0		0.0	
1.30 min	2.0		0.0		0.0	
2.00 min	2.0		0.0		0.0	
2.30 min	2.0		0.0		0.0	
3.00 min	2.0		0.0		0.0	
3.30 min	2.0		0.0		0.0	
4.00 min	2.0		0.0		0.0	
4.30 min	2.0		0.0		0.0	
5.00 min	2.0		0.0		0.0	
	Balance (%)					
Initial (T=0)	77.1		76.3		80.8	
30 sec	77.8		77.6		78.8	
1.00 min	77.8		77.6		78.7	
1.30 min	77.9		77.6		78.7	
2.00 min	77.9		77.6		78.7	
2.30 min	77.9		77.6		78.7	
3.00 min	77.9		77.6		78.6	
3.30 min	78.0		77.5		78.6	
4.00 min	78.0		77.6		78.6	
4.30 min	78.0		77.6		78.6	
5.00 min	78.0		77.5		78.6	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
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Location Moorebank

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Time *	Well ID					
	JKJ113		JK102		JK107b	
	10.10		10.30		10.50	
	Atmospheric pressure (mb)					
Initial	1030	FLOW	1030	FLOW	1030	FLOW
	% Methane					
Initial (T=0)	0.0	0.1	0.0	0.0	**10.2**	0.0
30 sec	**4.4**	0.2	**11.7**	0.2	**8.6**	0.2
1.00 min	**4.8**	0.3	**11.9**	0.2	**8.5**	0.1
1.30 min	**5.2**	0.3	**11.7**	0.2	**8.3**	0.1
2.00 min	**5.4**	0.3	**11.9**	0.2	**7.8**	0.1
2.30 min	**5.7**	0.3	**11.9**	0.3	**7.6**	0.1
3.00 min	**5.6**	0.2	**11.9**	0.3	**7.3**	0.0
3.30 min	**5.8**	0.3	**12.0**	0.3	**6.7**	0.0
4.00 min	**5.9**	0.3	**11.9**	0.2	**5.5**	0.0
4.30 min	**6.0**	0.4	**11.7**	0.3	**4.3**	-0.1
5.00 min	**6.0**	0.3	**11.8**	0.2	**3.1**	0.0
	% Carbon-di-oxide					
Initial (T=0)	0.1		0.2		5.6	
30 sec	11.8		6.3		0.2	
1.00 min	12.7		6.4		0.2	
1.30 min	13.7		6.3		0.2	
2.00 min	13.9		6.4		0.2	
2.30 min	14.3		6.4		0.2	
3.00 min	14.0		6.4		0.2	
3.30 min	14.4		6.4		0.2	
4.00 min	14.5		6.4		0.2	
4.30 min	14.4		6.3		0.2	
5.00 min	14.4		6.3		0.2	
	% Oxygen					
Initial (T=0)	21.5		21.2		2.1	
30 sec	3.4		1.0		3.2	
1.00 min	2.6		0.1		3.4	
1.30 min	1.7		0.7		3.4	
2.00 min	1.5		0.3		4.6	
2.30 min	1.1		0.2		4.9	
3.00 min	1.5		0.3		5.5	
3.30 min	1.0		0.3		6.7	
4.00 min	0.8		0.4		9.4	
4.30 min	0.9		0.6		11.8	
5.00 min	0.9		0.5		14.0	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		0.0		2.0	
30 sec	8.0		0.0		4.0	
1.00 min	11.0		1.0		4.0	
1.30 min	13.0		1.0		4.0	
2.00 min	14.0		2.0		3.0	
2.30 min	15.0		2.0		3.0	
3.00 min	16.0		3.0		3.0	
3.30 min	16.0		3.0		3.0	
4.00 min	17.0		3.0		2.0	
4.30 min	17.0		3.0		1.0	
5.00 min	17.0		3.0		0.0	
	Balance (%)					
Initial (T=0)	65.4		64.5		88.2	
30 sec	80.1		81.1		88.0	
1.00 min	79.6		81.4		87.9	
1.30 min	79.2		81.2		87.6	
2.00 min	79.0		81.6		87.5	
2.30 min	79.0		81.5		87.3	
3.00 min	79.0		81.4		87.1	
3.30 min	78.8		81.5		85.8	
4.00 min	78.7		81.3		85.0	
4.30 min	78.7		81.4		83.9	
5.00 min	78.7		81.2		82.7	

Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

Project No. 71459.03
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Time *	Well ID					
	JK107a		MW216		JK110	
	11.00		11.20		11.40	
	Atmospheric pressure (mb)					
Initial	1030	FLOW	1030	FLOW	1031	FLOW
	% Methane					
Initial (T=0)	**3.0**	0.0	0.3	0.0	0.2	0.1
30 sec	0.0	0.2	**15.8**	0.2	**18.8**	0.3
1.00 min	0.0	0.3	**15.8**	0.2	**18.8**	0.4
1.30 min	0.0	0.3	**15.9**	0.2	**19.0**	0.4
2.00 min	0.0	0.4	**15.9**	0.2	**19.0**	0.4
2.30 min	0.0	0.3	**15.8**	0.2	**19.0**	0.5
3.00 min	0.0	0.3	**15.9**	0.2	**19.0**	0.4
3.30 min	0.0	0.3	**16.0**	0.2	**19.0**	0.4
4.00 min	0.0	0.3	**16.0**	0.2	**19.0**	0.4
4.30 min	0.0	0.3	**15.8**	0.2	**19.0**	0.5
5.00 min	0.0	0.4	**16.0**	0.2	**19.0**	0.4
	% Carbon-di-oxide					
Initial (T=0)	0.0		1.8		6.2	
30 sec	0.0		6.2		6.3	
1.00 min	0.0		6.1		6.3	
1.30 min	0.0		6.2		6.3	
2.00 min	0.0		6.2		6.3	
2.30 min	0.0		6.2		6.3	
3.00 min	0.0		6.2		6.3	
3.30 min	0.0		6.2		6.3	
4.00 min	0.1		6.2		6.3	
4.30 min	0.2		6.2		6.3	
5.00 min	0.2		6.3		6.3	
	% Oxygen					
Initial (T=0)	14.7		19.2		21.2	
30 sec	21.5		0.7		0.8	
1.00 min	21.5		0.6		0.4	
1.30 min	21.6		0.4		0.2	
2.00 min	21.6		0.4		0.2	
2.30 min	21.6		0.5		0.2	
3.00 min	21.6		0.3		0.2	
3.30 min	21.6		0.2		0.2	
4.00 min	21.5		0.2		0.2	
4.30 min	21.3		0.4		0.2	
5.00 min	21.2		0.1		0.1	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		1.0		0.0	
30 sec	0.0		2.0		0.0	
1.00 min	0.0		2.0		0.0	
1.30 min	0.0		3.0		0.0	
2.00 min	0.0		3.0		1.0	
2.30 min	0.0		4.0		1.0	
3.00 min	0.0		4.0		1.0	
3.30 min	0.0		4.0		2.0	
4.00 min	1.0		5.0		2.0	
4.30 min	3.0		5.0		2.0	
5.00 min	5.0		5.0		2.0	
	Balance (%)					
Initial (T=0)	82.3		65.0		62.2	
30 sec	78.5		77.4		74.4	
1.00 min	78.4		77.5		74.4	
1.30 min	78.4		77.5		74.6	
2.00 min	78.4		77.6		74.5	
2.30 min	78.4		77.5		74.5	
3.00 min	78.4		77.5		74.6	
3.30 min	78.4		77.7		74.5	
4.00 min	78.4		77.6		74.6	
4.30 min	78.5		77.5		74.5	
5.00 min	78.6		77.6		74.5	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

Project No. 71459.03
Reporting Date

Time *	Well ID					
	JK118A		JK118B		MW218	
	11.55		12.05		12.20	
	Atmospheric pressure (mb)					
Initial	1031	FLOW	1031	FLOW	1031	FLOW
	% Methane					
Initial (T=0)	**17.3**	0.1	**12.9**	0.2	0.6	0.1
30 sec	**13.2**	0.2	0.0	0.2	**24.2**	0.1
1.00 min	**13.1**	0.2	0.0	0.2	**24.2**	0.2
1.30 min	**13.2**	0.2	0.0	0.2	**23.5**	0.1
2.00 min	**13.1**	0.3	0.0	0.2	**22.5**	0.2
2.30 min	**13.1**	0.2	0.0	0.2	**21.3**	0.2
3.00 min	**13.2**	0.2	0.0	0.2	**20.2**	0.2
3.30 min	**13.2**	0.2	0.0	0.1	**18.6**	0.2
4.00 min	**13.2**	0.2	0.0	0.1	**16.6**	0.2
4.30 min	**13.2**	0.3	0.0	0.1	**15.1**	0.2
5.00 min	**13.2**	0.2	0.0	0.1	**13.3**	0.2
	% Carbon-di-oxide					
Initial (T=0)	5.7		4.5		1.9	
30 sec	4.6		1.4		10.2	
1.00 min	4.7		1.4		10.1	
1.30 min	4.7		1.4		9.9	
2.00 min	4.7		1.4		9.6	
2.30 min	4.7		1.4		9.3	
3.00 min	4.7		1.4		9.0	
3.30 min	4.7		1.4		8.5	
4.00 min	4.7		1.4		7.9	
4.30 min	4.7		1.4		7.3	
5.00 min	4.7		1.4		6.7	
	% Oxygen					
Initial (T=0)	1.2		0.4		2.8	
30 sec	0.4		1.6		8.6	
1.00 min	0.1		1.7		8.7	
1.30 min	0.2		1.7		8.9	
2.00 min	0.2		1.6		9.2	
2.30 min	0.3		1.6		9.6	
3.00 min	0.1		1.8		9.9	
3.30 min	0.1		1.8		10.2	
4.00 min	0.1		1.9		10.9	
4.30 min	0.1		2.0		11.5	
5.00 min	0.1		2.1		12.3	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	1.0		0.0		0.0	
1.00 min	1.0		0.0		0.0	
1.30 min	1.0		0.0		0.0	
2.00 min	1.0		0.0		0.0	
2.30 min	1.0		0.0		0.0	
3.00 min	1.0		0.0		0.0	
3.30 min	1.0		0.0		0.0	
4.00 min	1.0		0.0		0.0	
4.30 min	1.0		0.0		0.0	
5.00 min	1.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	1.0				0.0	
30 sec	2.0		0.0		3.0	
1.00 min	3.0		0.0		4.0	
1.30 min	3.0		0.0		4.0	
2.00 min	3.0		0.0		5.0	
2.30 min	3.0		0.0		5.0	
3.00 min	3.0		0.0		4.0	
3.30 min	3.0		0.0		5.0	
4.00 min	3.0		0.0		5.0	
4.30 min	3.0		0.0		5.0	
5.00 min	3.0		0.0		5.0	
	Balance (%)					
Initial (T=0)	79.5		97.2		61.1	
30 sec	82.0		96.9		56.9	
1.00 min	82.0		96.9		57.2	
1.30 min	82.0		96.9		58.0	
2.00 min	82.0		97.0		59.0	
2.30 min	82.0		96.8		60.3	
3.00 min	82.0		96.8		61.5	
3.30 min	82.1		96.8		63.3	
4.00 min	82.1		96.7		65.4	
4.30 min	82.1		96.6		67.0	
5.00 min	82.0		96.4		68.2	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

Project No. 71459.03
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Time *	Well ID					
	JK115		JK114		JK114a	
	12.50		13.10		13.25	
	Atmospheric pressure (mb)					
Initial	1031	FLOW	1032	FLOW	1032	FLOW
	% Methane					
Initial (T=0)	0.6	0.1	0.0	0.0	**20.2**	0.1
30 sec	0.0	0.1	**22.2**	0.1	**9.5**	0.1
1.00 min	0.0	0.1	**22.2**	0.1	**8.5**	0.1
1.30 min	0.0	0.1	**22.2**	0.2	**8.4**	0.2
2.00 min	0.0	0.1	**22.2**	0.1	**8.4**	0.2
2.30 min	0.0	0.2	**22.0**	0.1	**8.5**	0.1
3.00 min	0.0	0.1	**22.1**	0.0	**8.5**	0.1
3.30 min	0.0	0.2	**22.2**	0.0	**8.4**	0.1
4.00 min	0.0	0.2	**22.1**	0.0	**8.4**	0.1
4.30 min	0.0	0.2	**22.2**	0.0	**8.4**	0.1
5.00 min	0.0	0.1	**22.2**	0.0	**8.5**	0.0
	% Carbon-di-oxide					
Initial (T=0)	6.7		0.3		5.1	
30 sec	9.1		5.3		6.9	
1.00 min	8.9		5.3		7.2	
1.30 min	8.9		5.3		7.2	
2.00 min	8.9		5.3		7.1	
2.30 min	9.0		5.3		7.1	
3.00 min	9.0		5.3		7.2	
3.30 min	8.9		5.3		7.1	
4.00 min	8.9		5.3		7.1	
4.30 min	8.8		5.3		7.2	
5.00 min	8.8		5.3		7.2	
	% Oxygen					
Initial (T=0)	21.1		21.5		0.8	
30 sec	12.7		1.0		0.2	
1.00 min	12.6		0.1		.2.	
1.30 min	12.7		0.0		3.0	
2.00 min	12.7		0.0		0.3	
2.30 min	12.6		0.1		0.1	
3.00 min	12.7		0.0		0.1	
3.30 min	12.8		0.0		0.3	
4.00 min	12.7		0.0		0.3	
4.30 min	12.9		0.0		0.2	
5.00 min	12.9		0.0		0.2	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		0.0		1.0	
30 sec	0.0		0.0		1.0	
1.00 min	0.0		0.0		1.0	
1.30 min	0.0		0.0		1.0	
2.00 min	0.0		0.0		1.0	
2.30 min	0.0		1.0		1.0	
3.00 min	0.0		1.0		1.0	
3.30 min	0.0		2.0		1.0	
4.00 min	0.0		2.0		1.0	
4.30 min	0.0		2.0		1.0	
5.00 min	0.0		2.0		1.0	
	Balance (%)					
Initial (T=0)	71.1		54.3		80.8	
30 sec	78.3		72.1		84.0	
1.00 min	78.1		72.5		84.2	
1.30 min	78.1		72.5		84.2	
2.00 min	78.4		72.6		84.2	
2.30 min	78.4		72.5		84.2	
3.00 min	78.4		72.6		84.2	
3.30 min	78.3		72.6		84.1	
4.00 min	78.3		72.6		84.1	
4.30 min	78.3		72.6		84.1	
5.00 min	78.4		72.6		84.1	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

Project No. 71459.03
Reporting Date

Time *	Well ID					
	JK116		BH223			
	13.45		14.05			
Atmospheric pressure (mb)						
Initial	1032	FLOW	1032	FLOW		
% Methane						
Initial (T=0)	**8.5**	0.2	0.0	0.1		
30 sec	0.0	0.2	1.1	0.1		
1.00 min	0.0	0.3	1.1	0.1		
1.30 min	0.0	0.3	1.1	0.2		
2.00 min	0.0	0.3	1.1	0.1		
2.30 min	0.0	0.3	1.1	0.1		
3.00 min	0.0	0.2	1.1	0.2		
3.30 min	0.0	0.3	1.1	0.2		
4.00 min	0.0	0.3	1.1	0.2		
4.30 min	0.0	0.3	1.1	0.1		
5.00 min	0.0	0.3	1.1	0.1		
% Carbon-di-oxide						
Initial (T=0)	6.5		0.3			
30 sec	4.8		3.4			
1.00 min	4.1		3.4			
1.30 min	4.0		3.4			
2.00 min	4.0		3.4			
2.30 min	3.9		3.4			
3.00 min	4.0		3.4			
3.30 min	3.9		3.3			
4.00 min	4.0		3.4			
4.30 min	3.9		3.4			
5.00 min	3.9		3.4			
% Oxygen						
Initial (T=0)	1.3		21.6			
30 sec	14.2		14.1			
1.00 min	17.7		13.6			
1.30 min	18.2		13.5			
2.00 min	18.2		13.5			
2.30 min	18.3		13.4			
3.00 min	18.3		13.4			
3.30 min	18.4		13.6			
4.00 min	18.4		13.5			
4.30 min	18.4		13.5			
5.00 min	18.5		13.5			
Hydrogen sulphide (ppm)						
Initial (T=0)	0.0		0.0			
30 sec	0.0		0.0			
1.00 min	0.0		0.0			
1.30 min	0.0		0.0			
2.00 min	0.0		0.0			
2.30 min	0.0		0.0			
3.00 min	0.0		0.0			
3.30 min	0.0		0.0			
4.00 min	0.0		0.0			
4.30 min	0.0		0.0			
5.00 min	0.0		0.0			
Carbon-monoxide (ppm)						
Initial (T=0)	0.0		0.0			
30 sec	0.0		0.0			
1.00 min	0.0		0.0			
1.30 min	0.0		0.0			
2.00 min	0.0		0.0			
2.30 min	0.0		0.0			
3.00 min	0.0		0.0			
3.30 min	0.0		0.0			
4.00 min	0.0		0.0			
4.30 min	0.0		0.0			
5.00 min	0.0		0.0			
Balance (%)						
Initial (T=0)	88.9		76.2			
30 sec	79.8		81.7			
1.00 min	78.1		82.0			
1.30 min	77.8		82.0			
2.00 min	77.8		82.0			
2.30 min	77.7		82.0			
3.00 min	77.7		82.1			
3.30 min	77.7		82.0			
4.00 min	77.6		82.0			
4.30 min	77.5		82.1			
5.00 min	77.5		82.1			

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

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Time *	Well ID					
	JK1		BH202		JK101	
	6.00		6.15		6.30	
	Atmospheric pressure (mb)					
Initial	1022	FLOW	1022	FLOW	1022	FLOW
	% Methane					
Initial (T=0)	0.0	0.2	0.0	0.0	0.7	0.0
30 sec	0.0	0.1	0.8	0.3	**14.1**	0.2
1.00 min	0.0	0.1	0.8	0.4	**14.1**	0.2
1.30 min	0.0	0.2	0.8	0.4	**14.1**	0.3
2.00 min	0.0	0.2	0.8	0.3	**14.1**	0.2
2.30 min	0.0	0.2	0.8	0.3	**14.1**	0.2
3.00 min	0.0	0.2	0.8	0.4	**14.1**	0.3
3.30 min	0.0	0.1	0.8	0.3	**13.9**	0.2
4.00 min	0.0	0.2	0.8	0.3	**13.9**	0.1
4.30 min	0.0	0.1	0.8	0.3	**13.9**	0.2
5.00 min	0.0	0.1	0.8	0.3	**13.8**	0.2
	% Carbon-di-oxide					
Initial (T=0)	2.2		0.1		10.2	
30 sec	1.2		12.7		7.5	
1.00 min	1.0		13.0		7.5	
1.30 min	1.0		13.0		7.5	
2.00 min	1.0		13.2		7.5	
2.30 min	1.0		13.2		7.5	
3.00 min	1.0		13.2		7.5	
3.30 min	0.9		13.1		7.4	
4.00 min	0.9		13.1		7.4	
4.30 min	0.8		13.1		7.4	
5.00 min	0.8		13.1		7.4	
	% Oxygen					
Initial (T=0)	19.4		21.1		1.6	
30 sec	19.8		3.1		1.0	
1.00 min	20.0		1.0		0.8	
1.30 min	20.1		0.9		0.8	
2.00 min	20.1		0.8		0.8	
2.30 min	20.1		0.6		0.8	
3.00 min	20.1		0.7		0.9	
3.30 min	20.2		0.7		1.1	
4.00 min	20.2		0.7		1.1	
4.30 min	20.2		0.6		1.1	
5.00 min	20.2		0.7		1.2	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		1.0	
1.00 min	0.0		0.0		1.0	
1.30 min	0.0		0.0		1.0	
2.00 min	0.0		0.0		1.0	
2.30 min	0.0		0.0		1.0	
3.00 min	0.0		0.0		1.0	
3.30 min	0.0		0.0		1.0	
4.00 min	0.0		0.0		2.0	
4.30 min	0.0		0.0		2.0	
5.00 min	0.0		0.0		2.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	2.0		2.0		4.0	
30 sec	1.0		1.0		4.0	
1.00 min	1.0		1.0		4.0	
1.30 min	0.0		2.0		4.0	
2.00 min	0.0		2.0		4.0	
2.30 min	0.0		2.0		4.0	
3.00 min	0.0		3.0		4.0	
3.30 min	0.0		3.0		4.0	
4.00 min	0.0		3.0		4.0	
4.30 min	0.0		3.0		4.0	
5.00 min	0.0		3.0		4.0	
	Balance (%)					
Initial (T=0)	79.3		68.3		76.8	
30 sec	79.0		84.2		77.5	
1.00 min	78.9		85.3		77.5	
1.30 min	78.9		85.3		77.5	
2.00 min	78.9		85.4		77.6	
2.30 min	78.9		85.4		77.6	
3.00 min	78.9		85.4		77.6	
3.30 min	79.0		85.4		77.6	
4.00 min	79.0		85.4		77.6	
4.30 min	78.9		85.4		77.7	
5.00 min	78.9		85.4		77.6	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

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Time *	Well ID					
	JK102		JK119		JK103a	
	6.45		7.00		7.15	
Atmospheric pressure (mb)						
Initial	1022	FLOW	1022	FLOW	1022	FLOW
% Methane						
Initial (T=0)	12.2	0.1	**12.7**	-0.1	0.0	0.1
30 sec	12.9	0.2	**16.2**	0.1	0.0	0.3
1.00 min	**13.1**	0.2	**9.6**	0.3	0.0	0.3
1.30 min	**13.1**	0.2	**3.6**	0.5	0.0	0.4
2.00 min	**13.1**	0.1	1.1	0.5	0.0	0.3
2.30 min	**13.2**	0.2	0.8	0.5	0.0	0.2
3.00 min	**13.2**	0.2	0.6	0.5	0.0	0.3
3.30 min	**13.1**	0.0	0.5	0.6	0.0	0.3
4.00 min	**13.0**	0.1	0.2	0.4	0.0	0.2
4.30 min	**13.1**	0.0	0.0	0.4	0.0	0.2
5.00 min	**13.2**	0.0	0.0	0.5	0.0	0.2
% Carbon-di-oxide						
Initial (T=0)	6.2		5.8		0.1	
30 sec	6.5		5.6		1.7	
1.00 min	6.5		2.8		1.6	
1.30 min	6.6		1.3		1.6	
2.00 min	6.6		0.6		1.5	
2.30 min	6.6		0.4		1.5	
3.00 min	6.5		0.4		1.5	
3.30 min	6.5		0.3		1.4	
4.00 min	6.6		0.2		1.4	
4.30 min	6.6		0.1		1.4	
5.00 min	6.6		0.2		1.4	
% Oxygen						
Initial (T=0)	1.7		0.8		22.0	
30 sec	0.9		9.5		21.4	
1.00 min	0.6		16.2		21.4	
1.30 min	0.6		19.3		21.4	
2.00 min	0.6		20.5		21.4	
2.30 min	0.6		20.9		21.4	
3.00 min	0.5		21.0		21.4	
3.30 min	0.7		21.1		21.4	
4.00 min	0.7		21.3		21.4	
4.30 min	0.6		21.4		21.4	
5.00 min	0.5		21.4		21.4	
Hydrogen sulphide (ppm)						
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		1.0		0.0	
4.30 min	0.0		1.0		0.0	
5.00 min	0.0		1.0		0.0	
Carbon-monoxide (ppm)						
Initial (T=0)	3.0		1.0		0.0	
30 sec	3.0		1.0		0.0	
1.00 min	2.0		0.0		0.0	
1.30 min	2.0		0.0		0.0	
2.00 min	2.0		0.0		0.0	
2.30 min	2.0		0.0		0.0	
3.00 min	2.0		0.0		0.0	
3.30 min	2.0		0.0		0.0	
4.00 min	2.0		0.0		0.0	
4.30 min	2.0		0.0		0.0	
5.00 min	2.0		0.0		0.0	
Balance (%)						
Initial (T=0)	79.3		74.4		76.3	
30 sec	79.7		72.0		77.0	
1.00 min	79.7		74.9		77.0	
1.30 min	79.7		77.0		77.0	
2.00 min	79.7		77.9		77.1	
2.30 min	79.7		78.0		77.1	
3.00 min	79.7		78.1		77.1	
3.30 min	79.7		78.1		77.1	
4.00 min	79.7		78.3		77.2	
4.30 min	79.7		78.4		77.2	
5.00 min	79.7		78.2		77.2	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

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Time *	Well ID					
	JK103b		JK104		BH211	
	7.30		7.45		8.10	
Atmospheric pressure (mb)						
Initial	1022	FLOW	1027	FLOW	1024	FLOW
% Methane						
Initial (T=0)	0.0	0.3	0.3	0.1	0.0	0.1
30 sec	1.1	0.5	0.0	0.3	0.0	0.3
1.00 min	0.7	0.6	0.0	0.3	0.0	0.3
1.30 min	0.5	0.6	0.0	0.4	0.0	0.4
2.00 min	0.4	0.6	0.0	0.5	0.0	0.3
2.30 min	0.4	0.6	0.0	0.5	0.0	0.2
3.00 min	0.3	0.5	0.0	0.5	0.0	0.3
3.30 min	0.3	0.6	0.0	0.5	0.0	0.3
4.00 min	0.4	0.6	0.0	0.5	0.0	0.2
4.30 min	0.3	0.6	0.0	0.5	0.0	0.2
5.00 min	0.4	0.6	0.0	0.5	0.0	0.2
% Carbon-di-oxide						
Initial (T=0)	0.4		0.6		0.1	
30 sec	0.7		1.7		1.7	
1.00 min	0.4		1.0		1.6	
1.30 min	0.3		0.7		1.6	
2.00 min	0.3		0.6		1.5	
2.30 min	0.3		0.6		1.5	
3.00 min	0.3		0.6		1.5	
3.30 min	0.3		0.6		1.4	
4.00 min	0.3		0.6		1.4	
4.30 min	0.3		0.6		1.4	
5.00 min	0.3		0.6		1.4	
% Oxygen						
Initial (T=0)	21.5		21.1		22.0	
30 sec	19.3		16.9		21.4	
1.00 min	20.9		18.5		21.4	
1.30 min	21.3		19.8		21.4	
2.00 min	21.4		19.9		21.4	
2.30 min	21.4		20.0		21.4	
3.00 min	21.5		20.0		21.4	
3.30 min	21.5		20.0		21.4	
4.00 min	21.5		20.1		21.4	
4.30 min	21.5		20.1		21.4	
5.00 min	21.5		20.1		21.4	
Hydrogen sulphide (ppm)						
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
Carbon-monoxide (ppm)						
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
Balance (%)						
Initial (T=0)	70.5		78.2		76.3	
30 sec	78.7		81.2		77.0	
1.00 min	78.0		80.1		77.0	
1.30 min	77.9		79.5		77.0	
2.00 min	77.9		79.4		77.1	
2.30 min	78.0		79.4		77.1	
3.00 min	77.9		79.4		77.1	
3.30 min	77.9		79.4		77.1	
4.00 min	77.9		79.3		77.2	
4.30 min	77.9		79.3		77.2	
5.00 min	77.9		79.3		77.2	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

Project No. 71459.03
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Time *	Well ID					
	BH21LB		JK9		JK113	
	8.30		8.45		9.00	
Atmospheric pressure (mb)						
Initial	1024		1024		1024	
% Methane						
Initial (T=0)	0.0	0.1	0.0	0.0	0.0	0.1
30 sec	0.0	0.1	0.0	0.2	0.5	0.2
1.00 min	0.0	0.3	0.0	0.2	0.5	0.2
1.30 min	0.0	0.2	0.0	0.2	0.5	0.2
2.00 min	0.0	0.3	0.0	0.2	0.6	0.2
2.30 min	0.0	0.2	0.0	0.0	0.7	0.2
3.00 min	0.0	0.3	0.0	0.0	0.8	0.2
3.30 min	0.0	0.3	0.0	0.0	0.8	0.1
4.00 min	0.0	0.3	0.0	0.0	0.9	0.1
4.30 min	0.0	0.3	0.0	-0.1	0.9	0.1
5.00 min	0.0	0.3	0.0	-0.1	1.0	0.0
% Carbon-di-oxide						
Initial (T=0)	1.2		3.2		0.1	
30 sec	3.9		0.1		2.2	
1.00 min	3.7		0.1		2.3	
1.30 min	3.7		0.1		2.6	
2.00 min	3.7		0.1		3.1	
2.30 min	3.7		0.1		3.5	
3.00 min	3.7		0.1		3.8	
3.30 min	3.6		0.1		4.4	
4.00 min	3.7		0.1		4.1	
4.30 min	3.7		0.1		4.3	
5.00 min	3.7		0.1		4.5	
%Oxygen						
Initial (T=0)	21.1		18.6		21.4	
30 sec	18.1		21.4		18.4	
1.00 min	18.2		21.6		18.2	
1.30 min	18.2		21.6		17.9	
2.00 min	18.3		21.6		17.2	
2.30 min	18.3		21.7		16.7	
3.00 min	18.3		21.7		16.4	
3.30 min	18.3		21.7		16.1	
4.00 min	18.3		21.7		15.9	
4.30 min	18.3		21.7		15.6	
5.00 min	18.3		21.7		15.4	
Hydrogen sulphide (ppm)						
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
Carbon-monoxide (ppm)						
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
Balance (%)						
Initial (T=0)	75.1		80.6		76.8	
30 sec	78.1		78.4		79.0	
1.00 min	78.0		78.4		79.0	
1.30 min	78.0		78.3		78.9	
2.00 min	78.0		78.3		78.9	
2.30 min	78.0		78.3		79.0	
3.00 min	78.0		78.3		79.0	
3.30 min	78.0		78.3		79.0	
4.00 min	78.0		78.3		79.0	
4.30 min	78.0		78.2		79.1	
5.00 min	78.0		78.2		79.1	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

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Time *	Well ID					
	BH216		JK107a		JK107b	
	9.15		9.30		9.45	
	Atmospheric pressure (mb)					
Initial	1024	FLOW	1024	FLOW	1024	FLOW
	% Methane					
Initial (T=0)	0.0	0.0	**12.9**	0.0	**14.4**	0.1
30 sec	**14.6**	0.1	**15.0**	0.1	**6.8**	0.2
1.00 min	**14.7**	0.0	**15.0**	0.1	**6.8**	0.2
1.30 min	**14.6**	0.1	**15.0**	0.1	**6.8**	0.2
2.00 min	**14.7**	0.1	**15.0**	0.0	**6.8**	0.2
2.30 min	**14.8**	0.1	**15.0**	0.1	**6.8**	0.2
3.00 min	**14.5**	0.0	**15.0**	0.1	**6.9**	0.2
3.30 min	**14.6**	0.0	**15.0**	0.1	**6.9**	0.2
4.00 min	**14.5**	0.0	**15.0**	0.0	**7.0**	0.2
4.30 min	**14.5**	0.0	**15.0**	0.1	**7.2**	0.2
5.00 min	**14.4**	0.0	**15.0**	0.1	**7.2**	0.2
	% Carbon-di-oxide					
Initial (T=0)	0.1		5.2		2.9	
30 sec	6.7		3.1		0.8	
1.00 min	6.7		2.9		0.9	
1.30 min	6.7		2.9		0.9	
2.00 min	6.8		2.9		0.9	
2.30 min	6.8		2.9		0.9	
3.00 min	6.7		2.9		0.9	
3.30 min	6.7		2.9		0.9	
4.00 min	6.6		2.9		0.9	
4.30 min	6.6		2.9		0.9	
5.00 min	6.6		2.9		0.9	
	% Oxygen					
Initial (T=0)	21.4		1.5		1.1	
30 sec	1.0		0.8		2.0	
1.00 min	0.5		0.8		2.1	
1.30 min	0.5		0.9		2.0	
2.00 min	0.3		0.8		1.9	
2.30 min	0.2		0.8		1.9	
3.00 min	0.5		0.8		1.8	
3.30 min	0.5		.		1.7	
4.00 min	0.6		7.0		1.5	
4.30 min	0.5		7.7		1.3	
5.00 min	0.6		0.8		1.4	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		0.0		1.0	
30 sec	0.0		1.0		4.0	
1.00 min	0.0		1.0		5.0	
1.30 min	0.0		1.0		5.0	
2.00 min	0.0		1.0		5.0	
2.30 min	1.0		1.0		5.0	
3.00 min	1.0		1.0		5.0	
3.30 min	1.0		1.0		5.0	
4.00 min	1.0		1.0		5.0	
4.30 min	1.0		1.0		5.0	
5.00 min	1.0		1.0		5.0	
	Balance (%)					
Initial (T=0)	63.1		80.6		90.9	
30 sec	77.8		81.2		90.3	
1.00 min	78.1		81.2		90.3	
1.30 min	78.2		81.2		90.3	
2.00 min	78.2		81.2		90.4	
2.30 min	78.2		81.3		90.4	
3.00 min	78.4		81.3		90.4	
3.30 min	78.3		81.3		90.4	
4.00 min	78.3		81.3		90.5	
4.30 min	78.4		81.3		90.6	
5.00 min	78.3		81.3		90.4	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
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Time *	Well ID					
	JK106		JK7		JK110	
	10.50		11.05		11.45	
	Atmospheric pressure (mb)					
Initial	1025	FLOW	1025	FLOW	1025	FLOW
	% Methane					
Initial (T=0)	0.0	0.1	**8.5**	0.1	0.0	-0.1
30 sec	**9.4**	0.3	1.2	0.3	**24.4**	0.1
1.00 min	**9.4**	0.4	0.9	0.3	**24.7**	0.1
1.30 min	**10.0**	0.4	0.9	0.3	**24.8**	0.1
2.00 min	**9.9**	0.4	0.9	0.2	**24.9**	0.1
2.30 min	**10.0**	0.3	0.9	0.2	**25.0**	0.1
3.00 min	**10.0**	0.4	1.0	0.2	**24.5**	0.1
3.30 min	**10.0**	0.4	1.1	0.2	**24.3**	0.0
4.00 min	**9.9**	0.4	1.1	0.2	**24.4**	0.1
4.30 min	**9.8**	0.4	1.2	0.2	**24.2**	0.1
5.00 min	**9.8**	0.4	1.2	0.2	**23.7**	0.1
	% Carbon-di-oxide					
Initial (T=0)	0.1		2.8		0.1	
30 sec	3.2		2.4		6.3	
1.00 min	3.2		2.5		6.4	
1.30 min	3.3		2.5		6.4	
2.00 min	3.3		2.5		6.4	
2.30 min	3.3		2.6		6.4	
3.00 min	3.3		2.7		6.3	
3.30 min	3.3		2.9		6.3	
4.00 min	3.3		3.0		6.4	
4.30 min	3.3		3.1		6.4	
5.00 min	3.3		3.2		6.3	
	% Oxygen					
Initial (T=0)	20.9		3.9		18.1	
30 sec	4.4		15.3		0.8	
1.00 min	3.8		15.5		0.5	
1.30 min	3.6		15.6		0.5	
2.00 min	3.6		15.5		0.4	
2.30 min	3.5		15.2		0.3	
3.00 min	3.3		15.0		0.6	
3.30 min	3.2		14.6		0.7	
4.00 min	3.3		14.3		0.3	
4.30 min	2.4		14.2		0.2	
5.00 min	3.2		14.0		0.4	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		1.0		0.0	
30 sec	2.0		0.0		0.0	
1.00 min	3.0		0.0		0.0	
1.30 min	3.0		0.0		0.0	
2.00 min	3.0		0.0		0.0	
2.30 min	3.0		0.0		0.0	
3.00 min	4.0		0.0		0.0	
3.30 min	4.0		0.0		0.0	
4.00 min	4.0		0.0		0.0	
4.30 min	4.0		0.0		0.0	
5.00 min	4.0		0.0		0.0	
	Balance (%)					
Initial (T=0)	72.4		88.2		61.1	
30 sec	82.9		81.2		68.3	
1.00 min	83.1		81.1		68.4	
1.30 min	83.2		81.1		68.4	
2.00 min	83.2		81.1		68.3	
2.30 min	83.3		81.2		68.6	
3.00 min	83.4		81.3		68.6	
3.30 min	83.5		81.5		68.6	
4.00 min	83.5		81.6		69.0	
4.30 min	83.5		81.6		69.2	
5.00 min	83.7		81.7		69.7	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

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Time *	Well ID					
	BH218		JK118a		JK118b	
	12.05		12.25		12.35	
	Atmospheric pressure (mb)					
Initial	1025	FLOW	1026	FLOW	1026	FLOW
	% Methane					
Initial (T=0)	0.3	-0.4	0.0	0.1	**14.5**	0.0
30 sec	**32.5**	-0.3	**15.0**	0.2	0.0	0.1
1.00 min	**31.9**	-0.3	**15.0**	0.3	0.0	0.2
1.30 min	**31.7**	-0.2	**15.1**	0.3	0.0	0.3
2.00 min	**31.6**	-0.2	**15.1**	0.3	0.0	0.2
2.30 min	**31.9**	-0.2	**15.1**	0.2	0.0	0.2
3.00 min	**31.6**	-0.2	**15.1**	0.2	0.0	0.3
3.30 min	**31.6**	-0.2	**15.1**	0.2	0.0	0.2
4.00 min	**31.1**	-0.2	**15.1**	0.1	0.0	0.3
4.30 min	**30.6**	-0.2	**15.1**	0.1	0.0	0.3
5.00 min	**29.5**	-0.2	**15.2**	0.1	0.0	0.2
	% Carbon-di-oxide					
Initial (T=0)	0.1		0.0		4.8	
30 sec	13.7		5.0		2.3	
1.00 min	13.8		5.1		2.3	
1.30 min	13.6		5.1		2.3	
2.00 min	13.5		5.1		2.3	
2.30 min	13.7		5.1		2.3	
3.00 min	13.5		5.1		2.3	
3.30 min	13.5		5.1		2.3	
4.00 min	13.3		5.1		2.3	
4.30 min	13.0		5.1		2.3	
5.00 min	12.7		5.1		2.3	
	% Oxygen					
Initial (T=0)	21.3		21.7		0.7	
30 sec	5.9		0.6		1.8	
1.00 min	3.0		0.2		1.9	
1.30 min	3.1		0.1		1.9	
2.00 min	3.1		0.0		1.9	
2.30 min	2.9		0.0		1.9	
3.00 min	3.1		0.0		2.0	
3.30 min	3.0		0.0		2.0	
4.00 min	3.2		0.0		2.0	
4.30 min	3.3		0.0		2.0	
5.00 min	3.2		0.0		2.0	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0				0.0	
30 sec	0.0		0.0		0.0	
1.00 min	2.0		0.0		0.0	
1.30 min	2.0		0.0		0.0	
2.00 min	3.0		0.0		0.0	
2.30 min	3.0		0.0		0.0	
3.00 min	3.0		0.0		0.0	
3.30 min	4.0		0.0		0.0	
4.00 min	4.0		0.0		0.0	
4.30 min	5.0		0.0		0.0	
5.00 min	6.0		0.0		0.0	
	Balance (%)					
Initial (T=0)	79.0		62.8		96.1	
30 sec	50.0		79.5		95.8	
1.00 min	51.5		79.7		95.8	
1.30 min	51.4		79.6		95.8	
2.00 min	51.6		79.8		95.8	
2.30 min	51.5		79.8		95.8	
3.00 min	51.8		79.8		95.8	
3.30 min	52.0		79.8		98.7	
4.00 min	52.6		79.8		98.7	
4.30 min	53.6		79.8		98.7	
5.00 min	55.0		79.8		98.7	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

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Time *	Well ID					
	BH223		JK16		JK114	
	12.50		13.05		13.20	
	Atmospheric pressure (mb)					
Initial	1026	FLOW	1026	FLOW	1026	FLOW
	% Methane					
Initial (T=0)	0.6	0.2	**2.8**	0.0	**0.1**	-0.1
30 sec	**3.7**	0.4	0.0	0.1	**21.2**	0.0
1.00 min	**3.7**	0.5	0.0	0.1	**21.0**	0.0
1.30 min	**3.7**	0.5	0.0	0.2	**20.9**	0.0
2.00 min	**3.6**	0.5	0.0	0.1	**21.2**	0.1
2.30 min	**3.6**	0.5	0.0	0.1	**21.2**	0.1
3.00 min	**3.5**	0.5	0.0	0.0	**21.1**	0.0
3.30 min	**3.5**	0.6	0.0	0.0	**21.2**	0.0
4.00 min	**3.3**	0.6	0.0	0.0	**21.2**	0.0
4.30 min	**3.2**	0.6	0.0	0.0	**21.1**	0.0
5.00 min	**3.0**	0.6	0.0	0.0	**21.2**	0.0
	% Carbon-di-oxide					
Initial (T=0)	2.6		7.1		6.4	
30 sec	8.2		8.2		5.4	
1.00 min	8.2		8.1		5.3	
1.30 min	8.2		8.0		5.3	
2.00 min	8.1		8.0		5.4	
2.30 min	8.1		8.0		5.4	
3.00 min	8.1		8.0		5.3	
3.30 min	8.0		8.3		5.4	
4.00 min	7.9		8.1		5.3	
4.30 min	7.8		8.2		5.4	
5.00 min	7.7		7.9		5.4	
	% Oxygen					
Initial (T=0)	2.5		3.3		47.0	
30 sec	1.9		14.2		0.0	
1.00 min	2.0		14.5		0.1	
1.30 min	2.0		14.6		0.2	
2.00 min	2.0		14.7		0.0	
2.30 min	2.2		14.7		0.0	
3.00 min	2.1		14.8		0.0	
3.30 min	2.2		14.6		0.0	
4.00 min	2.4		14.8		0.0	
4.30 min	2.5		14.7		0.0	
5.00 min	2.8		14.9		0.0	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	1.0		0.0		0.0	
1.00 min	1.0		0.0		0.0	
1.30 min	2.0		0.0		0.0	
2.00 min	2.0		0.0		0.0	
2.30 min	2.0		0.0		0.0	
3.00 min	2.0		0.0		0.0	
3.30 min	2.0		0.0		0.0	
4.00 min	2.0		0.0		0.0	
4.30 min	2.0		0.0		0.0	
5.00 min	2.0		0.0		0.0	
	Balance (%)					
Initial (T=0)	85.5		83.3		73.4	
30 sec	86.2		77.6		73.4	
1.00 min	86.2		77.6		73.6	
1.30 min	86.2		77.3		73.5	
2.00 min	86.2		77.2		73.5	
2.30 min	86.1		77.3		73.5	
3.00 min	86.3		77.2		73.4	
3.30 min	86.3		77.2		73.5	
4.00 min	86.3		77.1		73.5	
4.30 min	86.4		77.2		73.5	
5.00 min	86.6		77.1		73.4	

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
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Time *	Well ID					
	JK114b		JK115		BH224	
	13.30		13.45		14.00	
	Atmospheric pressure (mb)					
Initial	1026	FLOW	1026	FLOW	1026	FLOW
	% Methane					
Initial (T=0)	**19.1**	0.2	**7.2**	0.1	0.0	0.1
30 sec	**8.2**	0.2	0.0	0.2	0.0	0.2
1.00 min	**7.5**	0.3	0.0	0.3	0.0	0.3
1.30 min	**7.5**	0.3	0.0	0.3	0.0	0.3
2.00 min	**7.5**	0.3	0.0	0.3	0.0	0.4
2.30 min	**7.5**	0.3	0.0	0.3	0.0	0.2
3.00 min	**7.5**	0.2	0.0	0.2	0.0	0.3
3.30 min	**7.5**	0.3	0.0	0.2	0.0	0.3
4.00 min	**7.5**	0.3	0.0	0.2	0.0	0.3
4.30 min	**7.5**	0.3	0.0	0.2	0.0	0.2
5.00 min	**7.5**	0.3	0.0	0.2	0.0	0.3
	% Carbon-di-oxide					
Initial (T=0)	5.4		6.6		6.4	
30 sec	7.3		7.0		7.9	
1.00 min	7.5		7.1		8.4	
1.30 min	7.5		7.1		8.5	
2.00 min	7.5		7.1		8.5	
2.30 min	7.5		7.0		8.5	
3.00 min	7.4		7.0		8.5	
3.30 min	7.4		7.0		8.7	
4.00 min	7.5		7.0		8.9	
4.30 min	7.5		7.0		9.5	
5.00 min	7.5		7.0		10.3	
	% Oxygen					
Initial (T=0)	0.8		1.7		14.4	
30 sec	0.0		13.4		12.8	
1.00 min	0.0		13.5		12.3	
1.30 min	0.0		13.5		12.3	
2.00 min	0.0		13.6		12.3	
2.30 min	0.0		13.7		12.3	
3.00 min	0.0		13.7		12.3	
3.30 min	0.0		13.7		12.1	
4.00 min	0.0		13.7		11.9	
4.30 min	0.0		13.7		11.1	
5.00 min	0.0		13.7		10.1	
	Hydrogen sulphide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Carbon-monoxide (ppm)					
Initial (T=0)	0.0		0.0		0.0	
30 sec	0.0		0.0		0.0	
1.00 min	0.0		0.0		0.0	
1.30 min	0.0		0.0		0.0	
2.00 min	0.0		0.0		0.0	
2.30 min	0.0		0.0		0.0	
3.00 min	0.0		0.0		0.0	
3.30 min	0.0		0.0		0.0	
4.00 min	0.0		0.0		0.0	
4.30 min	0.0		0.0		0.0	
5.00 min	0.0		0.0		0.0	
	Balance (%)					
Initial (T=0)	81.0		87.1			
30 sec	84.9		79.5			
1.00 min	85.0		79.4			
1.30 min	85.0		79.4			
2.00 min	85.0		79.3			
2.30 min	85.0		79.3			
3.00 min	85.0		79.2			
3.30 min	85.1		79.3			
4.00 min	85.0		79.3			
4.30 min	85.0		79.3			
5.00 min	85.0		79.3			

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Tabulated Results for Landfill Gas Monitoring

Client Benedict
Project DSI
Location Moorebank

Project No. 71459.03
Reporting Date
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Time *	Well ID					
	BH225					
	14.15					
Atmospheric pressure (mb)						
Initial	1026	FLOW				
% Methane						
Initial (T=0)	0.0	0.1				
30 sec	0.0	0.1				
1.00 min	0.0	0.2				
1.30 min	0.0	0.2				
2.00 min	0.0	0.2				
2.30 min	0.0	0.1				
3.00 min	0.0	0.1				
3.30 min	0.0	0.2				
4.00 min	0.0	0.1				
4.30 min	0.0	0.1				
5.00 min	0.0	0.1				
% Carbon-di-oxide						
Initial (T=0)	9.6					
30 sec	5.1					
1.00 min	4.9					
1.30 min	5.0					
2.00 min	5.0					
2.30 min	5.1					
3.00 min	5.2					
3.30 min	5.3					
4.00 min	5.5					
4.30 min	5.7					
5.00 min	5.9					
% Oxygen						
Initial (T=0)	10.4					
30 sec	16.8					
1.00 min	17.0					
1.30 min	17.0					
2.00 min	17.0					
2.30 min	16.9					
3.00 min	16.9					
3.30 min	16.8					
4.00 min	16.6					
4.30 min	16.3					
5.00 min	16.1					
Hydrogen sulphide (ppm)						
Initial (T=0)	0.0					
30 sec	0.0					
1.00 min	0.0					
1.30 min	0.0					
2.00 min	0.0					
2.30 min	0.0					
3.00 min	0.0					
3.30 min	0.0					
4.00 min	0.0					
4.30 min	0.0					
5.00 min	0.0					
Carbon-monoxide (ppm)						
Initial (T=0)	0.0					
30 sec	0.0					
1.00 min	0.0					
1.30 min	0.0					
2.00 min	0.0					
2.30 min	0.0					
3.00 min	0.0					
3.30 min	0.0					
4.00 min	0.0					
4.30 min	0.0					
5.00 min	0.0					
Balance (%)						
Initial (T=0)	80.2					
30 sec	78.1					
1.00 min	78.1					
1.30 min	78.0					
2.00 min	78.0					
2.30 min	78.0					
3.00 min	77.9					
3.30 min	77.9					
4.00 min	78.0					
4.30 min	78.0					
5.00 min	78.0					

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Tabulated Results for Landfill Gas Monitoring

Client: Benedict
Project:
Location:

Project No.: 71459.03
Reporting Date:
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Time*	Well ID					
	[illegible]		BH202		BH101	
	6.00am		6.25		6.40	
Atmospheric pressure (mb)						
Initial	1016		1017		1017	
% Methane						
Initial (T=0)	0.2	0.1	0.2	0.1	1	0.1
30 sec	0.2	0	0.5	0.1	15.7	0.3
1.00 min	0.2	-0.1	1	0.2	15.7	0.3
1.30 min	0.2	-0.1	1	0.2	15.7	0.3
2.00 min	0.2	-0.1	1.1	0.2	15.7	0.2
2.30 min	0.2	-0.1	1.1	0.2	15.6	0.3
3.00 min	0.2	-0.1	1.1	0.2	15.6	0.3
3.30 min	0.2	-0.1	1.1	0.1	15.5	0.2
4.00 min	0.2	-0.1	1.1	0.1	15.5	0.3
4.30 min	0.2	-0.1	1.1	0.2	15.5	0.3
5.00 min	0.2	-0.1	1.1	0.2	15.4	0.3
% Carbon-dioxide						
Initial (T=0)	3.4		13.1		11.4	
30 sec	0.5		5.5		8.5	
1.00 min	1.3		14		8.5	
1.30 min	0.2		14.9		8.5	
2.00 min	1.2		15.2		8.4	
2.30 min	0.6		15.3		8.6	
3.00 min	0.7		15.4		8.6	
3.30 min	1		15.4		8.3	
4.00 min	1		15.4		8.3	
4.30 min	0.7		15.6		8.3	
5.00 min	0.3		15.6		8.3	
% Oxygen						
Initial (T=0)	18		21.5		1.6	
30 sec	20.7		12.3		1	
1.00 min	20.1		2.2		1.1	
1.30 min	20.7		1.4		1.1	
2.00 min	20.7		1		1.2	
2.30 min	20.3		0.4		1.2	
3.00 min	20.5		0.8		1.2	
3.30 min	20.2		0.8		1.3	
4.00 min	20.5		0.7		1.3	
4.30 min	20.5		0.7		1.2	
5.00 min	20.2		0.7		1.2	
Hydrogen sulphide (ppm)						
Initial (T=0)	0		0		0	
30 sec	0		0		2	
1.00 min	0		0		2	
1.30 min	0		0		2	
2.00 min	0		0		2	
2.30 min	0		0		2	
3.00 min	0		0		2	
3.30 min	0		0		2	
4.00 min	0		0		2	
4.30 min	0		0		2	
5.00 min	0		0		2	
Carbon-monoxide (ppm)						
Initial (T=0)	9		13		27	
30 sec	7		10		21	
1.00 min	5		12		19	
1.30 min	5		13		19	
2.00 min	5		14		18	
2.30 min	5		15		18	
3.00 min	5		16		18	
3.30 min	5		17		18	
4.00 min	5		17		18	
4.30 min	5		17		18	
5.00 min	5		18		18	
Balance (%)						
Initial (T=0)	78.7		78.5		78.1	
30 sec	78.9		81.7		78.5	
1.00 min	78.3		82.5		78.8	
1.30 min	78.9		82.6		78.6	
2.00 min	78.9		82.7		78.8	
2.30 min	78.8		82.7		78.8	
3.00 min	78.9		82.8		78.8	
3.30 min	78.9		82.8		78.9	
4.00 min	78.9		82.8		78.9	
4.30 min	78.9		82.8		78.9	
5.00 min	78.8		82.6		78.9	

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Tabulated Results for Landfill Gas Monitoring

Client: Benedict
Project:
Location:

Project No.: 71459.03
Reporting Date:
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Time *	Well ID: JK106		JK7 JKBH/MW7		JK119	
	6.55		7.15		7.30	
Atmospheric pressure (mb)						
Initial	1017		1017		1016	
% Methane						
Initial (T=0)	19.2	0	0.5	0	0.5	0
30 sec	9.4	0	0.2	0	21.3	0.2
1.00 min	8.9	0	0.2	-0.1	12	0.3
1.30 min	8.9	0	0.2	0	11.9	0.2
2.00 min	9	0	0.2	0	8.5	0.2
2.30 min	8.9	0	0.2	0	7.5	0.2
3.00 min	9	0	0.2	0	6.6	0.2
3.30 min	9	0	0.2	0	5.7	0.2
4.00 min	9	0	0.2	0	4.8	0.2
4.30 min	9	0	0.2	0	4.1	0.2
5.00 min	9	0	0.2	0	4	0.2
% Carbon-di-oxide						
Initial (T=0)	6.7		0.2		5.5	
30 sec	4.3		5.7		6.9	
1.00 min	4.2		5.7		4.2	
1.30 min	4.2		5.8		3.5	
2.00 min	4.2		5.9		3	
2.30 min	4.2		6		2.7	
3.00 min	4.1		6.1		2.4	
3.30 min	4.1		6.3		2	
4.00 min	4.1		6.5		1.7	
4.30 min	4.1		6.6		1.5	
5.00 min	4.1		6.8		1.2	
% Oxygen						
Initial (T=0)	2		21.1		5.6	
30 sec	0.8		9.4		12.8	
1.00 min	0.5		9.2		16.7	
1.30 min	0.8		9.1		17.1	
2.00 min	0.8		8.9		17.7	
2.30 min	0.8		8.7		18	
3.00 min	0.8		8.7		18.5	
3.30 min	0.8		7.7		18.8	
4.00 min	0.8		7.5		19.3	
4.30 min	0.8		7.1		19.5	
5.00 min	0.7		8.7		19.6	
Hydrogen sulphide (ppm)						
Initial (T=0)	0		0		0	
30 sec	0		0		0	
1.00 min	0		0		0	
1.30 min	0		0		0	
2.00 min	0		0		0	
2.30 min	0		0		0	
3.00 min	0		0		0	
3.30 min	0		0		0	
4.00 min	0		0		0	
4.30 min	0		0		0	
5.00 min	0				0	
Carbon-monoxide (ppm)						
Initial (T=0)	20		4		18	
30 sec	18		6		12	
1.00 min	16		5		9	
1.30 min	15		6		8	
2.00 min	14		6		6	
2.30 min	14		7		6	
3.00 min	14		7		5	
3.30 min	12		8		5	
4.00 min	12		8		5	
4.30 min	12		9		5	
5.00 min	14		9		4	
Balance (%)						
Initial (T=0)	81.5		78.8		51.9	
30 sec	82.9		87.7		64.9	
1.00 min	86.1		84.9		69.1	
1.30 min	86.1		84.9		70.3	
2.00 min	86.1		85.1		71.3	
2.30 min	86.1		85.1		72	
3.00 min	86.1		85.5		73	
3.30 min	86.1		85.8		73.8	
4.00 min	86.1		85.5		74.6	
4.30 min	86		86.1		75	
5.00 min	86.1		86.1		75.3	

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Tabulated Results for Landfill Gas Monitoring

Client: Benedict
Project:
Location:

partially damaged

Project No. 71459.03
Reporting Date:
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Time *	Well ID					
	JWD3_9		[illegible]		~~JW~~ JK13H/mw 9	
	[illegible]		[illegible]		8:30	
Atmospheric pressure (mb)						
Initial	1016		[illegible]		1016	
% Methane						
Initial (T=0)	0.3	0	0.5	0.8	1.2	0.1
30 sec	0.4	0.2	[illegible]	6.8	5.4	0.2
1.00 min	0.3	0.2	[illegible]	[illegible]	11.9	0.2
1.30 min	0.2	0.2	[illegible]	[illegible]	16.1	0.2
2.00 min	0.2	0.3	[illegible]	6.2	16.9	0.1
2.30 min	0.2	0.3	0.9	6.8	17.4	0.0
3.00 min	0.2	0.2	6.8	6.8	17.5	0.1
3.30 min	0.2	0.2	[illegible]	[illegible]	17.5	0.1
4.00 min	0.2	0.2	0.6	6.8	17.5	0.1
4.30 min	0.2	0.2	0.6	6.8	17.4	0.1
5.00 min	0.2	0.2	0.6	6.8	17.4	0.2
% Carbon-di-oxide						
Initial (T=0)	0.2		0.6		[illegible]	
30 sec	0.2		[illegible]		[illegible]	
1.00 min	0.1		0.5		15.4	
1.30 min	0.1		0.5		21.8	
2.00 min	0.1		0.2		[illegible]	
2.30 min	0.1		0.3		23.6	
3.00 min	0.1		0.3		23.8	
3.30 min	0.1		[illegible]		23.8	
4.00 min	0.1		0.2		23.7	
4.30 min	0.1		0.2		23.7	
5.00 min	0.1		0.2		23.7	
% Oxygen						
Initial (T=0)	20.6		20		[illegible]	
30 sec	20.3		18.6		14.7	
1.00 min	20.7		19.4		8.8	
1.30 min	20.7		19.1		5.8	
2.00 min	20.7		19.4		5.3	
2.30 min	20.6		19.7		4.9	
3.00 min	20.4		19.4		4.9	
3.30 min	20.6		20		4.8	
4.00 min	20.6		20.1		4.9	
4.30 min	20.6		20.2		4.8	
5.00 min	20.5		20.3		4.8	
Hydrogen sulphide (ppm)						
Initial (T=0)	0		0		0	
30 sec	0		0		0	
1.00 min	0		0		0	
1.30 min	0		0		0	
2.00 min	0		0		0	
2.30 min	0		0		0	
3.00 min	0		0		0	
3.30 min	0		0		0	
4.00 min	0		0		0	
4.30 min	0		0		0	
5.00 min	0		0		0	
Carbon-monoxide (ppm)						
Initial (T=0)	12		16		19	
30 sec	7		10		9	
1.00 min	5		8		10	
1.30 min	5		5		11	
2.00 min	5		8		12	
2.30 min	5		8		13	
3.00 min	5		6		14	
3.30 min	5		7		14	
4.00 min	5		7		15	
4.30 min	5		10		15	
5.00 min	5		[illegible]		15	
Balance (%)						
Initial (T=0)	73.3		[illegible]		76.2	
30 sec	78.8		[illegible]		[illegible]	
1.00 min	79		[illegible]		69.3	
1.30 min	79		[illegible]		55.4	
2.00 min	79		[illegible]		54.4	
2.30 min	79.1		[illegible]		54	
3.00 min	79.1		[illegible]		53.9	
3.30 min	79.1		[illegible]		54	
4.00 min	79.1		[illegible]		54	
4.30 min	79.1		[illegible]		54.1	
5.00 min	79.1		[illegible]		54	

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Tabulated Results for Landfill Gas Monitoring

dipped, water at ~1m below toc
bailed dry once resampled after 730 mins.

Client
Project
Location Benedict

Project No. 71459.03
Reporting Date
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Time *	Well ID					
	~~11.09~~ JK104		BH211B		BH211	
	8:59		9:08		9:20	
Atmospheric pressure (mb)						
Initial	1016		1016		1016	
% Methane						
Initial (T=0)	0.5	0.1	0.5	0.0	0.2	0
30 sec	0.2	0.1	0.1	0.1	1.1	0.1
1.00 min	0.2	0.2	0.1	0.1	0.8	0
1.30 min	0.2	0.1	0.1	0.1	0.7	0
2.00 min	0.2	0.2	0.1	0.1	0.7	0
2.30 min	0.2	0.1	0.1	0.0	0.7	0
3.00 min	0.2	0.1	0.1	0.1	0.7	0
3.30 min	0.2	0.1	0.1	0.2	0.7	0
4.00 min	0.2	0.1	0.1	0.1	0.7	0
4.30 min	0.2	0.0	0.1	0.1	0.7	0.1
5.00 min	0.2	0.0	0.1	0.1	0.7	0
% Carbon-di-oxide						
Initial (T=0)	2.3		1.9		1	
30 sec	0.9		0.1		5	
1.00 min	0.8		0.1		5.2	
1.30 min	0.7		0.1		3.1	
2.00 min	0.6		0.1		3	
2.30 min	0.6		0.1		3	
3.00 min	0.6		0.1		2.9	
3.30 min	0.6		0.1		2.9	
4.00 min	0.6		0.1		2.9	
4.30 min	0.6		0.1		2.9	
5.00 min	0.6		0.1		2.9	
% Oxygen						
Initial (T=0)	9.3		19.1		20.9	
30 sec	13.8		21.2		17.6	
1.00 min	14.5		21.2		18.5	
1.30 min	15.3		21.3		18.7	
2.00 min	15.9		21.3		18.8	
2.30 min	16.4		21.3		18.8	
3.00 min	16.5		21.3		18.8	
3.30 min	16.6		21.2		18.8	
4.00 min	16.5		21.2		18.8	
4.30 min	16.5		21.2		18.9	
5.00 min	16.7		21.2		18.8	
Hydrogen sulphide (ppm)						
Initial (T=0)	0		0		0	
30 sec	0		0		0	
1.00 min	0		0		0	
1.30 min	0		0		0	
2.00 min	0		0		0	
2.30 min	0		0		0	
3.00 min	0		0		0	
3.30 min	0		0		0	
4.00 min	0		0		0	
4.30 min	0		0		0	
5.00 min	0		0		0	
Carbon-monoxide (ppm)						
Initial (T=0)	11		15		15	
30 sec	9		9		10	
1.00 min	8		8		8	
1.30 min	8		7		8	
2.00 min	8		7		8	
2.30 min	8		7		8	
3.00 min	8		6		8	
3.30 min	8		6		8	
4.00 min	8		6		8	
4.30 min	8		6		8	
5.00 min	8		6		8	
Balance (%)						
Initial (T=0)	87.8		79.4		78.2	
30 sec	85		78.6		76.0	
1.00 min	84.4		78.6		77.4	
1.30 min	82.7		78.6		77.5	
2.00 min	82.1		79.6		77.6	
2.30 min	82.6		78.5		77.6	
3.00 min	82.6		78.6		77.6	
3.30 min	82.7		78.6		77.6	
4.00 min	82.7		78.6		77.7	
4.30 min	82.7		78.6		77.7	
5.00 min	82.5		78.6		77.7	

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Tabulated Results for Landfill Gas Monitoring

Client: Benedict
Project:
Location:

Project No.: 71459.03
Reporting Date:
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Time *	Well ID					
	~~103~~ JKBH/mwic7B		~~102~~ JKBH/mwic7A		216BH/MW216	
	9:35		9:55		10:10	
Atmospheric pressure (mb)						
Inital	1016		1016		1015	
% Methane						
Initial (T=0)	15.1	0.2	15.4	0.1	16.7	0.2
30 sec	16.6	0.3	17.0	0.2	10.3	0.2
1.00 min	16.4	0.3	16.9	0.2	10.1	0.2
1.30 min	16.4	0.3	17	0.2	10.1	0.3
2.00 min	16.3	0.3	16.9	0.2	10.1	0.3
2.30 min	16.3	0.3	17.0	0.2	10.1	0.3
3.00 min	16.3	0.2	17.0	0.1	10	0.3
3.30 min	16.2	0.2	17.1	0.2	10	0.3
4.00 min	16.1	0.3	17.1	0.2	10	0.3
4.30 min	16.3	0.2	17.1	0.1	10	0.3
5.00 min	16.2	0.2	17.3	0.2	9.9	0.3
% Carbon-di-oxide						
Initial (T=0)	0.9		2.8		3.5	
30 sec	0.8		2.8		5.2	
1.00 min	0.8		2.8		5.2	
1.30 min	0.8		3.8		5.2	
2.00 min	0.8		3.8		5.2	
2.30 min	0.8		3.8		5.2	
3.00 min	0.8		3.8		5.2	
3.30 min	0.8		3.8		5.2	
4.00 min	0.8		3.8		5.2	
4.30 min	0.8		3.8		5.2	
5.00 min	0.8		3.8		5.2	
% Oxygen						
Initial (T=0)	1		0.9		1.3	
30 sec	0.9		0.7		0.5	
1.00 min	1.1		0.9		0.5	
1.30 min	1.1		0.8		0.5	
2.00 min	1.1		0.8		0.5	
2.30 min	1.2		0.8		0.5	
3.00 min	1.2		0.7		0.5	
3.30 min	1.1		0.7		0.5	
4.00 min	1.0		0.7		0.5	
4.30 min	1.0		0.7		0.5	
5.00 min	1.0		0.6		0.4	
Hydrogen sulphide (ppm)						
Initial (T=0)	4		1		0	
30 sec	6		0		0	
1.00 min	6		0		0	
1.30 min	6		0		0	
2.00 min	7		0		0	
2.30 min	7		0		0	
3.00 min	7		0		0	
3.30 min	7		0		0	
4.00 min	7		0		0	
4.30 min	7		0		0	
5.00 min	7		0		0	
Carbon-monoxide (ppm)						
Initial (T=0)	18		22		21	
30 sec	17		18		16	
1.00 min	17		17		15	
1.30 min	18		17		14	
2.00 min	18		17		15	
2.30 min	18		17		15	
3.00 min	18		17		15	
3.30 min	18		17		15	
4.00 min	19		17		18	
4.30 min	18		17		15	
5.00 min	18		17		15	
Balance (%)						
Initial (T=0)	81.7		78.5		83.6	
30 sec	81.7		78.6		84.2	
1.00 min	81.7		78.5		84.2	
1.30 min	81.7		78.5		84.2	
2.00 min	81.9		78.5		84.2	
2.30 min	81.8		78.5		84.3	
3.00 min	81.8		78.4		84.3	
3.30 min	81.8		78.6		84.4	
4.00 min	81.8		78.4		84.4	
4.30 min	81.8		78.3		84.4	
5.00 min	81.9		78.3		84.5	

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Tabulated Results for Landfill Gas Monitoring

Client: Benedict
Project:
Location:

Project No.: 71459.03
Reporting Date:
Page No.: 1 of 1

Time *	Well ID					
	JK113		JK115		JK114	
	10.40		11.10		12.15	
Atmospheric pressure (mb)						
Initial	1016		1016		1014	
% Methane						
Initial (T=0)	0.1	0	0.1	0.1	25.1	0.2
30 sec	0.1	0.1	0.1	0.1	25.2	0.2
1.00 min	0.1	0.1	0.1	0.1	25.2	0.2
1.30 min	0.1	0.1	0.1	0.1	25.3	0.2
2.00 min	0.1	0.0	0.1	0.1	25.1	0.1
2.30 min	0.1	0.0	0.1	0.2	25.0	0.2
3.00 min	0.1	0.0	0.1	0.2	25.2	0.1
3.30 min	0.1	0.1	0.1	0.2	25.2	0.1
4.00 min	0.1	0.0	0.1	0.1	25.1	0.1
4.30 min	0.1	0.0	0.1	0.1	25.1	0.1
5.00 min	0.1	0.0	0.1	0.1	25.1	0.1
% Carbon-di-oxide						
Initial (T=0)	0.6		0.0		4.6	
30 sec	0.6		0.0		4.7	
1.00 min	0.6		0.0		4.7	
1.30 min	0.6		0.0		4.7	
2.00 min	0.7		0.0		4.7	
2.30 min	0.8		0.0		4.6	
3.00 min	0.8		0.0		4.7	
3.30 min	0.8		0.0		4.7	
4.00 min	0.9		0.0		4.7	
4.30 min	1.0		0.0		4.7	
5.00 min	1.0		0.0		4.7	
% Oxygen						
Initial (T=0)	19.2		20.5		0.8	
30 sec	19.2		20.3		0.7	
1.00 min	19.2		20.4		0.6	
1.30 min	19.2		20.4		0.6	
2.00 min	19.2		20.4		0.6	
2.30 min	19.1		20.5		0.5	
3.00 min	19.0		20.5		0.5	
3.30 min	18.9		20.5		0.4	
4.00 min	19.9		20.5		0.5	
4.30 min	19.9		20.6		0.4	
5.00 min	19.7		20.6		0.4	
Hydrogen sulphide (ppm)						
Initial (T=0)	0		0		0	
30 sec	0		0		0	
1.00 min	0		0		0	
1.30 min	0		0		0	
2.00 min	0		0		0	
2.30 min	0		0		0	
3.00 min	0		0		0	
3.30 min	0		0		0	
4.00 min	0		0		0	
4.30 min	0		0		0	
5.00 min	0		0		0	
Carbon-monoxide (ppm)						
Initial (T=0)	16		13		21	
30 sec	11		10		23	
1.00 min	9		9		24	
1.30 min	8		9		26	
2.00 min	7		9		27	
2.30 min	6		9		28	
3.00 min	6		9		28	
3.30 min	6		10		29	
4.00 min	5		10		29	
4.30 min	5		10		29	
5.00 min	5		10		30	
Balance (%)						
Initial (T=0)	80.2		79.8		69.4	
30 sec	80.1		79.7		69.4	
1.00 min	80.1		79.6		69.5	
1.30 min	80.1		79.5		69.6	
2.00 min	80.1		79.5		69.6	
2.30 min	80.1		79.4		69.7	
3.00 min	80.1		79.4		69.7	
3.30 min	80.1		79.4		69.8	
4.00 min	80.1		79.5		69.8	
4.30 min	80.2		79.5		69.9	
5.00 min	80.2		79.5		69.9	

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Tabulated Results for Landfill Gas Monitoring

Client: Benedict
Project:
Location:

Project No.: 71459.03
Reporting Date:
Page No.: 1 of 1

Time *	Well ID					
	JK114A		JK116		JK117	
	12:27		12.45		13.00	
Atmospheric pressure (mb)						
Initial	1014		1014		1014	
% Methane						
Initial (T=0)	0.1	0.2	0.1	0.1	0.1	0.1
30 sec	0.0	0.2	0.1	0.2	11.7	0.4
1.00 min	0.0	0.2	0.1	0.2	11.7	0.5
1.30 min	0.0	0.3	0.1	0.2	11.7	0.5
2.00 min	0.0	0.3	0.1	0.3	11.7	0.4
2.30 min	0.0	0.3	0.1	0.3	11.9	0.4
3.00 min	0.0	0.3	0.1	0.2	12	0.5
3.30 min	0.0	0.3	0.1	0.2	12	0.5
4.00 min	0.0	0.2	0.1	0.2	12	0.6
4.30 min	0.0	0.3	0.1	0.3	12	0.5
5.00 min	0.0	0.2	0.1	0.2	12	0.5
% Carbon-di-oxide						
Initial (T=0)	0.0		9.7		6.8	
30 sec	0.0		9.3		1	
1.00 min	0.0		9.2		1.	
1.30 min	0.0		9.4		0.4	
2.00 min	0.0		9.4		0.4	
2.30 min	0.0		9.3		0.9	
3.00 min	0.0		9.4		0.9	
3.30 min	0.0		9.4		0.4	
4.00 min	0.0		9.4		0.9	
4.30 min	0.0		9.3		0.9	
5.00 min	0.0		9.3		0.9	
% Oxygen						
Initial (T=0)	20.2		10.9		7.2	
30 sec	20.4		10.9		0.4	
1.00 min	20.5		10.9		0.8	
1.30 min	20.5		10.8		0.8	
2.00 min	20.5		10.8		0.8	
2.30 min	20.6		10.8		0.6	
3.00 min	20.6		10.8		0.4	
3.30 min	20.6		10.9		0.4	
4.00 min	20.6		10.8		0.5	
4.30 min	20.6		10.8		0.6	
5.00 min	20.7		10.8		0.6	
Hydrogen sulphide (ppm)						
Initial (T=0)	0		0		30	
30 sec	0		0		0	
1.00 min	0		0		0	
1.30 min	0		0		0	
2.00 min	0		0		0	
2.30 min	0		0		0	
3.00 min	0		0		0	
3.30 min	0		0		0	
4.00 min	0		0		0	
4.30 min	0		0		0	
5.00 min	0		0		0	
Carbon-monoxide (ppm)						
Initial (T=0)	23		18		24	
30 sec	20		17		25	
1.00 min	17		17		26	
1.30 min	14		18		26	
2.00 min	13		18		24	
2.30 min	12		19		20	
3.00 min	11		19		30	
3.30 min	11		19		30	
4.00 min	10		19		30	
4.30 min	10		19		30	
5.00 min	10		20		30	
Balance (%)						
Initial (T=0)	79.7		79.7		86.2	
30 sec	79.6		79.8		85.5	
1.00 min	79.5		79.8		86.5	
1.30 min	79.5		79.8		86.5	
2.00 min	79.4		79.8		86.4	
2.30 min	79.4		79.8		86.4	
3.00 min	79.4		79.8		86.6	
3.30 min	79.4		79.8		86.7	
4.00 min	79.4		79.8		86.6	
4.30 min	79.3		79.8		86.5	
5.00 min	79.3		79.8		86.5	

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Tabulated Results for Landfill Gas Monitoring

Client: Benedict
Project:
Location:

Project No.: 71459.03
Reporting Date:
Page No.: 1 of 1

Time *	Well ID					
	BH223		BH224		BH225	
	13.15		13.41		14.00	
Atmospheric pressure (mb)						
Initial	1016		1013		1013	
% Methane						
Initial (T=0)	3.4	0.1	0.1	0.1	0.2	0.2
30 sec	3.4	0.0	0.1	0.2	0	0.2
1.00 min	3.4	0.0	0.0	0.2	0	0.1
1.30 min	3.4	0.0	0.0	0.2	0	0.1
2.00 min	3.4	0.1	0.0	0.3	0	0.2
2.30 min	3.5	0.0	0.0	0.2	0	0.1
3.00 min	3.5	0.1	0.1	0.2	0	0.1
3.30 min	3.5	0.0	0.1	0.2	0	0.2
4.00 min	3.6	0.1	0.0	0.2	0	0.2
4.30 min	3.6	0.0	0.1	0.2	0	0.2
5.00 min	3.7	0.1	0.1	0.2	0	0.2
% Carbon dioxide						
Initial (T=0)	9.9		9.9		1.7	
30 sec	9.9		10.2		2.1	
1.00 min	9.9		10.6		2.2	
1.30 min	9.9		11.2		2.4	
2.00 min	9.9		11.9		2.6	
2.30 min	10		12.5		2.9	
3.00 min	10		13.1		3.3	
3.30 min	10		13.5		4.3	
4.00 min	9.9		13.7		5.2	
4.30 min	9.9		14.1		5.7	
5.00 min	9.9		14.4		6.2	
% Oxygen						
Initial (T=0)	0.7		8.2		8.4	
30 sec	0.7		7.8		17.2	
1.00 min	0.7		7.2		17.2	
1.30 min	0.7		6.7		17.1	
2.00 min	0.7		5.9		16.9	
2.30 min	0.7		5.2		16.6	
3.00 min	0.6		4.5		16.3	
3.30 min	0.7		4.2		15	
4.00 min	0.7		4.0		14.4	
4.30 min	0.7		3.6		13.9	
5.00 min	0.6		3.2		13.4	
Hydrogen sulphide (ppm)						
Initial (T=0)	0		0		0	
30 sec	0		0		0	
1.00 min	0		0		0	
1.30 min	0		0		0	
2.00 min	0		0		0	
2.30 min	0		0		0	
3.00 min	0		0		0	
3.30 min	0		0		0	
4.00 min	0		0		0	
4.30 min	0		0		0	
5.00 min	0		0		0	
Carbon monoxide (ppm)						
Initial (T=0)	29		15		28	
30 sec	26		16		26	
1.00 min	25		16		16	
1.30 min	25		17		15	
2.00 min	24		18		14	
2.30 min	24		19		14	
3.00 min	24		20		13	
3.30 min	24		21		13	
4.00 min	24		21		13	
4.30 min	24		22		12	
5.00 min	24		22		12	
Balance (%)						
Initial (T=0)	86		81.4		81	
30 sec	86		82.0		80.6	
1.00 min	86		82.0		80.5	
1.30 min	86		82.1		80.5	
2.00 min	85.9		82.1		80.4	
2.30 min	85.9		82.1		80.4	
3.00 min	85.8		82.2		80.4	
3.30 min	85.9		82.2		80.4	
4.00 min	85.8		82.3		80.3	
4.30 min	85.8		82.3		80.3	
5.00 min	85.8		82.3		80.3	

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Tabulated Results for Landfill Gas Monitoring

Client: Benedict
Project:
Location: deep

Project No. 71459.03
Reporting Date:
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Time *	Well ID					
	JK103b					
	14.15					
Atmospheric pressure (mb)						
Initial	1011					
% Methane						
Initial (T=0)	2.1	0.2				
30 sec	2.7	0.2				
1.00 min	2.5	0.2				
1.30 min	3.9	0.2				
2.00 min	4.1	0.2				
2.30 min	4.2	0.2				
3.00 min	4.6	0.2				
3.30 min	4.5	0.3				
4.00 min	4.6	0.3				
4.30 min	4.4	0.2				
5.00 min	5.1	0.2				
% Carbon-di-oxide						
Initial (T=0)	1.2					
30 sec	1.6					
1.00 min	2					
1.30 min	2.1					
2.00 min	2.2					
2.30 min	2.2					
3.00 min	2.4					
3.30 min	2.3					
4.00 min	2.4					
4.30 min	2.5					
5.00 min	2.6					
% Oxygen						
Initial (T=0)	18.5					
30 sec	17.9					
1.00 min	17.2					
1.30 min	17.1					
2.00 min	17					
2.30 min	16.5					
3.00 min	16.7					
3.30 min	16.7					
4.00 min	16.7					
4.30 min	16.4					
5.00 min	16.2					
Hydrogen sulphide (ppm)						
Initial (T=0)	0					
30 sec	0					
1.00 min	0					
1.30 min	0					
2.00 min	0					
2.30 min	0					
3.00 min	0					
3.30 min	0					
4.00 min	0					
4.30 min	0					
5.00 min	0					
Carbon-monoxide (ppm)						
Initial (T=0)	19					
30 sec	17					
1.00 min	18					
1.30 min	18					
2.00 min	18					
2.30 min	19					
3.00 min	19					
3.30 min	19					
4.00 min	20					
4.30 min	20					
5.00 min	21					
Balance (%)						
Initial (T=0)	78.1					
30 sec	77.6					
1.00 min	77.1					
1.30 min	76.9					
2.00 min	76.6					
2.30 min	76.6					
3.00 min	76.3					
3.30 min	76.4					
4.00 min	76.3					
4.30 min	76.1					
5.00 min	75.4					

Appendix H

Laboratory Certificates of Analysis

Chain of Custody Documentation

12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200

email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 134222

Client:
Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: John Russell, Chris Bagia

Sample log in details:

Your Reference:	**71459.03, Moorebank**		
No. of samples:	74 Soils		
Date samples received / completed instructions received	11/9/2015	/	11/9/2015

This report supersedes the previous report R00 due to an amendment to client sample ID (#42)

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:	18/09/15	/	17/02/16
Date of Preliminary Report:	Not Issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-1	134222-2	134222-3	134222-4	134222-5
Your Reference	---------- -	BH202	BH202	BH/MW215	BH/MW215	BH208
Depth	----------	0.9-1.35	1.9-2.35	0.9-1.35	1.9-2.35	1.9-2.35
Date Sampled		3/09/2015	3/09/2015	3/09/2015	3/09/2015	3/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	73	70	87	67

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-6	134222-7	134222-8	134222-9	134222-10
Your Reference	---------- -	BH/MW218	BH/MW218	BH/MW218	BH/MW216	BH/MW216
Depth	----------	0.9-1.35	2.9-2.35	5.9-6.35	0.1-0.2	3.9-4.35
Date Sampled		3/09/2015	3/09/2015	4/09/2015	4/09/2015	4/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	16/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	91	82	88	69	93

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-11	134222-12	134222-13	134222-14	134222-15
Your Reference	---------- -	BH/MW216	BH/MW223	BH/MW210	BH/MW210	JK107a
Depth	----------	5.9-6.35	2.0-2.45	0.1-0.2	2.0-2.45	0.1-0.2
Date Sampled		4/09/2015	4/09/2015	4/09/2015	4/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	87	80	90	93

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-16	134222-17	134222-18	134222-19	134222-20
Your Reference	---------- -	JK107a	JK107a	JK107a	BH205	BH205
Depth	----------	1.9-2.35	7.9-8.35	8.9-9.35	0.9-1.35	2.9-3.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	93	83	95	96

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-21	134222-22	134222-23	134222-24	134222-25
Your Reference	---------- -	BH205	JK103a	JK103a	JK103a	JK103a
Depth	----------	3.9-4.35	0.1-0.2	1.9-2.35	2.9-3.35	5.9-6.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	88	94	91	93	90

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-26	134222-27	134222-28	134222-29	134222-30
Your Reference	---------- -	JK118a	JK118a	JK118a	BH211	BH211
Depth	----------	0.1-0.2	1.9-2.35	4.9-5.35	0.1-0.2	0.9-1.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	92	93	80	93	81

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-31	134222-32	134222-33	134222-34	134222-35
Your Reference	---------- -	BH211	BH214	BH214	BH213	BH213
Depth	----------	2.9-2.35	0.1-0.2	2.2-2.65	0.1-0.2	2.9-3.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	94	94	84	95	93

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-36	134222-37	134222-38	134222-39	134222-40
Your Reference	---------- -	BH221	BH221	BH221	BH221	BH222
Depth	----------	0.1-0.2	1.9-2.35	2.9-3.35	3.9-4.35	0.1-0.2
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	93	85	92	97

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-41	134222-42	134222-43	134222-44	134222-45
Your Reference	---------- -	BH222	BH220	BH212	BH212	BH209
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	100	91	71	90	94

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-46	134222-47	134222-48	134222-49	134222-50
Your Reference	---------- -	BH209	BH209	BH209	BH204	BH204
Depth	----------	0.9-1.35	1.9-2.35	3.9-4.35	0.1-0.2	1.9-2.35
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	94	88	87	92	91

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-51	134222-52	134222-53	134222-54	134222-55
Your Reference	---------- -	BH204	BH203	BH203	BH203	BH201
Depth	----------	3.9-4.35	0.1-0.2	0.9-1.35	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - C10 less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	88	96	80	90	90

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-56	134222-57	134222-59	134222-61	134222-62
Your Reference	---------- -	BH201	BH207	BH206	BH206	BH206
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	2.35-2.9	4.35-4.9
Date Sampled		10/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC6 - C9	mg/kg	<25	<25	<25	<25	<25
TRHC6 - C10	mg/kg	<25	<25	<25	<25	<25
vTPHC6 - C10 less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	89	66	77	88	65

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-63	134222-65	134222-66	134222-67	134222-69
Your Reference	---------- -	BH208	BD1/070815	BD2/080915	BD3/090915	TS1
Depth	----------	0.9-1.35	-	-	-	-
Date Sampled		10/09/2015	7/09/2015	8/09/2015	9/09/2015	1/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	[NA]
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	[NA]
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	101%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	100%
Ethylbenzene	mg/kg	<1	<1	<1	<1	98%
m+p-xylene	mg/kg	<2	<2	<2	<2	101%
o-Xylene	mg/kg	<1	<1	<1	<1	100%
naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	79	89	78	83	82

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	134222-70	134222-71	134222-72	134222-73	134222-74
Your Reference	---------- -	TB1	TS2	TB2	TS3	TB3
Depth	----------	-	-	-	-	-
Date Sampled		1/09/2015	1/09/2015	1/09/2015	1/09/2015	1/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	<25	[NA]	<25	[NA]	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	[NA]	<25	[NA]	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	[NA]	<25	[NA]	<25
Benzene	mg/kg	<0.2	100%	<0.2	108%	<0.2
Toluene	mg/kg	<0.5	100%	<0.5	107%	<0.5
Ethylbenzene	mg/kg	<1	102%	<1	106%	<1
m+p-xylene	mg/kg	<2	103%	<2	105%	<2
o-Xylene	mg/kg	<1	101%	<1	106%	<1
naphthalene	mg/kg	<1	[NA]	<1	[NA]	<1
Surrogate aaa-Trifluorotoluene	%	93	86	82	82	97

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	134222-1	134222-2	134222-3	134222-4	134222-5
Your Reference	---------- -	BH202	BH202	BH/MW215	BH/MW215	BH208
Depth	----------	0.9-1.35	1.9-2.35	0.9-1.35	1.9-2.35	1.9-2.35
Date Sampled		3/09/2015	3/09/2015	3/09/2015	3/09/2015	3/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	16/09/2015	16/09/2015	15/09/2015	15/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	240	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	200	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	330	<100	<100	<100	<100
Surrogate o-Terphenyl	%	89	92	93	84	85

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	134222-6	134222-7	134222-8	134222-9	134222-10
Your Reference	---------- -	BH/MW218	BH/MW218	BH/MW218	BH/MW216	BH/MW216
Depth	----------	0.9-1.35	2.9-2.35	5.9-6.35	0.1-0.2	3.9-4.35
Date Sampled		3/09/2015	3/09/2015	4/09/2015	4/09/2015	4/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	81	87	84	87	88

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	134222-11	134222-12	134222-13	134222-14	134222-15
Your Reference	---------- -	BH/MW216	BH/MW223	BH/MW210	BH/MW210	JK107a
Depth	----------	5.9-6.35	2.0-2.45	0.1-0.2	2.0-2.45	0.1-0.2
Date Sampled		4/09/2015	4/09/2015	4/09/2015	4/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	16/09/2015	15/09/2015	15/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	260	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	110	570	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	100	680	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	130	580	<100	<100
Surrogate o-Terphenyl	%	92	85	96	84	86

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	134222-16	134222-17	134222-18	134222-19	134222-20
Your Reference	---------- -	JK107a	JK107a	JK107a	BH205	BH205
Depth	----------	1.9-2.35	7.9-8.35	8.9-9.35	0.9-1.35	2.9-3.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	89	82	84	90	86

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	134222-21	134222-22	134222-23	134222-24	134222-25
Your Reference	---------- -	BH205	JK103a	JK103a	JK103a	JK103a
Depth	----------	3.9-4.35	0.1-0.2	1.9-2.35	2.9-3.35	5.9-6.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	16/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	17/09/2015	16/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	110	<100	460	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	550	<100	360	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	460	<100	720	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	860	<100	240	<100
Surrogate o-Terphenyl	%	85	89	83	96	82

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	134222-26	134222-27	134222-28	134222-29	134222-30
Your Reference	---------- -	JK118a	JK118a	JK118a	BH211	BH211
Depth	----------	0.1-0.2	1.9-2.35	4.9-5.35	0.1-0.2	0.9-1.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	87	89	87	91	90

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	134222-31	134222-32	134222-33	134222-34	134222-35
Your Reference	---------- -	BH211	BH214	BH214	BH213	BH213
Depth	----------	2.9-2.35	0.1-0.2	2.2-2.65	0.1-0.2	2.9-3.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	88	87	84	88	82

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	134222-36	134222-37	134222-38	134222-39	134222-40
Your Reference	---------- -	BH221	BH221	BH221	BH221	BH222
Depth	----------	0.1-0.2	1.9-2.35	2.9-3.35	3.9-4.35	0.1-0.2
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	16/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	17/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	220	400
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	590
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	110	270	890
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	340
Surrogate o-Terphenyl	%	86	84	87	102	91

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	134222-41	134222-42	134222-43	134222-44	134222-45
Your Reference	---------- -	BH222	BH220	BH212	BH212	BH209
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	15/09/2015	16/09/2015	16/09/2015	16/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	450	<100	230	100	160
TRHC$_{29}$ - C$_{36}$	mg/kg	790	<100	640	250	250
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	990	130	640	280	330
TRH>C$_{34}$-C$_{40}$	mg/kg	890	<100	840	160	170
Surrogate o-Terphenyl	%	117	90	96	92	96

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	134222-46	134222-47	134222-48	134222-49	134222-50
Your Reference	---------- -	BH209	BH209	BH209	BH204	BH204
Depth	----------	0.9-1.35	1.9-2.35	3.9-4.35	0.1-0.2	1.9-2.35
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	370	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	910	140	150	<100	120
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	990	140	120	110	170
TRH>C$_{34}$-C$_{40}$	mg/kg	1,100	150	130	<100	<100
Surrogate o-Terphenyl	%	96	91	92	94	91

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	134222-51	134222-52	134222-53	134222-54	134222-55
Your Reference	---------- -	BH204	BH203	BH203	BH203	BH201
Depth	----------	3.9-4.35	0.1-0.2	0.9-1.35	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	140	<100	<100	200	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	150	110	<100	210	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	130	<100	<100	170	<100
Surrogate o-Terphenyl	%	94	92	88	87	91

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	134222-56	134222-57	134222-59	134222-61	134222-62
Your Reference	---------- -	BH201	BH207	BH206	BH206	BH206
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	2.35-2.9	4.35-4.9
Date Sampled		10/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	850	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	110	1,200	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	110	1,700	120	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	130	1,300	<100	<100	<100
Surrogate o-Terphenyl	%	90	113	88	91	99

svTRH (C10-C40) in Soil					
Our Reference:	UNITS	134222-63	134222-65	134222-66	134222-67
Your Reference	---------- -	BH208	BD1/070815	BD2/080915	BD3/090915
Depth	----------	0.9-1.35	-	-	-
Date Sampled		10/09/2015	7/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	110
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100
Surrogate o-Terphenyl	%	89	95	92	92

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	134222-1 BH202 0.9-1.35 3/09/2015 Soil	134222-2 BH202 1.9-2.35 3/09/2015 Soil	134222-3 BH/MW215 0.9-1.35 3/09/2015 Soil	134222-4 BH/MW215 1.9-2.35 3/09/2015 Soil	134222-5 BH208 1.9-2.35 3/09/2015 Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
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	0.2
Phenanthrene	mg/kg	0.3	0.1	<0.1	<0.1	1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	0.3
Fluoranthene	mg/kg	0.8	0.3	<0.1	<0.1	1.5
Pyrene	mg/kg	0.8	0.3	<0.1	<0.1	1.6
Benzo(a)anthracene	mg/kg	0.3	0.1	<0.1	<0.1	0.7
Chrysene	mg/kg	0.3	0.1	<0.1	<0.1	0.6
Benzo(b,j+k)fluoranthene	mg/kg	0.7	0.3	<0.2	<0.2	1
Benzo(a)pyrene	mg/kg	0.4	0.2	<0.05	<0.05	0.65
Indeno(1,2,3-c,d)pyrene	mg/kg	0.4	0.1	<0.1	<0.1	0.4
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.4	0.1	<0.1	<0.1	0.4
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.5	<0.5	<0.5	<0.5	0.9
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.6	<0.5	<0.5	<0.5	0.9
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.6	<0.5	<0.5	<0.5	1
Total Positive PAHs	mg/kg	4.5	1.8	NIL (+)VE	NIL (+)VE	8.5
Surrogate p-Terphenyl-d14	%	94	99	100	99	97

PAHs in Soil						
Our Reference:	UNITS	134222-6	134222-7	134222-8	134222-9	134222-10
Your Reference	----------	BH/MW218	BH/MW218	BH/MW218	BH/MW216	BH/MW216
	-					
Depth	----------	0.9-1.35	2.9-2.35	5.9-6.35	0.1-0.2	3.9-4.35
Date Sampled		3/09/2015	3/09/2015	4/09/2015	4/09/2015	4/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
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	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.5	0.2
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.5	0.2
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.4	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.2	0.07
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	2.6	0.53
Surrogate p-Terphenyl-d14	%	104	101	105	101	101

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	134222-11 BH/MW216 5.9-6.35 4/09/2015 Soil	134222-12 BH/MW223 2.0-2.45 4/09/2015 Soil	134222-13 BH/MW210 0.1-0.2 4/09/2015 Soil	134222-14 BH/MW210 2.0-2.45 4/09/2015 Soil	134222-15 JK107a 0.1-0.2 7/09/2015 Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.3	<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	0.8	1.9	<0.1	0.3
Anthracene	mg/kg	<0.1	0.2	0.7	<0.1	<0.1
Fluoranthene	mg/kg	0.2	1.3	4.2	<0.1	0.5
Pyrene	mg/kg	0.2	1.2	4.4	<0.1	0.6
Benzo(a)anthracene	mg/kg	<0.1	0.6	2.0	<0.1	0.2
Chrysene	mg/kg	<0.1	0.6	2.2	<0.1	0.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.9	4.1	<0.2	0.4
Benzo(a)pyrene	mg/kg	0.1	0.51	2.8	<0.05	0.3
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.4	2.5	<0.1	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	0.5	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.4	2.4	<0.1	0.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	0.7	4.2	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	0.8	4.2	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	0.8	4.2	<0.5	<0.5
Total Positive PAHs	mg/kg	0.47	6.9	28	NIL (+)VE	2.8
Surrogate p-Terphenyl-d14	%	106	96	96	99	97

PAHs in Soil Our Reference: Your Reference	UNITS ----------	134222-16 JK107a	134222-17 JK107a	134222-18 JK107a	134222-19 BH205	134222-20 BH205
Depth	-	1.9-2.35	7.9-8.35	8.9-9.35	0.9-1.35	2.9-3.35
Date Sampled	----------	7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
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,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.07	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	0.33	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	104	100	109	100	103

PAHs in Soil						
Our Reference:	UNITS	134222-21	134222-22	134222-23	134222-24	134222-25
Your Reference	----------	BH205	JK103a	JK103a	JK103a	JK103a
Depth	- ----------	3.9-4.35	0.1-0.2	1.9-2.35	2.9-3.35	5.9-6.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Naphthalene	mg/kg	<0.1	<0.1	<0.1	0.6	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	3.6	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	3.6	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	21	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	8.1	<0.1
Fluoranthene	mg/kg	<0.1	0.4	0.1	26	<0.1
Pyrene	mg/kg	<0.1	0.7	0.1	24	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.2	<0.1	13	<0.1
Chrysene	mg/kg	<0.1	0.3	<0.1	11	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	1	<0.2	5.1	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.56	0.08	13	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.8	<0.1	8.9	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.2	<0.1	1.7	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.8	<0.1	8.2	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	1	<0.5	17	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	1	<0.5	17	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	1	<0.5	17	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	5.0	0.38	150	NIL (+)VE
Surrogate p-Terphenyl-d14	%	96	92	97	97	98

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	134222-26 JK118a 0.1-0.2 8/09/2015 Soil	134222-27 JK118a 1.9-2.35 8/09/2015 Soil	134222-28 JK118a 4.9-5.35 8/09/2015 Soil	134222-29 BH211 0.1-0.2 8/09/2015 Soil	134222-30 BH211 0.9-1.35 8/09/2015 Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
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	0.4	<0.1	<0.1	0.2	<0.1
Pyrene	mg/kg	0.3	<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,j+k)fluoranthene	mg/kg	0.3	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.2	<0.05	<0.05	0.07	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	1.9	NIL (+)VE	NIL (+)VE	0.59	NIL (+)VE
Surrogate p-Terphenyl-d14	%	97	102	98	97	98

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	134222-31 BH211 2.9-2.35 8/09/2015 Soil	134222-32 BH214 0.1-0.2 8/09/2015 Soil	134222-33 BH214 2.2-2.65 8/09/2015 Soil	134222-34 BH213 0.1-0.2 8/09/2015 Soil	134222-35 BH213 2.9-3.35 8/09/2015 Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
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	0.3	<0.1	0.4	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.5	0.1	0.8	<0.1
Pyrene	mg/kg	<0.1	0.5	0.1	0.7	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.2	<0.1	0.3	<0.1
Chrysene	mg/kg	<0.1	0.2	<0.1	0.3	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.3	<0.2	0.5	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.2	0.06	0.3	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.1	<0.1	0.2	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.1	<0.1	0.2	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	2.5	0.30	3.6	NIL (+)VE
Surrogate p-Terphenyl-d14	%	98	96	98	97	96

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	134222-36 BH221 0.1-0.2 8/09/2015 Soil	134222-37 BH221 1.9-2.35 8/09/2015 Soil	134222-38 BH221 2.9-3.35 8/09/2015 Soil	134222-39 BH221 3.9-4.35 8/09/2015 Soil	134222-40 BH222 0.1-0.2 9/09/2015 Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
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	0.2	0.1	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.2	0.5	0.2	0.4
Pyrene	mg/kg	0.1	0.2	0.5	0.1	0.4
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.2	<0.1	0.2
Chrysene	mg/kg	<0.1	<0.1	0.2	<0.1	0.2
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.5	<0.2	0.2
Benzo(a)pyrene	mg/kg	0.09	0.09	0.3	0.06	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.2	<0.1	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.1	0.3	<0.1	0.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	0.36	0.54	2.9	0.49	2.1
Surrogate p-Terphenyl-d14	%	97	95	95	96	95

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	134222-41 BH222 0.9-1.35 9/09/2015 Soil	134222-42 BH220 0.1-0.2 9/09/2015 Soil	134222-43 BH212 0.1-0.2 9/09/2015 Soil	134222-44 BH212 2.9-3.35 9/09/2015 Soil	134222-45 BH209 0.1-0.2 9/09/2015 Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Naphthalene	mg/kg	2.5	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	1.1	<0.1	<0.1	<0.1	0.1
Acenaphthene	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	1.9	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	6.6	<0.1	0.5	0.3	1.3
Anthracene	mg/kg	1.6	<0.1	0.2	<0.1	0.4
Fluoranthene	mg/kg	6.2	0.1	1.2	0.6	2.3
Pyrene	mg/kg	5.5	0.1	1.3	0.7	2.2
Benzo(a)anthracene	mg/kg	2.8	<0.1	0.5	0.3	1.0
Chrysene	mg/kg	2.6	<0.1	0.6	0.3	1
Benzo(b,j+k)fluoranthene	mg/kg	5.2	<0.2	0.8	0.6	2
Benzo(a)pyrene	mg/kg	3.6	0.1	0.4	0.4	1.1
Indeno(1,2,3-c,d)pyrene	mg/kg	2.7	<0.1	0.7	0.3	0.9
Dibenzo(a,h)anthracene	mg/kg	0.7	<0.1	0.1	<0.1	0.2
Benzo(g,h,i)perylene	mg/kg	2.5	0.1	0.8	0.3	0.8
Benzo(a)pyrene TEQ calc (zero)	mg/kg	5.4	<0.5	0.7	0.6	1.7
Benzo(a)pyrene TEQ calc(half)	mg/kg	5.4	<0.5	0.7	0.6	1.7
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	5.4	<0.5	0.7	0.7	1.7
Total Positive PAHs	mg/kg	46	0.43	7.0	3.9	13
Surrogate p-Terphenyl-d14	%	95	95	93	98	91

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	134222-46 BH209 0.9-1.35 9/09/2015 Soil	134222-47 BH209 1.9-2.35 9/09/2015 Soil	134222-48 BH209 3.9-4.35 9/09/2015 Soil	134222-49 BH204 0.1-0.2 9/09/2015 Soil	134222-50 BH204 1.9-2.35 9/09/2015 Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.6	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.8	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	11	0.3	0.1	<0.1	0.1
Anthracene	mg/kg	2.7	0.3	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	21	2.1	0.2	<0.1	0.2
Pyrene	mg/kg	19	1.9	0.2	<0.1	0.2
Benzo(a)anthracene	mg/kg	9.2	0.7	<0.1	<0.1	<0.1
Chrysene	mg/kg	7.2	0.7	0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	15	1	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	9.5	0.86	0.1	<0.05	0.08
Indeno(1,2,3-c,d)pyrene	mg/kg	8.9	0.7	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	1.4	0.2	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	7.9	0.7	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	14	1.3	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	14	1.3	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	14	1.3	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	110	10	0.76	NIL (+)VE	0.51
Surrogate p-Terphenyl-d14	%	99	96	98	98	93

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	134222-51 BH204 3.9-4.35 9/09/2015 Soil	134222-52 BH203 0.1-0.2 10/09/2015 Soil	134222-53 BH203 0.9-1.35 10/09/2015 Soil	134222-54 BH203 2.9-3.35 10/09/2015 Soil	134222-55 BH201 0.1-0.2 10/09/2015 Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
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	1.8	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	0.5	<0.1
Fluoranthene	mg/kg	0.3	0.3	0.2	2.8	<0.1
Pyrene	mg/kg	0.4	0.3	0.2	3.1	<0.1
Benzo(a)anthracene	mg/kg	0.2	0.1	<0.1	1.3	<0.1
Chrysene	mg/kg	0.2	0.1	0.1	1.3	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.3	0.2	0.2	2.2	<0.2
Benzo(a)pyrene	mg/kg	0.2	0.1	0.1	1.5	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	0.1	0.1	1.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	0.1	0.1	1.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	2.1	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	2.1	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	2.1	<0.5
Total Positive PAHs	mg/kg	1.9	1.6	1.2	17	NIL (+)VE
Surrogate p-Terphenyl-d14	%	91	92	101	92	98

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	134222-56 BH201 0.9-1.35 10/09/2015 Soil	134222-57 BH207 0.1-0.2 10/09/2015 Soil	134222-58 BH207 0.9-1.35 10/09/2015 Soil	134222-59 BH206 0.1-0.2 10/09/2015 Soil	134222-60 BH206 0.9-1.35 10/09/2015 Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Naphthalene	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	2.0	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	3.4	<0.1	0.4	<0.1
Fluorene	mg/kg	<0.1	5.1	<0.1	0.3	<0.1
Phenanthrene	mg/kg	<0.1	36	<0.1	2.3	<0.1
Anthracene	mg/kg	<0.1	9.5	<0.1	1	<0.1
Fluoranthene	mg/kg	0.1	44	<0.1	2.5	<0.1
Pyrene	mg/kg	0.1	38	<0.1	3.0	<0.1
Benzo(a)anthracene	mg/kg	<0.1	19	<0.1	1.2	<0.1
Chrysene	mg/kg	<0.1	15	<0.1	1.2	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	28	<0.2	2	<0.2
Benzo(a)pyrene	mg/kg	0.05	20	<0.05	1.1	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	15	<0.1	0.8	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	2.5	<0.1	0.2	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	12	<0.1	0.9	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	29	<0.5	1.7	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	29	<0.5	1.7	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	29	<0.5	1.7	<0.5
Total Positive PAHs	mg/kg	0.28	250	NIL (+)VE	17	NIL (+)VE
Surrogate p-Terphenyl-d14	%	93	98	100	97	97

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- - ---------- 	134222-61 BH206 2.35-2.9 10/09/2015 Soil	134222-62 BH206 4.35-4.9 10/09/2015 Soil	134222-63 BH208 0.9-1.35 10/09/2015 Soil	134222-64 BH208 3.9-4.35 10/09/2015 Soil	134222-65 BD1/070815 - 7/09/2015 Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
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	0.2	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.3	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.3	<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	0.2	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.3	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.2	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	1.9	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	98	103	99	98	103

PAHs in Soil Our Reference: Your Reference	UNITS ----------	134222-66 BD2/080915	134222-67 BD3/090915	134222-68 BD5/100915
Depth	----------	-	-	-
Date Sampled		8/09/2015	9/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.3	0.2	<0.1
Anthracene	mg/kg	0.2	<0.1	<0.1
Fluoranthene	mg/kg	1.2	0.5	0.1
Pyrene	mg/kg	1.2	0.6	0.1
Benzo(a)anthracene	mg/kg	0.6	0.2	<0.1
Chrysene	mg/kg	0.6	0.3	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	1	0.6	<0.2
Benzo(a)pyrene	mg/kg	0.77	0.4	0.08
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	0.3	<0.1
Dibenzo(a,h)anthracene	mg/kg	0.2	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.6	0.3	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	1.2	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	1.2	0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.2	0.6	<0.5
Total Positive PAHs	mg/kg	7.5	3.3	0.34
Surrogate p-Terphenyl-d14	%	97	98	98

Organochlorine Pesticides in soil						
Our Reference:	UNITS	134222-1	134222-2	134222-3	134222-4	134222-5
Your Reference	----------	BH202	BH202	BH/MW215	BH/MW215	BH208
	-					
Depth	----------	0.9-1.35	1.9-2.35	0.9-1.35	1.9-2.35	1.9-2.35
Date Sampled		3/09/2015	3/09/2015	3/09/2015	3/09/2015	3/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	102	99	96	96

Organochlorine Pesticides in soil						
Our Reference:	UNITS	134222-6	134222-7	134222-8	134222-9	134222-10
Your Reference	----------	BH/MW218	BH/MW218	BH/MW218	BH/MW216	BH/MW216
	-					
Depth	----------	0.9-1.35	2.9-2.35	5.9-6.35	0.1-0.2	3.9-4.35
Date Sampled		3/09/2015	3/09/2015	4/09/2015	4/09/2015	4/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	92	100	94	94	98

Organochlorine Pesticides in soil						
Our Reference:	UNITS	134222-11	134222-12	134222-13	134222-14	134222-15
Your Reference	----------	BH/MW216	BH/MW223	BH/MW210	BH/MW210	JK107a
Depth	- ----------	5.9-6.35	2.0-2.45	0.1-0.2	2.0-2.45	0.1-0.2
Date Sampled		4/09/2015	4/09/2015	4/09/2015	4/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	96	95	97	98

Organochlorine Pesticides in soil						
Our Reference:	UNITS	134222-16	134222-17	134222-18	134222-19	134222-20
Your Reference	----------	JK107a	JK107a	JK107a	BH205	BH205
	-					
Depth	----------	1.9-2.35	7.9-8.35	8.9-9.35	0.9-1.35	2.9-3.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	95	95	104	93

Organochlorine Pesticides in soil						
Our Reference:	UNITS	134222-21	134222-22	134222-23	134222-24	134222-25
Your Reference	----------	BH205	JK103a	JK103a	JK103a	JK103a
	-					
Depth	----------	3.9-4.35	0.1-0.2	1.9-2.35	2.9-3.35	5.9-6.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	18/09/2015	18/09/2015
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	0.2	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	0.3	<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	0.2	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	96	94	99	95

Organochlorine Pesticides in soil						
Our Reference:	UNITS	134222-26	134222-27	134222-28	134222-29	134222-30
Your Reference	----------	JK118a	JK118a	JK118a	BH211	BH211
	-					
Depth	----------	0.1-0.2	1.9-2.35	4.9-5.35	0.1-0.2	0.9-1.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	18/09/2015	18/09/2015	18/09/2015	18/09/2015	18/09/2015
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	100	116	99	103

Organochlorine Pesticides in soil						
Our Reference:	UNITS	134222-31	134222-32	134222-33	134222-34	134222-35
Your Reference	----------	BH211	BH214	BH214	BH213	BH213
Depth	- ----------	2.9-2.35	0.1-0.2	2.2-2.65	0.1-0.2	2.9-3.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	18/09/2015	18/09/2015	18/09/2015	18/09/2015	18/09/2015
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	98	98	102	97

Organochlorine Pesticides in soil						
Our Reference:	UNITS	134222-36	134222-37	134222-38	134222-39	134222-40
Your Reference	----------	BH221	BH221	BH221	BH221	BH222
	-					
Depth	----------	0.1-0.2	1.9-2.35	2.9-3.35	3.9-4.35	0.1-0.2
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	18/09/2015	18/09/2015	18/09/2015	18/09/2015	18/09/2015
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	0.3	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	97	98	97	96	98

Organochlorine Pesticides in soil						
Our Reference:	UNITS	134222-41	134222-42	134222-43	134222-44	134222-45
Your Reference	----------	BH222	BH220	BH212	BH212	BH209
	-					
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	113	109	102	112

Organochlorine Pesticides in soil						
Our Reference:	UNITS	134222-46	134222-47	134222-48	134222-49	134222-50
Your Reference	----------	BH209	BH209	BH209	BH204	BH204
Depth	----------	0.9-1.35	1.9-2.35	3.9-4.35	0.1-0.2	1.9-2.35
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	18/09/2015	18/09/2015	18/09/2015
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	0.2	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	98	111	125	101

Organochlorine Pesticides in soil						
Our Reference:	UNITS	134222-51	134222-52	134222-53	134222-54	134222-55
Your Reference	----------	BH204	BH203	BH203	BH203	BH201
	-					
Depth	----------	3.9-4.35	0.1-0.2	0.9-1.35	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	18/09/2015	18/09/2015	18/09/2015	18/09/2015	18/09/2015
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	0.3	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	106	102	105	111	104

Organochlorine Pesticides in soil						
Our Reference:	UNITS	134222-56	134222-57	134222-59	134222-61	134222-62
Your Reference	----------	BH201	BH207	BH206	BH206	BH206
	-					
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	2.35-2.9	4.35-4.9
Date Sampled		10/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	18/09/2015	18/09/2015	18/09/2015	18/09/2015	18/09/2015
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	109	96	111	98	101

Organochlorine Pesticides in soil					
Our Reference:	UNITS	134222-63	134222-65	134222-66	134222-67
Your Reference	----------	BH208	BD1/070815	BD2/080915	BD3/090915
Depth	- ----------	0.9-1.35	-	-	-
Date Sampled		10/09/2015	7/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	18/09/2015	18/09/2015	18/09/2015	18/09/2015
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 TCMX	%	106	111	103	109

Organophosphorus Pesticides						
Our Reference:	UNITS	134222-1	134222-2	134222-3	134222-4	134222-5
Your Reference	----------	BH202	BH202	BH/MW215	BH/MW215	BH208
Depth	- ----------	0.9-1.35	1.9-2.35	0.9-1.35	1.9-2.35	1.9-2.35
Date Sampled		3/09/2015	3/09/2015	3/09/2015	3/09/2015	3/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
Azinphos-methyl (Guthion)	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
Chlorpyriphos	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
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	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
Ethion	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
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	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
Surrogate TCMX	%	94	102	99	96	96

Organophosphorus Pesticides						
Our Reference:	UNITS	134222-6	134222-7	134222-8	134222-9	134222-10
Your Reference	----------	BH/MW218	BH/MW218	BH/MW218	BH/MW216	BH/MW216
Depth	- ----------	0.9-1.35	2.9-2.35	5.9-6.35	0.1-0.2	3.9-4.35
Date Sampled		3/09/2015	3/09/2015	4/09/2015	4/09/2015	4/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
Azinphos-methyl (Guthion)	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
Chlorpyriphos	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
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	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
Ethion	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
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	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
Surrogate TCMX	%	92	100	94	94	98

Organophosphorus Pesticides						
Our Reference:	UNITS	134222-11	134222-12	134222-13	134222-14	134222-15
Your Reference	---------- -	BH/MW216	BH/MW223	BH/MW210	BH/MW210	JK107a
Depth	----------	5.9-6.35	2.0-2.45	0.1-0.2	2.0-2.45	0.1-0.2
Date Sampled		4/09/2015	4/09/2015	4/09/2015	4/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
Azinphos-methyl (Guthion)	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
Chlorpyriphos	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
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	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
Ethion	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
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	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
Surrogate TCMX	%	100	96	95	97	98

Organophosphorus Pesticides						
Our Reference:	UNITS	134222-16	134222-17	134222-18	134222-19	134222-20
Your Reference	---------- -	JK107a	JK107a	JK107a	BH205	BH205
Depth	----------	1.9-2.35	7.9-8.35	8.9-9.35	0.9-1.35	2.9-3.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
Azinphos-methyl (Guthion)	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
Chlorpyriphos	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
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	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
Ethion	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
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	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
Surrogate TCMX	%	96	95	95	104	93

Organophosphorus Pesticides						
Our Reference:	UNITS	134222-21	134222-22	134222-23	134222-24	134222-25
Your Reference	---------- -	BH205	JK103a	JK103a	JK103a	JK103a
Depth	----------	3.9-4.35	0.1-0.2	1.9-2.35	2.9-3.35	5.9-6.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
Azinphos-methyl (Guthion)	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
Chlorpyriphos	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
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	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
Ethion	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
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	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
Surrogate TCMX	%	93	96	94	99	95

Organophosphorus Pesticides						
Our Reference:	UNITS	134222-26	134222-27	134222-28	134222-29	134222-30
Your Reference	---------- -	JK118a	JK118a	JK118a	BH211	BH211
Depth	----------	0.1-0.2	1.9-2.35	4.9-5.35	0.1-0.2	0.9-1.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
Azinphos-methyl (Guthion)	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
Chlorpyriphos	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
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	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
Ethion	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
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	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
Surrogate TCMX	%	100	100	116	99	103

Organophosphorus Pesticides						
Our Reference:	UNITS	134222-31	134222-32	134222-33	134222-34	134222-35
Your Reference	----------	BH211	BH214	BH214	BH213	BH213
Depth	----------	2.9-2.35	0.1-0.2	2.2-2.65	0.1-0.2	2.9-3.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
Azinphos-methyl (Guthion)	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
Chlorpyriphos	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
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	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
Ethion	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
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	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
Surrogate TCMX	%	98	98	98	102	97

Organophosphorus Pesticides						
Our Reference:	UNITS	134222-36	134222-37	134222-38	134222-39	134222-40
Your Reference	----------	BH221	BH221	BH221	BH221	BH222
Depth	----------	0.1-0.2	1.9-2.35	2.9-3.35	3.9-4.35	0.1-0.2
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
Azinphos-methyl (Guthion)	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
Chlorpyriphos	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
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	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
Ethion	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
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	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
Surrogate TCMX	%	97	98	97	96	98

Organophosphorus Pesticides						
Our Reference:	UNITS	134222-41	134222-42	134222-43	134222-44	134222-45
Your Reference	----------	BH222	BH220	BH212	BH212	BH209
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
Azinphos-methyl (Guthion)	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
Chlorpyriphos	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
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	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
Ethion	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
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	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
Surrogate TCMX	%	100	113	109	102	112

Organophosphorus Pesticides						
Our Reference:	UNITS	134222-46	134222-47	134222-48	134222-49	134222-50
Your Reference	----------	BH209	BH209	BH209	BH204	BH204
Depth	----------	0.9-1.35	1.9-2.35	3.9-4.35	0.1-0.2	1.9-2.35
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	18/09/2015	18/09/2015	18/09/2015
Azinphos-methyl (Guthion)	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
Chlorpyriphos	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
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	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
Ethion	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
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	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
Surrogate TCMX	%	98	98	111	125	101

Organophosphorus Pesticides						
Our Reference:	UNITS	134222-51	134222-52	134222-53	134222-54	134222-55
Your Reference	----------	BH204	BH203	BH203	BH203	BH201
	-					
Depth	----------	3.9-4.35	0.1-0.2	0.9-1.35	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	18/09/2015	18/09/2015	18/09/2015	18/09/2015	18/09/2015
Azinphos-methyl (Guthion)	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
Chlorpyriphos	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
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	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
Ethion	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
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	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
Surrogate TCMX	%	106	102	105	111	104

Organophosphorus Pesticides						
Our Reference:	UNITS	134222-56	134222-57	134222-59	134222-61	134222-62
Your Reference	----------	BH201	BH207	BH206	BH206	BH206
	-					
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	2.35-2.9	4.35-4.9
Date Sampled		10/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	18/09/2015	18/09/2015	18/09/2015	18/09/2015	18/09/2015
Azinphos-methyl (Guthion)	mg/kg	<0.1	0.6	<0.1	<0.1	<0.1
Bromophos-ethyl	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
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	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
Ethion	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
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	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
Surrogate TCMX	%	109	96	111	98	101

Organophosphorus Pesticides					
Our Reference:	UNITS	134222-63	134222-65	134222-66	134222-67
Your Reference	---------- -	BH208	BD1/070815	BD2/080915	BD3/090915
Depth	----------	0.9-1.35	-	-	-
Date Sampled		10/09/2015	7/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	18/09/2015	18/09/2015	18/09/2015	18/09/2015
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	106	111	103	109

PCBs in Soil						
Our Reference:	UNITS	134222-1	134222-2	134222-3	134222-4	134222-5
Your Reference	----------	BH202	BH202	BH/MW215	BH/MW215	BH208
	-					
Depth	----------	0.9-1.35	1.9-2.35	0.9-1.35	1.9-2.35	1.9-2.35
Date Sampled		3/09/2015	3/09/2015	3/09/2015	3/09/2015	3/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	94	102	99	96	96

PCBs in Soil						
Our Reference:	UNITS	134222-6	134222-7	134222-8	134222-9	134222-10
Your Reference	----------	BH/MW218	BH/MW218	BH/MW218	BH/MW216	BH/MW216
	-					
Depth	----------	0.9-1.35	2.9-2.35	5.9-6.35	0.1-0.2	3.9-4.35
Date Sampled		3/09/2015	3/09/2015	4/09/2015	4/09/2015	4/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	92	100	94	94	98

PCBs in Soil						
Our Reference:	UNITS	134222-11	134222-12	134222-13	134222-14	134222-15
Your Reference	---------- -	BH/MW216	BH/MW223	BH/MW210	BH/MW210	JK107a
Depth	----------	5.9-6.35	2.0-2.45	0.1-0.2	2.0-2.45	0.1-0.2
Date Sampled		4/09/2015	4/09/2015	4/09/2015	4/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	100	96	95	97	98

PCBs in Soil						
Our Reference:	UNITS	134222-16	134222-17	134222-18	134222-19	134222-20
Your Reference	---------- -	JK107a	JK107a	JK107a	BH205	BH205
Depth	----------	1.9-2.35	7.9-8.35	8.9-9.35	0.9-1.35	2.9-3.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	96	95	95	104	93

PCBs in Soil						
Our Reference:	UNITS	134222-21	134222-22	134222-23	134222-24	134222-25
Your Reference	---------- -	BH205	JK103a	JK103a	JK103a	JK103a
Depth	----------	3.9-4.35	0.1-0.2	1.9-2.35	2.9-3.35	5.9-6.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.5	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.5	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.5	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.5	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.5	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.5	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.5	<0.1
Surrogate TCLMX	%	93	96	94	99	95

PCBs in Soil						
Our Reference:	UNITS	134222-26	134222-27	134222-28	134222-29	134222-30
Your Reference	---------- -	JK118a	JK118a	JK118a	BH211	BH211
Depth	----------	0.1-0.2	1.9-2.35	4.9-5.35	0.1-0.2	0.9-1.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	100	100	116	99	103

PCBs in Soil						
Our Reference:	UNITS	134222-31	134222-32	134222-33	134222-34	134222-35
Your Reference	----------	BH211	BH214	BH214	BH213	BH213
	-					
Depth	----------	2.9-2.35	0.1-0.2	2.2-2.65	0.1-0.2	2.9-3.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	98	98	98	102	97

PCBs in Soil						
Our Reference:	UNITS	134222-36	134222-37	134222-38	134222-39	134222-40
Your Reference	----------	BH221	BH221	BH221	BH221	BH222
	-					
Depth	----------	0.1-0.2	1.9-2.35	2.9-3.35	3.9-4.35	0.1-0.2
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	97	98	97	96	98

PCBs in Soil						
Our Reference:	UNITS	134222-41	134222-42	134222-43	134222-44	134222-45
Your Reference	----------	BH222	BH220	BH212	BH212	BH209
Depth	- ----------	0.9-1.35	0.1-0.2	0.1-0.2	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	17/09/2015	17/09/2015	17/09/2015
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.2	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.2	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.2	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.2	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.2	<0.1
Aroclor 1254	mg/kg	<0.1	3.7	<0.1	<0.2	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.2	<0.1
Surrogate TCLMX	%	100	113	109	102	112

PCBs in Soil						
Our Reference:	UNITS	134222-46	134222-47	134222-48	134222-49	134222-50
Your Reference	----------	BH209	BH209	BH209	BH204	BH204
Depth	- ----------	0.9-1.35	1.9-2.35	3.9-4.35	0.1-0.2	1.9-2.35
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	17/09/2015	17/09/2015	18/09/2015	18/09/2015	18/09/2015
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<1
Surrogate TCLMX	%	98	98	111	125	101

PCBs in Soil						
Our Reference:	UNITS	134222-51	134222-52	134222-53	134222-54	134222-55
Your Reference	----------	BH204	BH203	BH203	BH203	BH201
Depth	- ----------	3.9-4.35	0.1-0.2	0.9-1.35	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	18/09/2015	18/09/2015	18/09/2015	18/09/2015	18/09/2015
Aroclor 1016	mg/kg	<1	<0.1	<0.1	<0.5	<0.1
Aroclor 1221	mg/kg	<1	<0.1	<0.1	<0.5	<0.1
Aroclor 1232	mg/kg	<1	<0.1	<0.1	<0.5	<0.1
Aroclor 1242	mg/kg	<1	<0.1	<0.1	<0.5	<0.1
Aroclor 1248	mg/kg	<1	<0.1	<0.1	<0.5	<0.1
Aroclor 1254	mg/kg	<1	<0.1	<0.1	<0.5	<0.1
Aroclor 1260	mg/kg	<1	<0.1	<0.1	<0.5	<0.1
Surrogate TCLMX	%	106	102	105	111	104

PCBs in Soil						
Our Reference:	UNITS	134222-56	134222-57	134222-59	134222-61	134222-62
Your Reference	----------	BH201	BH207	BH206	BH206	BH206
Depth	- ----------	0.9-1.35	0.1-0.2	0.1-0.2	2.35-2.9	4.35-4.9
Date Sampled		10/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	18/09/2015	18/09/2015	18/09/2015	18/09/2015	18/09/2015
Aroclor 1016	mg/kg	<0.1	<1	<0.5	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<1	<0.5	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<1	<0.5	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<1	<0.5	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<1	<0.5	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<1	<0.5	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<1	<0.5	<0.1	<0.1
Surrogate TCLMX	%	109	96	111	98	101

PCBs in Soil					
Our Reference:	UNITS	134222-63	134222-65	134222-66	134222-67
Your Reference	---------- -	BH208	BD1/070815	BD2/080915	BD3/090915
Depth	----------	0.9-1.35	-	-	-
Date Sampled		10/09/2015	7/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	18/09/2015	18/09/2015	18/09/2015	18/09/2015
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	106	111	103	109

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-1	134222-2	134222-3	134222-4	134222-5
Your Reference	----------	BH202	BH202	BH/MW215	BH/MW215	BH208
	-					
Depth	----------	0.9-1.35	1.9-2.35	0.9-1.35	1.9-2.35	1.9-2.35
Date Sampled		3/09/2015	3/09/2015	3/09/2015	3/09/2015	3/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	<4	6	<4	<4	<4
Cadmium	mg/kg	<0.4	0.5	<0.4	<0.4	<0.4
Chromium	mg/kg	45	26	9	4	18
Copper	mg/kg	47	50	10	17	21
Lead	mg/kg	13	170	28	19	55
Mercury	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	11	15	4	2	13
Zinc	mg/kg	32	140	50	11	470
Manganese	mg/kg	1,500	180	61	13	190

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-6	134222-7	134222-8	134222-9	134222-10
Your Reference	----------	BH/MW218	BH/MW218	BH/MW218	BH/MW216	BH/MW216
	-					
Depth	----------	0.9-1.35	2.9-2.35	5.9-6.35	0.1-0.2	3.9-4.35
Date Sampled		3/09/2015	3/09/2015	4/09/2015	4/09/2015	4/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	<4	5	5	<4	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.8	<0.4
Chromium	mg/kg	4	14	15	13	21
Copper	mg/kg	2	46	7	28	26
Lead	mg/kg	4	37	11	54	66
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	3	13	2	9	11
Zinc	mg/kg	13	64	3	130	83
Manganese	mg/kg	68	110	5	200	230

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-11	134222-12	134222-13	134222-14	134222-15
Your Reference	---------- -	BH/MW216	BH/MW223	BH/MW210	BH/MW210	JK107a
Depth	----------	5.9-6.35	2.0-2.45	0.1-0.2	2.0-2.45	0.1-0.2
Date Sampled		4/09/2015	4/09/2015	4/09/2015	4/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	17	5	<4	5	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	21	17	10	12	9
Copper	mg/kg	23	540	63	4	19
Lead	mg/kg	51	79	11	10	38
Mercury	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Nickel	mg/kg	9	10	14	2	5
Zinc	mg/kg	170	110	33	5	79
Manganese	mg/kg	130	190	280	15	87

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-16	134222-17	134222-18	134222-19	134222-20
Your Reference	---------- -	JK107a	JK107a	JK107a	BH205	BH205
Depth	----------	1.9-2.35	7.9-8.35	8.9-9.35	0.9-1.35	2.9-3.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	10	<4	<4	<4	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	5	3	46	9
Copper	mg/kg	29	5	3	15	7
Lead	mg/kg	98	6	6	12	13
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	1	<1	19	2
Zinc	mg/kg	110	2	4	25	5
Manganese	mg/kg	89	2	3	92	8

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-21	134222-22	134222-23	134222-24	134222-25
Your Reference	---------- -	BH205	JK103a	JK103a	JK103a	JK103a
Depth	----------	3.9-4.35	0.1-0.2	1.9-2.35	2.9-3.35	5.9-6.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	8	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	73	4	12	3
Copper	mg/kg	15	78	18	22	3
Lead	mg/kg	15	6	31	49	3
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	11	1	9	<1
Zinc	mg/kg	15	26	14	66	1
Manganese	mg/kg	9	2,300	51	170	1

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-26	134222-27	134222-28	134222-29	134222-30
Your Reference	---------- -	JK118a	JK118a	JK118a	BH211	BH211
Depth	----------	0.1-0.2	1.9-2.35	4.9-5.35	0.1-0.2	0.9-1.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	4	9	15	12	10
Copper	mg/kg	17	12	15	19	5
Lead	mg/kg	15	63	10	21	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	6	2	9	2
Zinc	mg/kg	25	87	9	54	4
Manganese	mg/kg	110	120	9	200	18

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-31	134222-32	134222-33	134222-34	134222-35
Your Reference	----------	BH211	BH214	BH214	BH213	BH213
	-					
Depth	----------	2.9-2.35	0.1-0.2	2.2-2.65	0.1-0.2	2.9-3.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	4	<4	<4	8	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	18	6	19	13
Copper	mg/kg	3	46	14	21	4
Lead	mg/kg	24	17	54	19	18
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	11	8	14	3
Zinc	mg/kg	6	48	33	43	27
Manganese	mg/kg	42	240	67	200	27

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-36	134222-37	134222-38	134222-39	134222-40
Your Reference	----------	BH221	BH221	BH221	BH221	BH222
	-					
Depth	----------	0.1-0.2	1.9-2.35	2.9-3.35	3.9-4.35	0.1-0.2
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	<4	4	7	17	<4
Cadmium	mg/kg	<0.4	<0.4	0.6	0.7	<0.4
Chromium	mg/kg	11	14	15	25	16
Copper	mg/kg	14	16	45	24	32
Lead	mg/kg	30	92	620	86	22
Mercury	mg/kg	0.1	<0.1	0.2	<0.1	<0.1
Nickel	mg/kg	4	6	9	8	26
Zinc	mg/kg	69	78	290	150	52
Manganese	mg/kg	110	120	180	130	560

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-41	134222-42	134222-43	134222-44	134222-45
Your Reference	----------	BH222	BH220	BH212	BH212	BH209
	-					
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	<4	4	<4	6	6
Cadmium	mg/kg	<0.4	0.8	<0.4	0.6	<0.4
Chromium	mg/kg	12	16	28	16	18
Copper	mg/kg	85	47	67	41	82
Lead	mg/kg	22	190	16	130	98
Mercury	mg/kg	<0.1	0.2	<0.1	0.1	0.1
Nickel	mg/kg	12	11	11	9	13
Zinc	mg/kg	77	290	39	240	210
Manganese	mg/kg	220	610	800	120	270

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-46	134222-47	134222-48	134222-49	134222-50
Your Reference	----------	BH209	BH209	BH209	BH204	BH204
	-					
Depth	----------	0.9-1.35	1.9-2.35	3.9-4.35	0.1-0.2	1.9-2.35
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	<4	5	7	<4	5
Cadmium	mg/kg	<0.4	<0.4	0.4	<0.4	<0.4
Chromium	mg/kg	21	17	19	5	15
Copper	mg/kg	37	55	25	24	56
Lead	mg/kg	35	35	150	47	72
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	9	10	3	5
Zinc	mg/kg	75	66	140	83	140
Manganese	mg/kg	450	150	190	44	130

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-51	134222-52	134222-53	134222-54	134222-55
Your Reference	---------- -	BH204	BH203	BH203	BH203	BH201
Depth	----------	3.9-4.35	0.1-0.2	0.9-1.35	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	7	<4	7	7	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.5	0.4
Chromium	mg/kg	11	7	14	15	7
Copper	mg/kg	64	46	19	160	32
Lead	mg/kg	150	44	36	860	56
Mercury	mg/kg	0.1	<0.1	<0.1	0.2	<0.1
Nickel	mg/kg	16	5	6	14	5
Zinc	mg/kg	210	100	70	380	110
Manganese	mg/kg	80	87	40	150	61

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-56	134222-57	134222-58	134222-59	134222-60
Your Reference	---------- -	BH201	BH207	BH207	BH206	BH206
Depth	----------	0.9-1.35	0.1-0.2	0.9-1.35	0.1-0.2	0.9-1.35
Date Sampled		10/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	4	<4	5	5	8
Cadmium	mg/kg	1	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	25	15	17	15
Copper	mg/kg	79	53	18	30	22
Lead	mg/kg	110	16	21	140	16
Mercury	mg/kg	0.1	<0.1	<0.1	0.2	<0.1
Nickel	mg/kg	9	26	6	15	11
Zinc	mg/kg	170	40	55	140	30
Manganese	mg/kg	160	490	73	160	450

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-61	134222-62	134222-63	134222-64	134222-65
Your Reference	---------- -	BH206	BH206	BH208	BH208	BD1/070815
Depth	----------	2.35-2.9	4.35-4.9	0.9-1.35	3.9-4.35	-
Date Sampled		10/09/2015	10/09/2015	10/09/2015	10/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	<4	17	<4	7	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	0.6
Chromium	mg/kg	16	19	10	30	13
Copper	mg/kg	8	10	19	13	49
Lead	mg/kg	25	32	32	26	35
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	11	5	5	43
Zinc	mg/kg	9	30	44	16	160
Manganese	mg/kg	37	120	42	6	340

Acid Extractable metals in soil						
Our Reference:	UNITS	134222-66	134222-67	134222-68	134222-75	134222-76
Your Reference	---------- -	BD2/080915	BD3/090915	BD5/100915	BH222 - TRIPLICATE	BH204 - TRIPLICATE
Depth	----------	-	-	-	0.9-1.35	3.9-4.35
Date Sampled		8/09/2015	9/09/2015	10/09/2015	09/09/2015	09/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Arsenic	mg/kg	5	4	6	<4	6
Cadmium	mg/kg	<0.4	0.5	<0.4	<0.4	<0.4
Chromium	mg/kg	9	12	16	23	13
Copper	mg/kg	42	27	56	250	31
Lead	mg/kg	90	140	93	42	180
Mercury	mg/kg	0.1	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	8	10	16	8
Zinc	mg/kg	75	170	250	160	150
Manganese	mg/kg	79	100	85	270	110

Acid Extractable metals in soil			
Our Reference:	UNITS	134222-77	134222-78
Your Reference	----------	BH206 - TRIPLICATE	BH/MW216 - TRIPLICATE
	-		
Depth	----------	2.35-2.9	5.9-6.35
Date Sampled		10/09/2015	04/09/2015
Type of sample		Soil	Soil
Date prepared	-	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015
Arsenic	mg/kg	<4	14
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	16	18
Copper	mg/kg	10	18
Lead	mg/kg	35	43
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	2	7
Zinc	mg/kg	10	210
Manganese	mg/kg	49	74

Misc Soil - Inorg						
Our Reference:	UNITS	134222-1	134222-2	134222-3	134222-4	134222-5
Your Reference	---------- -	BH202	BH202	BH/MW215	BH/MW215	BH208
Depth	----------	0.9-1.35	1.9-2.35	0.9-1.35	1.9-2.35	1.9-2.35
Date Sampled		3/09/2015	3/09/2015	3/09/2015	3/09/2015	3/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference:	UNITS	134222-6	134222-7	134222-8	134222-9	134222-10
Your Reference	---------- -	BH/MW218	BH/MW218	BH/MW218	BH/MW216	BH/MW216
Depth	----------	0.9-1.35	2.9-2.35	5.9-6.35	0.1-0.2	3.9-4.35
Date Sampled		3/09/2015	3/09/2015	4/09/2015	4/09/2015	4/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	0.6	<0.5	<0.5	<0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference:	UNITS	134222-11	134222-12	134222-13	134222-14	134222-15
Your Reference	---------- -	BH/MW216	BH/MW223	BH/MW210	BH/MW210	JK107a
Depth	----------	5.9-6.35	2.0-2.45	0.1-0.2	2.0-2.45	0.1-0.2
Date Sampled		4/09/2015	4/09/2015	4/09/2015	4/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference:	UNITS	134222-16	134222-17	134222-18	134222-19	134222-20
Your Reference	---------- -	JK107a	JK107a	JK107a	BH205	BH205
Depth	----------	1.9-2.35	7.9-8.35	8.9-9.35	0.9-1.35	2.9-3.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference:	UNITS	134222-21	134222-22	134222-23	134222-24	134222-25
Your Reference	---------- -	BH205	JK103a	JK103a	JK103a	JK103a
Depth	----------	3.9-4.35	0.1-0.2	1.9-2.35	2.9-3.35	5.9-6.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference:	UNITS	134222-26	134222-27	134222-28	134222-29	134222-30
Your Reference	---------- -	JK118a	JK118a	JK118a	BH211	BH211
Depth	----------	0.1-0.2	1.9-2.35	4.9-5.35	0.1-0.2	0.9-1.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference:	UNITS	134222-31	134222-32	134222-33	134222-34	134222-35
Your Reference	---------- -	BH211	BH214	BH214	BH213	BH213
Depth	----------	2.9-2.35	0.1-0.2	2.2-2.65	0.1-0.2	2.9-3.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference:	UNITS	134222-36	134222-37	134222-38	134222-39	134222-40
Your Reference	---------- -	BH221	BH221	BH221	BH221	BH222
Depth	----------	0.1-0.2	1.9-2.35	2.9-3.35	3.9-4.35	0.1-0.2
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference:	UNITS	134222-41	134222-42	134222-43	134222-44	134222-45
Your Reference	---------- -	BH222	BH220	BH212	BH212	BH209
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	0.5	<0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference:	UNITS	134222-46	134222-47	134222-48	134222-49	134222-50
Your Reference	---------- -	BH209	BH209	BH209	BH204	BH204
Depth	----------	0.9-1.35	1.9-2.35	3.9-4.35	0.1-0.2	1.9-2.35
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	4.4	<0.5	<0.5	<0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference:	UNITS	134222-51	134222-52	134222-53	134222-54	134222-55
Your Reference	---------- -	BH204	BH203	BH203	BH203	BH201
Depth	----------	3.9-4.35	0.1-0.2	0.9-1.35	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5	0.6
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference:	UNITS	134222-56	134222-57	134222-59	134222-61	134222-62
Your Reference	---------- -	BH201	BH207	BH206	BH206	BH206
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	2.35-2.9	4.35-4.9
Date Sampled		10/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5	0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg					
Our Reference:	UNITS	134222-63	134222-65	134222-66	134222-67
Your Reference	---------- -	BH208	BD1/070815	BD2/080915	BD3/090915
Depth	----------	0.9-1.35	-	-	-
Date Sampled		10/09/2015	7/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Total Cyanide	mg/kg	<0.5	<0.5	<0.5	<0.5
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5

Moisture						
Our Reference:	UNITS	134222-1	134222-2	134222-3	134222-4	134222-5
Your Reference	---------- -	BH202	BH202	BH/MW215	BH/MW215	BH208
Depth	----------	0.9-1.35	1.9-2.35	0.9-1.35	1.9-2.35	1.9-2.35
Date Sampled		3/09/2015	3/09/2015	3/09/2015	3/09/2015	3/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	14	15	7.6	18	12

Moisture						
Our Reference:	UNITS	134222-6	134222-7	134222-8	134222-9	134222-10
Your Reference	---------- -	BH/MW218	BH/MW218	BH/MW218	BH/MW216	BH/MW216
Depth	----------	0.9-1.35	2.9-2.35	5.9-6.35	0.1-0.2	3.9-4.35
Date Sampled		3/09/2015	3/09/2015	4/09/2015	4/09/2015	4/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	14	20	19	9.7	20

Moisture						
Our Reference:	UNITS	134222-11	134222-12	134222-13	134222-14	134222-15
Your Reference	---------- -	BH/MW216	BH/MW223	BH/MW210	BH/MW210	JK107a
Depth	----------	5.9-6.35	2.0-2.45	0.1-0.2	2.0-2.45	0.1-0.2
Date Sampled		4/09/2015	4/09/2015	4/09/2015	4/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	31	11	5.3	15	21

Moisture						
Our Reference:	UNITS	134222-16	134222-17	134222-18	134222-19	134222-20
Your Reference	---------- -	JK107a	JK107a	JK107a	BH205	BH205
Depth	----------	1.9-2.35	7.9-8.35	8.9-9.35	0.9-1.35	2.9-3.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	23	16	17	4.2	15

Moisture						
Our Reference:	UNITS	134222-21	134222-22	134222-23	134222-24	134222-25
Your Reference	----------	BH205	JK103a	JK103a	JK103a	JK103a
	-					
Depth	----------	3.9-4.35	0.1-0.2	1.9-2.35	2.9-3.35	5.9-6.35
Date Sampled		7/09/2015	7/09/2015	7/09/2015	7/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	17	6.5	17	10	13

Moisture						
Our Reference:	UNITS	134222-26	134222-27	134222-28	134222-29	134222-30
Your Reference	----------	JK118a	JK118a	JK118a	BH211	BH211
	-					
Depth	----------	0.1-0.2	1.9-2.35	4.9-5.35	0.1-0.2	0.9-1.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	4.2	8.4	19	10	15

Moisture						
Our Reference:	UNITS	134222-31	134222-32	134222-33	134222-34	134222-35
Your Reference	----------	BH211	BH214	BH214	BH213	BH213
	-					
Depth	----------	2.9-2.35	0.1-0.2	2.2-2.65	0.1-0.2	2.9-3.35
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	8/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	18	9.0	9.1	7.7	16

Moisture						
Our Reference:	UNITS	134222-36	134222-37	134222-38	134222-39	134222-40
Your Reference	----------	BH221	BH221	BH221	BH221	BH222
	-					
Depth	----------	0.1-0.2	1.9-2.35	2.9-3.35	3.9-4.35	0.1-0.2
Date Sampled		8/09/2015	8/09/2015	8/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	13	11	14	16	6.7

Moisture						
Our Reference:	UNITS	134222-41	134222-42	134222-43	134222-44	134222-45
Your Reference	---------- -	BH222	BH220	BH212	BH212	BH209
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	8.1	11	8.6	21	12

Moisture						
Our Reference:	UNITS	134222-46	134222-47	134222-48	134222-49	134222-50
Your Reference	---------- -	BH209	BH209	BH209	BH204	BH204
Depth	----------	0.9-1.35	1.9-2.35	3.9-4.35	0.1-0.2	1.9-2.35
Date Sampled		9/09/2015	9/09/2015	9/09/2015	9/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	9.5	14	16	5.8	8.0

Moisture						
Our Reference:	UNITS	134222-51	134222-52	134222-53	134222-54	134222-55
Your Reference	---------- -	BH204	BH203	BH203	BH203	BH201
Depth	----------	3.9-4.35	0.1-0.2	0.9-1.35	2.9-3.35	0.1-0.2
Date Sampled		9/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	12	5.7	14	13	5.4

Moisture						
Our Reference:	UNITS	134222-56	134222-57	134222-58	134222-59	134222-60
Your Reference	---------- -	BH201	BH207	BH207	BH206	BH206
Depth	----------	0.9-1.35	0.1-0.2	0.9-1.35	0.1-0.2	0.9-1.35
Date Sampled		10/09/2015	10/09/2015	10/09/2015	10/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	9.1	3.4	11	11	20

Moisture						
Our Reference:	UNITS	134222-61	134222-62	134222-63	134222-64	134222-65
Your Reference	----------	BH206	BH206	BH208	BH208	BD1/070815
	-					
Depth	----------	2.35-2.9	4.35-4.9	0.9-1.35	3.9-4.35	-
Date Sampled		10/09/2015	10/09/2015	10/09/2015	10/09/2015	7/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	19	33	15	24	22

Moisture						
Our Reference:	UNITS	134222-66	134222-67	134222-68	134222-70	134222-72
Your Reference	----------	BD2/080915	BD3/090915	BD5/100915	TB1	TB2
	-					
Depth	----------	-	-	-	-	-
Date Sampled		8/09/2015	9/09/2015	10/09/2015	1/09/2015	1/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2015	14/09/2015	14/09/2015	14/09/2015	14/09/2015
Date analysed	-	15/09/2015	15/09/2015	15/09/2015	15/09/2015	15/09/2015
Moisture	%	16	16	9.7	0.9	1.2

Moisture		
Our Reference:	UNITS	134222-74
Your Reference	----------	TB3
	-	
Depth	----------	-
Date Sampled		1/09/2015
Type of sample		Soil
Date prepared	-	14/09/2015
Date analysed	-	15/09/2015
Moisture	%	1.2

Misc Inorg - Soil						
Our Reference:	UNITS	134222-6	134222-15	134222-22	134222-29	134222-40
Your Reference	----------	BH/MW218	JK107a	JK103a	BH211	BH222
	-					
Depth	----------	0.9-1.35	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled		3/09/2015	7/09/2015	7/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
pH 1:5 soil:water	pH Units	9.9	8.3	9.7	10.2	9.2

Misc Inorg - Soil			
Our Reference:	UNITS	134222-52	134222-57
Your Reference	----------	BH203	BH207
	-		
Depth	----------	0.1-0.2	0.1-0.2
Date Sampled		10/09/2015	10/09/2015
Type of sample		Soil	Soil
Date prepared	-	15/09/2015	15/09/2015
Date analysed	-	15/09/2015	15/09/2015
pH 1:5 soil:water	pH Units	9.1	10.1

CEC Our Reference: Your Reference	UNITS ----------	134222-6 BH/MW218	134222-15 JK107a	134222-22 JK103a	134222-29 BH211	134222-40 BH222
Depth	-	0.9-1.35	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Date Sampled	----------	3/09/2015	7/09/2015	7/09/2015	8/09/2015	9/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
Date analysed	-	16/09/2015	16/09/2015	16/09/2015	16/09/2015	16/09/2015
Exchangeable Ca	meq/100g	3.5	18	16	31	26
Exchangeable K	meq/100g	0.2	0.2	0.3	1.6	0.6
Exchangeable Mg	meq/100g	0.19	0.59	0.62	0.23	0.31
Exchangeable Na	meq/100g	0.39	0.31	0.39	2.6	0.31
Cation Exchange Capacity	meq/100g	4.3	19	18	36	27

CEC Our Reference: Your Reference	UNITS ----------	134222-52 BH203	134222-57 BH207
Depth	-	0.1-0.2	0.1-0.2
Date Sampled	----------	10/09/2015	10/09/2015
Type of sample		Soil	Soil
Date prepared	-	16/09/2015	16/09/2015
Date analysed	-	16/09/2015	16/09/2015
Exchangeable Ca	meq/100g	17	18
Exchangeable K	meq/100g	0.4	0.2
Exchangeable Mg	meq/100g	0.43	0.93
Exchangeable Na	meq/100g	1.2	0.78
Cation Exchange Capacity	meq/100g	19	20

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 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. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
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.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soil based on Rayment and Lyons 2011.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			14/09/2015	134222-1	14/09/2015 || 14/09/2015	LCS-12	14/09/2015
Date analysed	-			17/09/2015	134222-1	17/09/2015 || 17/09/2015	LCS-12	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	134222-1	<25 || <25	LCS-12	107%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	134222-1	<25 || <25	LCS-12	107%
Benzene	mg/kg	0.2	Org-016	<0.2	134222-1	<0.2 || <0.2	LCS-12	102%
Toluene	mg/kg	0.5	Org-016	<0.5	134222-1	<0.5 || <0.5	LCS-12	108%
Ethylbenzene	mg/kg	1	Org-016	<1	134222-1	<1 || <1	LCS-12	108%
m+p-xylene	mg/kg	2	Org-016	<2	134222-1	<2 || <2	LCS-12	108%
o-Xylene	mg/kg	1	Org-016	<1	134222-1	<1 || <1	LCS-12	107%
naphthalene	mg/kg	1	Org-014	<1	134222-1	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	101	134222-1	93 || 96 || RPD: 3	LCS-12	102%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			14/09/2015	134222-1	14/09/2015 || 14/09/2015	LCS-12	14/09/2015
Date analysed	-			16/09/2015	134222-1	15/09/2015 || 15/09/2015	LCS-12	15/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	134222-1	<50 || <50	LCS-12	112%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	134222-1	<100 || 160	LCS-12	107%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	134222-1	240 || 540 || RPD: 77	LCS-12	110%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	134222-1	<50 || <50	LCS-12	112%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	134222-1	200 || 530 || RPD: 90	LCS-12	107%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	134222-1	330 || 700 || RPD: 72	LCS-12	110%
Surrogate o-Terphenyl	%		Org-003	93	134222-1	89 || 95 || RPD: 7	LCS-12	86%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			14/09/2015	134222-1	14/09/2015 || 14/09/2015	LCS-12	14/09/2015
Date analysed	-			15/09/2015	134222-1	15/09/2015 || 15/09/2015	LCS-12	15/09/2015
Naphthalene	mg/kg	0.1	Org-012	<0.1	134222-1	<0.1 || <0.1	LCS-12	96%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	134222-1	<0.1 || <0.1	LCS-12	101%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	134222-1	0.3 || 0.6 || RPD: 67	LCS-12	107%
Anthracene	mg/kg	0.1	Org-012	<0.1	134222-1	0.1 || 0.2 || RPD: 67	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	134222-1	0.8 || 1.3 || RPD: 48	LCS-12	107%
Pyrene	mg/kg	0.1	Org-012	<0.1	134222-1	0.8 || 1.4 || RPD: 55	LCS-12	125%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	134222-1	0.3 || 0.5 || RPD: 50	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	134222-1	0.3 || 0.6 || RPD: 67	LCS-12	101%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012	<0.2	134222-1	0.7 || 1 || RPD: 35	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	134222-1	0.4 || 0.68 || RPD: 52	LCS-12	110%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	134222-1	0.4 || 0.6 || RPD: 40	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	134222-1	<0.1 || 0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	134222-1	0.4 || 0.6 || RPD: 40	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	105	134222-1	94 || 90 || RPD: 4	LCS-12	106%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			14/09/2015	134222-1	14/09/2015 || 14/09/2015	LCS-12	14/09/2015
Date analysed	-			17/09/2015	134222-1	16/09/2015 || 16/09/2015	LCS-12	16/09/2015
HCB	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	LCS-12	81%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	LCS-12	94%
Heptachlor	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	LCS-12	92%
delta-BHC	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	LCS-12	96%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	LCS-12	96%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	LCS-12	97%
Dieldrin	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	LCS-12	103%
Endrin	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	LCS-12	103%
pp-DDD	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	LCS-12	101%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	LCS-12	101%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	102	134222-1	94 || 94 || RPD: 0	LCS-12	94%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			14/09/2015	134222-1	14/09/2015 || 14/09/2015	LCS-12	14/09/2015
Date analysed	-			17/09/2015	134222-1	16/09/2015 || 16/09/2015	LCS-12	16/09/2015
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	134222-1	<0.1 || <0.1	LCS-12	110%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	134222-1	<0.1 || <0.1	LCS-12	99%
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	134222-1	<0.1 || <0.1	LCS-12	89%
Dimethoate	mg/kg	0.1	Org-008	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	134222-1	<0.1 || <0.1	LCS-12	106%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	134222-1	<0.1 || <0.1	LCS-12	118%
Malathion	mg/kg	0.1	Org-008	<0.1	134222-1	<0.1 || <0.1	LCS-12	106%
Parathion	mg/kg	0.1	Org-008	<0.1	134222-1	<0.1 || <0.1	LCS-12	106%
Ronnel	mg/kg	0.1	Org-008	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-008	102	134222-1	94 || 94 || RPD: 0	LCS-12	94%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			14/09/2015	134222-1	14/09/2015 || 14/09/2015	LCS-12	14/09/2015
Date analysed	-			17/09/2015	134222-1	16/09/2015 || 16/09/2015	LCS-12	16/09/2015
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	134222-1	<0.1 || <0.1	LCS-12	116%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	134222-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	102	134222-1	94 || 94 || RPD: 0	LCS-12	92%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			14/09/2015	134222-1	14/09/2015 || 14/09/2015	LCS-6	14/09/2015
Date analysed	-			15/09/2015	134222-1	15/09/2015 || 15/09/2015	LCS-6	15/09/2015
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	134222-1	<4 || <4	LCS-6	108%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	134222-1	<0.4 || <0.4	LCS-6	105%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	134222-1	45 || 35 || RPD: 25	LCS-6	107%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	134222-1	47 || 53 || RPD: 12	LCS-6	109%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	134222-1	13 || 15 || RPD: 14	LCS-6	105%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	134222-1	<0.1 || <0.1	LCS-6	96%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	134222-1	11 || 11 || RPD: 0	LCS-6	101%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	134222-1	32 || 38 || RPD: 17	LCS-6	104%
Manganese	mg/kg	1	Metals-020 ICP-AES	<1	134222-1	1500 || 1200 || RPD: 22	LCS-6	119%
QUALITY CONTROL Misc Soil - Inorg	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			15/09/2015	134222-1	14/09/2015 || 14/09/2015	LCS-1	15/09/2015
Date analysed	-			15/09/2015	134222-1	15/09/2015 || 15/09/2015	LCS-1	15/09/2015
Total Cyanide	mg/kg	0.5	Inorg-014	<0.5	134222-1	<0.5 || <0.5	LCS-1	99%
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	134222-1	<5 || <5	LCS-1	101%
QUALITY CONTROL Misc Inorg - Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			15/09/2015	134222-6	16/09/2015 || 16/09/2015	LCS-1	16/09/2015
Date analysed	-			15/09/2015	134222-6	16/09/2015 || 16/09/2015	LCS-1	16/09/2015
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	134222-6	9.9 || 9.9 || RPD: 0	LCS-1	103%
QUALITY CONTROL CEC	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			16/09/2015	[NT]	[NT]	LCS-1	16/09/2015
Date analysed	-			16/09/2015	[NT]	[NT]	LCS-1	16/09/2015
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	92%
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	94%

QUALITY CONTROL CEC	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Exchangeable Mg	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	90%
Exchangeable Na	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	103%
Cation Exchange Capacity	meq/100 g	1	Metals-009	[NT]	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-11	14/09/2015 || 14/09/2015	LCS-13	14/09/2015
Date analysed	-	134222-11	17/09/2015 || 17/09/2015	LCS-13	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	134222-11	<25 || <25	LCS-13	114%
TRHC$_6$ - C$_{10}$	mg/kg	134222-11	<25 || <25	LCS-13	114%
Benzene	mg/kg	134222-11	<0.2 || <0.2	LCS-13	106%
Toluene	mg/kg	134222-11	<0.5 || <0.5	LCS-13	112%
Ethylbenzene	mg/kg	134222-11	<1 || <1	LCS-13	116%
m+p-xylene	mg/kg	134222-11	<2 || <2	LCS-13	117%
o-Xylene	mg/kg	134222-11	<1 || <1	LCS-13	114%
naphthalene	mg/kg	134222-11	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	134222-11	86 || 83 || RPD: 4	LCS-13	102%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-11	14/09/2015 || 14/09/2015	LCS-13	14/09/2015
Date analysed	-	134222-11	15/09/2015 || 15/09/2015	LCS-13	16/09/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	134222-11	<50 || <50	LCS-13	111%
TRHC$_{15}$ - C$_{28}$	mg/kg	134222-11	<100 || <100	LCS-13	103%
TRHC$_{29}$ - C$_{36}$	mg/kg	134222-11	<100 || <100	LCS-13	92%
TRH>C$_{10}$-C$_{16}$	mg/kg	134222-11	<50 || <50	LCS-13	111%
TRH>C$_{16}$-C$_{34}$	mg/kg	134222-11	<100 || <100	LCS-13	103%
TRH>C$_{34}$-C$_{40}$	mg/kg	134222-11	<100 || <100	LCS-13	92%
Surrogate o-Terphenyl	%	134222-11	92 || 87 || RPD: 6	LCS-13	84%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-11	14/09/2015 || 14/09/2015	LCS-13	14/09/2015
Date analysed	-	134222-11	15/09/2015 || 15/09/2015	LCS-13	15/09/2015
Naphthalene	mg/kg	134222-11	<0.1 || <0.1	LCS-13	91%
Acenaphthylene	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	134222-11	<0.1 || <0.1	LCS-13	87%
Phenanthrene	mg/kg	134222-11	<0.1 || <0.1	LCS-13	94%
Anthracene	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	134222-11	0.2 || 0.1 || RPD: 67	LCS-13	94%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	134222-11	0.2 || 0.1 || RPD: 67	LCS-13	100%
Benzo(a)anthracene	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	134222-11	<0.1 || <0.1	LCS-13	93%
Benzo(b,j+k)fluoranthene	mg/kg	134222-11	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	134222-11	0.1 || 0.06 || RPD: 50	LCS-13	109%
Indeno(1,2,3-c,d)pyrene	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	134222-11	106 || 103 || RPD: 3	LCS-13	102%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-11	14/09/2015 || 14/09/2015	LCS-13	14/09/2015
Date analysed	-	134222-11	16/09/2015 || 16/09/2015	LCS-13	17/09/2015
HCB	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	134222-11	<0.1 || <0.1	LCS-13	83%
gamma-BHC	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	134222-11	<0.1 || <0.1	LCS-13	94%
Heptachlor	mg/kg	134222-11	<0.1 || <0.1	LCS-13	87%
delta-BHC	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	134222-11	<0.1 || <0.1	LCS-13	97%
Heptachlor Epoxide	mg/kg	134222-11	<0.1 || <0.1	LCS-13	96%
gamma-Chlordane	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	134222-11	<0.1 || <0.1	LCS-13	97%
Dieldrin	mg/kg	134222-11	<0.1 || <0.1	LCS-13	103%
Endrin	mg/kg	134222-11	<0.1 || <0.1	LCS-13	100%
pp-DDD	mg/kg	134222-11	<0.1 || <0.1	LCS-13	100%
Endosulfan II	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	134222-11	<0.1 || <0.1	LCS-13	95%
Methoxychlor	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	134222-11	100 || 96 || RPD: 4	LCS-13	96%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-11	14/09/2015 || 14/09/2015	LCS-13	14/09/2015
Date analysed	-	134222-11	16/09/2015 || 16/09/2015	LCS-13	17/09/2015
Azinphos-methyl (Guthion)	mg/kg	134222-11	<0.1 || <0.1	LCS-13	80%
Bromophos-ethyl	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	134222-11	<0.1 || <0.1	LCS-13	89%
Chlorpyriphos-methyl	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	134222-11	<0.1 || <0.1	LCS-13	79%
Dimethoate	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	134222-11	<0.1 || <0.1	LCS-13	93%
Fenitrothion	mg/kg	134222-11	<0.1 || <0.1	LCS-13	107%
Malathion	mg/kg	134222-11	<0.1 || <0.1	LCS-13	87%
Parathion	mg/kg	134222-11	<0.1 || <0.1	LCS-13	94%
Ronnel	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	134222-11	100 || 96 || RPD: 4	LCS-13	96%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-11	14/09/2015 || 14/09/2015	LCS-13	14/09/2015
Date analysed	-	134222-11	16/09/2015 || 16/09/2015	LCS-13	17/09/2015
Aroclor 1016	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	134222-11	<0.1 || <0.1	LCS-13	106%
Aroclor 1260	mg/kg	134222-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	134222-11	100 || 96 || RPD: 4	LCS-13	99%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	134222-11	14/09/2015 || 14/09/2015	134222-2	14/09/2015
Date analysed	-	134222-11	15/09/2015 || 15/09/2015	134222-2	15/09/2015
Arsenic	mg/kg	134222-11	17 || 13 || RPD: 27	134222-2	103%
Cadmium	mg/kg	134222-11	<0.4 || <0.4	134222-2	88%
Chromium	mg/kg	134222-11	21 || 17 || RPD: 21	134222-2	76%
Copper	mg/kg	134222-11	23 || 16 || RPD: 36	134222-2	102%
Lead	mg/kg	134222-11	51 || 34 || RPD: 40	134222-2	89%
Mercury	mg/kg	134222-11	<0.1 || <0.1	134222-2	119%
Nickel	mg/kg	134222-11	9 || 6 || RPD: 40	134222-2	91%
Zinc	mg/kg	134222-11	170 || 150 || RPD: 12	134222-2	##
Manganese	mg/kg	134222-11	130 || 70 || RPD: 60	134222-2	#

QUALITY CONTROL Misc Soil - Inorg	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	134222-11	14/09/2015 || 14/09/2015	LCS-2	15/09/2015
Date analysed	-	134222-11	15/09/2015 || 15/09/2015	LCS-2	15/09/2015
Total Cyanide	mg/kg	134222-11	<0.5 || <0.5	LCS-2	98%
Total Phenolics (as Phenol)	mg/kg	134222-11	<5 || <5	LCS-2	103%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-21	14/09/2015 || 14/09/2015	LCS-14	14/09/2015
Date analysed	-	134222-21	17/09/2015 || 17/09/2015	LCS-14	17/09/2015
$TRHC_6$ - C_9	mg/kg	134222-21	<25 || <25	LCS-14	99%
$TRHC_6$ - C_{10}	mg/kg	134222-21	<25 || <25	LCS-14	99%
Benzene	mg/kg	134222-21	<0.2 || <0.2	LCS-14	92%
Toluene	mg/kg	134222-21	<0.5 || <0.5	LCS-14	96%
Ethylbenzene	mg/kg	134222-21	<1 || <1	LCS-14	101%
m+p-xylene	mg/kg	134222-21	<2 || <2	LCS-14	102%
o-Xylene	mg/kg	134222-21	<1 || <1	LCS-14	100%
naphthalene	mg/kg	134222-21	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	134222-21	88 || 94 || RPD: 7	LCS-14	89%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-21	14/09/2015 || 14/09/2015	LCS-14	14/09/2015
Date analysed	-	134222-21	16/09/2015 || 16/09/2015	LCS-14	15/09/2015
$TRHC_{10}$ - C_{14}	mg/kg	134222-21	<50 || <50	LCS-14	115%
$TRHC_{15}$ - C_{28}	mg/kg	134222-21	<100 || <100	LCS-14	108%
$TRHC_{29}$ - C_{36}	mg/kg	134222-21	<100 || <100	LCS-14	96%
$TRH>C_{10}$-C_{16}	mg/kg	134222-21	<50 || <50	LCS-14	115%
$TRH>C_{16}$-C_{34}	mg/kg	134222-21	<100 || <100	LCS-14	108%
$TRH>C_{34}$-C_{40}	mg/kg	134222-21	<100 || <100	LCS-14	96%
Surrogate o-Terphenyl	%	134222-21	85 || 84 || RPD: 1	LCS-14	85%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-21	14/09/2015 || 14/09/2015	LCS-14	14/09/2015
Date analysed	-	134222-21	15/09/2015 || 15/09/2015	LCS-14	15/09/2015
Naphthalene	mg/kg	134222-21	<0.1 || <0.1	LCS-14	94%
Acenaphthylene	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	134222-21	<0.1 || <0.1	LCS-14	88%
Phenanthrene	mg/kg	134222-21	<0.1 || <0.1	LCS-14	97%
Anthracene	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	134222-21	<0.1 || <0.1	LCS-14	97%
Pyrene	mg/kg	134222-21	<0.1 || <0.1	LCS-14	101%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	134222-21	<0.1 || <0.1	LCS-14	94%
Benzo(b,j+k)fluoranthene	mg/kg	134222-21	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	134222-21	<0.05 || <0.05	LCS-14	112%
Indeno(1,2,3-c,d)pyrene	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	134222-21	96 || 94 || RPD: 2	LCS-14	93%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-21	14/09/2015 || 14/09/2015	LCS-14	14/09/2015
Date analysed	-	134222-21	17/09/2015 || 17/09/2015	LCS-14	17/09/2015
HCB	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	134222-21	<0.1 || <0.1	LCS-14	91%
gamma-BHC	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	134222-21	<0.1 || <0.1	LCS-14	93%
Heptachlor	mg/kg	134222-21	<0.1 || <0.1	LCS-14	96%
delta-BHC	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	134222-21	<0.1 || <0.1	LCS-14	107%
Heptachlor Epoxide	mg/kg	134222-21	<0.1 || <0.1	LCS-14	105%
gamma-Chlordane	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	134222-21	<0.1 || <0.1	LCS-14	97%
Dieldrin	mg/kg	134222-21	<0.1 || <0.1	LCS-14	114%
Endrin	mg/kg	134222-21	<0.1 || <0.1	LCS-14	111%
pp-DDD	mg/kg	134222-21	<0.1 || <0.1	LCS-14	99%
Endosulfan II	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	134222-21	<0.1 || <0.1	LCS-14	101%
Methoxychlor	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	134222-21	93 || 95 || RPD: 2	LCS-14	98%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-21	14/09/2015 || 14/09/2015	LCS-14	14/09/2015
Date analysed	-	134222-21	17/09/2015 || 17/09/2015	LCS-14	17/09/2015
Azinphos-methyl (Guthion)	mg/kg	134222-21	<0.1 || <0.1	LCS-14	82%
Bromophos-ethyl	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	134222-21	<0.1 || <0.1	LCS-14	92%
Chlorpyriphos-methyl	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	134222-21	<0.1 || <0.1	LCS-14	89%
Dimethoate	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	134222-21	<0.1 || <0.1	LCS-14	106%
Fenitrothion	mg/kg	134222-21	<0.1 || <0.1	LCS-14	111%
Malathion	mg/kg	134222-21	<0.1 || <0.1	LCS-14	101%
Parathion	mg/kg	134222-21	<0.1 || <0.1	LCS-14	105%
Ronnel	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	134222-21	93 || 95 || RPD: 2	LCS-14	98%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-21	14/09/2015 || 14/09/2015	LCS-14	14/09/2015
Date analysed	-	134222-21	17/09/2015 || 17/09/2015	LCS-14	17/09/2015
Aroclor 1016	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	134222-21	<0.1 || <0.1	LCS-14	100%
Aroclor 1260	mg/kg	134222-21	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	134222-21	93 || 95 || RPD: 2	LCS-14	83%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	134222-21	14/09/2015 || 14/09/2015	LCS-7	14/09/2015
Date analysed	-	134222-21	15/09/2015 || 15/09/2015	LCS-7	15/09/2015
Arsenic	mg/kg	134222-21	8 || 7 || RPD: 13	LCS-7	108%
Cadmium	mg/kg	134222-21	<0.4 || <0.4	LCS-7	103%
Chromium	mg/kg	134222-21	15 || 14 || RPD: 7	LCS-7	106%
Copper	mg/kg	134222-21	15 || 13 || RPD: 14	LCS-7	109%
Lead	mg/kg	134222-21	15 || 18 || RPD: 18	LCS-7	105%
Mercury	mg/kg	134222-21	<0.1 || <0.1	LCS-7	96%
Nickel	mg/kg	134222-21	2 || 3 || RPD: 40	LCS-7	101%
Zinc	mg/kg	134222-21	15 || 13 || RPD: 14	LCS-7	104%
Manganese	mg/kg	134222-21	9 || 9 || RPD: 0	LCS-7	117%

QUALITY CONTROL Misc Soil - Inorg	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	134222-21	14/09/2015 || 14/09/2015	LCS-3	15/09/2015
Date analysed	-	134222-21	15/09/2015 || 15/09/2015	LCS-3	15/09/2015
Total Cyanide	mg/kg	134222-21	<0.5 || <0.5	LCS-3	94%
Total Phenolics (as Phenol)	mg/kg	134222-21	<5 || <5	LCS-3	100%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-31	14/09/2015 || 14/09/2015	LCS-15	14/09/2015
Date analysed	-	134222-31	17/09/2015 || 17/09/2015	LCS-15	16/09/2015
$TRHC_6$ - C_9	mg/kg	134222-31	<25 || <25	LCS-15	111%
$TRHC_6$ - C_{10}	mg/kg	134222-31	<25 || <25	LCS-15	111%
Benzene	mg/kg	134222-31	<0.2 || <0.2	LCS-15	103%
Toluene	mg/kg	134222-31	<0.5 || <0.5	LCS-15	111%
Ethylbenzene	mg/kg	134222-31	<1 || <1	LCS-15	113%
m+p-xylene	mg/kg	134222-31	<2 || <2	LCS-15	115%
o-Xylene	mg/kg	134222-31	<1 || <1	LCS-15	113%
naphthalene	mg/kg	134222-31	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	134222-31	94 || 91 || RPD: 3	LCS-15	103%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-31	14/09/2015 || 14/09/2015	LCS-15	14/09/2015
Date analysed	-	134222-31	16/09/2015 || 16/09/2015	LCS-15	16/09/2015
$TRHC_{10}$ - C_{14}	mg/kg	134222-31	<50 || <50	LCS-15	102%
$TRHC_{15}$ - C_{28}	mg/kg	134222-31	<100 || <100	LCS-15	97%
$TRHC_{29}$ - C_{36}	mg/kg	134222-31	<100 || <100	LCS-15	101%
$TRH>C_{10}$-C_{16}	mg/kg	134222-31	<50 || <50	LCS-15	102%
$TRH>C_{16}$-C_{34}	mg/kg	134222-31	<100 || <100	LCS-15	97%
$TRH>C_{34}$-C_{40}	mg/kg	134222-31	<100 || <100	LCS-15	101%
Surrogate o-Terphenyl	%	134222-31	88 || 88 || RPD: 0	LCS-15	82%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-31	14/09/2015 || 14/09/2015	LCS-15	14/09/2015
Date analysed	-	134222-31	15/09/2015 || 15/09/2015	LCS-15	15/09/2015
Naphthalene	mg/kg	134222-31	<0.1 || <0.1	LCS-15	93%
Acenaphthylene	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	134222-31	<0.1 || <0.1	LCS-15	87%
Phenanthrene	mg/kg	134222-31	<0.1 || <0.1	LCS-15	96%
Anthracene	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	134222-31	<0.1 || <0.1	LCS-15	94%
Pyrene	mg/kg	134222-31	<0.1 || <0.1	LCS-15	99%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	134222-31	<0.1 || <0.1	LCS-15	96%
Benzo(b,j+k)fluoranthene	mg/kg	134222-31	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	134222-31	<0.05 || <0.05	LCS-15	113%
Indeno(1,2,3-c,d)pyrene	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	134222-31	98 || 96 || RPD: 2	LCS-15	108%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-31	14/09/2015 || 14/09/2015	LCS-15	14/09/2015
Date analysed	-	134222-31	18/09/2015 || 18/09/2015	LCS-15	18/09/2015
HCB	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	134222-31	<0.1 || <0.1	LCS-15	122%
gamma-BHC	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	134222-31	<0.1 || <0.1	LCS-15	103%
Heptachlor	mg/kg	134222-31	<0.1 || <0.1	LCS-15	100%
delta-BHC	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	134222-31	<0.1 || <0.1	LCS-15	188%
Heptachlor Epoxide	mg/kg	134222-31	<0.1 || <0.1	LCS-15	98%
gamma-Chlordane	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	134222-31	<0.1 || <0.1	LCS-15	89%
Dieldrin	mg/kg	134222-31	<0.1 || <0.1	LCS-15	116%
Endrin	mg/kg	134222-31	<0.1 || <0.1	LCS-15	102%
pp-DDD	mg/kg	134222-31	<0.1 || <0.1	LCS-15	110%
Endosulfan II	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	134222-31	<0.1 || <0.1	LCS-15	103%
Methoxychlor	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	134222-31	98 || 98 || RPD: 0	LCS-15	93%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-31	14/09/2015 || 14/09/2015	LCS-15	14/09/2015
Date analysed	-	134222-31	17/09/2015 || 17/09/2015	LCS-15	18/09/2015
Azinphos-methyl (Guthion)	mg/kg	134222-31	<0.1 || <0.1	LCS-15	101%
Bromophos-ethyl	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	134222-31	<0.1 || <0.1	LCS-15	96%
Chlorpyriphos-methyl	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	134222-31	<0.1 || <0.1	LCS-15	109%
Dimethoate	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	134222-31	<0.1 || <0.1	LCS-15	101%
Fenitrothion	mg/kg	134222-31	<0.1 || <0.1	LCS-15	88%
Malathion	mg/kg	134222-31	<0.1 || <0.1	LCS-15	111%
Parathion	mg/kg	134222-31	<0.1 || <0.1	LCS-15	121%
Ronnel	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	134222-31	98 || 98 || RPD: 0	LCS-15	99%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-31	14/09/2015 || 14/09/2015	LCS-15	14/09/2015
Date analysed	-	134222-31	17/09/2015 || 17/09/2015	LCS-15	18/09/2015
Aroclor 1016	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	134222-31	<0.1 || <0.1	LCS-15	102%
Aroclor 1260	mg/kg	134222-31	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	134222-31	98 || 98 || RPD: 0	LCS-15	91%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	134222-31	14/09/2015 || 14/09/2015	134222-22	14/09/2015
Date analysed	-	134222-31	15/09/2015 || 15/09/2015	134222-22	15/09/2015
Arsenic	mg/kg	134222-31	4 || <4	134222-22	84%
Cadmium	mg/kg	134222-31	<0.4 || <0.4	134222-22	83%
Chromium	mg/kg	134222-31	17 || 20 || RPD: 16	134222-22	82%
Copper	mg/kg	134222-31	3 || 3 || RPD: 0	134222-22	125%
Lead	mg/kg	134222-31	24 || 21 || RPD: 13	134222-22	81%
Mercury	mg/kg	134222-31	<0.1 || <0.1	134222-22	95%
Nickel	mg/kg	134222-31	4 || 5 || RPD: 22	134222-22	76%
Zinc	mg/kg	134222-31	6 || 9 || RPD: 40	134222-22	86%
Manganese	mg/kg	134222-31	42 || 33 || RPD: 24	134222-22	#

QUALITY CONTROL Misc Soil - Inorg	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	134222-31	14/09/2015 || 14/09/2015	LCS-4	15/09/2015
Date analysed	-	134222-31	15/09/2015 || 15/09/2015	LCS-4	15/09/2015
Total Cyanide	mg/kg	134222-31	<0.5 || <0.5	LCS-4	97%
Total Phenolics (as Phenol)	mg/kg	134222-31	<5 || <5	LCS-4	100%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-41	14/09/2015 || 14/09/2015	134222-2	14/09/2015
Date analysed	-	134222-41	17/09/2015 || 17/09/2015	134222-2	16/09/2015
$TRHC_6$ - C_9	mg/kg	134222-41	<25 || <25	134222-2	99%
$TRHC_6$ - C_{10}	mg/kg	134222-41	<25 || <25	134222-2	99%
Benzene	mg/kg	134222-41	<0.2 || <0.2	134222-2	93%
Toluene	mg/kg	134222-41	<0.5 || <0.5	134222-2	97%
Ethylbenzene	mg/kg	134222-41	<1 || <1	134222-2	100%
m+p-xylene	mg/kg	134222-41	<2 || <2	134222-2	102%
o-Xylene	mg/kg	134222-41	<1 || <1	134222-2	99%
naphthalene	mg/kg	134222-41	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	134222-41	100 || 101 || RPD: 1	134222-2	89%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-41	14/09/2015 || 14/09/2015	134222-2	14/09/2015
Date analysed	-	134222-41	16/09/2015 || 16/09/2015	134222-2	16/09/2015
$TRHC_{10}$ - C_{14}	mg/kg	134222-41	<50 || <50	134222-2	114%
$TRHC_{15}$ - C_{28}	mg/kg	134222-41	450 || 270 || RPD: 50	134222-2	124%
$TRHC_{29}$ - C_{36}	mg/kg	134222-41	790 || 480 || RPD: 49	134222-2	#
$TRH>C_{10}$-C_{16}	mg/kg	134222-41	<50 || <50	134222-2	114%
$TRH>C_{16}$-C_{34}	mg/kg	134222-41	990 || 590 || RPD: 51	134222-2	124%
$TRH>C_{34}$-C_{40}	mg/kg	134222-41	890 || 590 || RPD: 41	134222-2	#
Surrogate o-Terphenyl	%	134222-41	117 || 91 || RPD: 25	134222-2	128%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-41	14/09/2015 || 14/09/2015	134222-2	14/09/2015
Date analysed	-	134222-41	15/09/2015 || 15/09/2015	134222-2	15/09/2015
Naphthalene	mg/kg	134222-41	2.5 || 1.1 || RPD: 78	134222-2	94%
Acenaphthylene	mg/kg	134222-41	1.1 || 0.9 || RPD: 20	[NR]	[NR]
Acenaphthene	mg/kg	134222-41	0.4 || 0.3 || RPD: 29	[NR]	[NR]
Fluorene	mg/kg	134222-41	1.9 || 1.6 || RPD: 17	134222-2	100%
Phenanthrene	mg/kg	134222-41	6.6 || 6.1 || RPD: 8	134222-2	104%
Anthracene	mg/kg	134222-41	1.6 || 1.7 || RPD: 6	[NR]	[NR]
Fluoranthene	mg/kg	134222-41	6.2 || 5.9 || RPD: 5	134222-2	102%
Pyrene	mg/kg	134222-41	5.5 || 5.2 || RPD: 6	134222-2	120%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	mg/kg	134222-41	2.8 || 2.9 || RPD: 4	[NR]	[NR]
Chrysene	mg/kg	134222-41	2.6 || 2.6 || RPD: 0	134222-2	97%
Benzo(b,j+k)fluoranthene	mg/kg	134222-41	5.2 || 4.8 || RPD: 8	[NR]	[NR]
Benzo(a)pyrene	mg/kg	134222-41	3.6 || 3.2 || RPD: 12	134222-2	109%
Indeno(1,2,3-c,d)pyrene	mg/kg	134222-41	2.7 || 2.3 || RPD: 16	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	134222-41	0.7 || 0.6 || RPD: 15	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	134222-41	2.5 || 2.1 || RPD: 17	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	134222-41	95 || 96 || RPD: 1	134222-2	99%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-41	14/09/2015 || 14/09/2015	134222-2	14/09/2015
Date analysed	-	134222-41	17/09/2015 || 17/09/2015	134222-2	16/09/2015
HCB	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	134222-41	<0.1 || <0.1	134222-2	89%
gamma-BHC	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	134222-41	<0.1 || <0.1	134222-2	112%
Heptachlor	mg/kg	134222-41	<0.1 || <0.1	134222-2	96%
delta-BHC	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	134222-41	<0.1 || <0.1	134222-2	102%
Heptachlor Epoxide	mg/kg	134222-41	<0.1 || <0.1	134222-2	83%
gamma-Chlordane	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	134222-41	<0.1 || <0.1	134222-2	100%
Dieldrin	mg/kg	134222-41	<0.1 || <0.1	134222-2	107%
Endrin	mg/kg	134222-41	<0.1 || <0.1	134222-2	107%
pp-DDD	mg/kg	134222-41	<0.1 || <0.1	134222-2	105%
Endosulfan II	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	134222-41	<0.1 || <0.1	134222-2	108%
Methoxychlor	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	134222-41	100 || 102 || RPD: 2	134222-2	106%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-41	14/09/2015 || 14/09/2015	134222-2	14/09/2015
Date analysed	-	134222-41	17/09/2015 || 17/09/2015	134222-2	16/09/2015
Azinphos-methyl (Guthion)	mg/kg	134222-41	<0.1 || <0.1	134222-2	99%
Bromophos-ethyl	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	134222-41	<0.1 || <0.1	134222-2	97%
Chlorpyriphos-methyl	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	134222-41	<0.1 || <0.1	134222-2	93%
Dimethoate	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	134222-41	<0.1 || <0.1	134222-2	101%
Fenitrothion	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Malathion	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Parathion	mg/kg	134222-41	<0.1 || <0.1	134222-2	94%
Ronnel	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	134222-41	100 || 102 || RPD: 2	134222-2	106%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-41	14/09/2015 || 14/09/2015	134222-2	14/09/2015
Date analysed	-	134222-41	17/09/2015 || 17/09/2015	134222-2	16/09/2015
Aroclor 1016	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	134222-41	<0.1 || 0.1	134222-2	110%
Aroclor 1260	mg/kg	134222-41	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	134222-41	100 || 102 || RPD: 2	134222-2	84%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	134222-41	14/09/2015 || 14/09/2015	LCS-8	14/09/2015
Date analysed	-	134222-41	15/09/2015 || 15/09/2015	LCS-8	15/09/2015
Arsenic	mg/kg	134222-41	<4 || <4	LCS-8	109%
Cadmium	mg/kg	134222-41	<0.4 || <0.4	LCS-8	105%
Chromium	mg/kg	134222-41	12 || 27 || RPD: 77	LCS-8	107%
Copper	mg/kg	134222-41	85 || 98 || RPD: 14	LCS-8	111%
Lead	mg/kg	134222-41	22 || 36 || RPD: 48	LCS-8	107%
Mercury	mg/kg	134222-41	<0.1 || <0.1	LCS-8	96%
Nickel	mg/kg	134222-41	12 || 13 || RPD: 8	LCS-8	102%
Zinc	mg/kg	134222-41	77 || 95 || RPD: 21	LCS-8	104%
Manganese	mg/kg	134222-41	220 || 500 || RPD: 78	LCS-8	117%

QUALITY CONTROL Misc Soil - Inorg	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	134222-41	14/09/2015 || 14/09/2015	134222-2	15/09/2015
Date analysed	-	134222-41	15/09/2015 || 15/09/2015	134222-2	15/09/2015
Total Cyanide	mg/kg	134222-41	<0.5 || <0.5	134222-2	94%
Total Phenolics (as Phenol)	mg/kg	134222-41	<5 || <5	134222-2	98%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-51	14/09/2015 || 14/09/2015	134222-22	14/09/2015
Date analysed	-	134222-51	17/09/2015 || 17/09/2015	134222-22	17/09/2015
$TRHC_6$ - C_9	mg/kg	134222-51	<25 || <25	134222-22	92%
$TRHC_6$ - C_{10}	mg/kg	134222-51	<25 || <25	134222-22	92%
Benzene	mg/kg	134222-51	<0.2 || <0.2	134222-22	89%
Toluene	mg/kg	134222-51	<0.5 || <0.5	134222-22	92%
Ethylbenzene	mg/kg	134222-51	<1 || <1	134222-22	93%
m+p-xylene	mg/kg	134222-51	<2 || <2	134222-22	93%
o-Xylene	mg/kg	134222-51	<1 || <1	134222-22	90%
naphthalene	mg/kg	134222-51	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	134222-51	88 || 85 || RPD: 3	134222-22	90%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-51	14/09/2015 || 14/09/2015	134222-22	14/09/2015
Date analysed	-	134222-51	16/09/2015 || 16/09/2015	134222-22	16/09/2015
$TRHC_{10}$ - C_{14}	mg/kg	134222-51	<50 || <50	134222-22	114%
$TRHC_{15}$ - C_{28}	mg/kg	134222-51	<100 || <100	134222-22	116%
$TRHC_{29}$ - C_{36}	mg/kg	134222-51	140 || 100 || RPD: 33	134222-22	#
$TRH>C_{10}$-C_{16}	mg/kg	134222-51	<50 || <50	134222-22	114%
$TRH>C_{16}$-C_{34}	mg/kg	134222-51	150 || 110 || RPD: 31	134222-22	116%
$TRH>C_{34}$-C_{40}	mg/kg	134222-51	130 || <100	134222-22	#
Surrogate o-Terphenyl	%	134222-51	94 || 92 || RPD: 2	134222-22	79%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-51	14/09/2015 || 14/09/2015	134222-22	14/09/2015
Date analysed	-	134222-51	15/09/2015 || 15/09/2015	134222-22	15/09/2015
Naphthalene	mg/kg	134222-51	<0.1 || <0.1	134222-22	90%
Acenaphthylene	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	134222-51	<0.1 || <0.1	134222-22	87%
Phenanthrene	mg/kg	134222-51	0.1 || 0.4 || RPD: 120	134222-22	92%
Anthracene	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	134222-51	0.3 || 0.4 || RPD: 29	134222-22	89%
Pyrene	mg/kg	134222-51	0.4 || 0.5 || RPD: 22	134222-22	89%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	mg/kg	134222-51	0.2 || 0.2 || RPD: 0	[NR]	[NR]
Chrysene	mg/kg	134222-51	0.2 || 0.2 || RPD: 0	134222-22	89%
Benzo(b,j+k)fluoranthene	mg/kg	134222-51	0.3 || 0.3 || RPD: 0	[NR]	[NR]
Benzo(a)pyrene	mg/kg	134222-51	0.2 || 0.2 || RPD: 0	134222-22	91%
Indeno(1,2,3-c,d)pyrene	mg/kg	134222-51	0.1 || 0.1 || RPD: 0	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	134222-51	0.1 || 0.2 || RPD: 67	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	134222-51	91 || 97 || RPD: 6	134222-22	92%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-51	14/09/2015 || 14/09/2015	134222-22	14/09/2015
Date analysed	-	134222-51	18/09/2015 || 18/09/2015	134222-22	17/09/2015
HCB	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	134222-51	<0.1 || <0.1	134222-22	83%
gamma-BHC	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	134222-51	<0.1 || <0.1	134222-22	88%
Heptachlor	mg/kg	134222-51	<0.1 || <0.1	134222-22	86%
delta-BHC	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	134222-51	<0.1 || <0.1	134222-22	94%
Heptachlor Epoxide	mg/kg	134222-51	<0.1 || <0.1	134222-22	93%
gamma-Chlordane	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	134222-51	<0.1 || <0.1	134222-22	94%
Dieldrin	mg/kg	134222-51	<0.1 || <0.1	134222-22	100%
Endrin	mg/kg	134222-51	<0.1 || <0.1	134222-22	99%
pp-DDD	mg/kg	134222-51	<0.1 || <0.1	134222-22	97%
Endosulfan II	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	134222-51	<0.1 || <0.1	134222-22	96%
Methoxychlor	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	134222-51	106 || 127 || RPD: 18	134222-22	94%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-51	14/09/2015 || 14/09/2015	134222-22	14/09/2015
Date analysed	-	134222-51	18/09/2015 || 18/09/2015	134222-22	17/09/2015
Azinphos-methyl (Guthion)	mg/kg	134222-51	<0.1 || <0.1	134222-22	83%
Bromophos-ethyl	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	134222-51	<0.1 || <0.1	134222-22	87%
Chlorpyriphos-methyl	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	134222-51	<0.1 || <0.1	134222-22	80%
Dimethoate	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	134222-51	<0.1 || <0.1	134222-22	95%
Fenitrothion	mg/kg	134222-51	<0.1 || <0.1	134222-22	87%
Malathion	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Parathion	mg/kg	134222-51	<0.1 || <0.1	134222-22	87%
Ronnel	mg/kg	134222-51	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	134222-51	106 || 127 || RPD: 18	134222-22	94%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-51	14/09/2015 || 14/09/2015	134222-22	14/09/2015
Date analysed	-	134222-51	18/09/2015 || 18/09/2015	134222-22	17/09/2015
Aroclor 1016	mg/kg	134222-51	<1 || <1	[NR]	[NR]
Aroclor 1221	mg/kg	134222-51	<1 || <1	[NR]	[NR]
Aroclor 1232	mg/kg	134222-51	<1 || <1	[NR]	[NR]
Aroclor 1242	mg/kg	134222-51	<1 || <1	[NR]	[NR]
Aroclor 1248	mg/kg	134222-51	<1 || <1	[NR]	[NR]
Aroclor 1254	mg/kg	134222-51	<1 || <1	134222-22	100%
Aroclor 1260	mg/kg	134222-51	<1 || <1	[NR]	[NR]
Surrogate TCLMX	%	134222-51	106 || 127 || RPD: 18	134222-22	99%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	134222-51	14/09/2015 || 14/09/2015	134222-42	14/09/2015
Date analysed	-	134222-51	15/09/2015 || 15/09/2015	134222-42	15/09/2015
Arsenic	mg/kg	134222-51	7 || 13 || RPD: 60	134222-42	100%
Cadmium	mg/kg	134222-51	<0.4 || 0.4	134222-42	97%
Chromium	mg/kg	134222-51	11 || 13 || RPD: 17	134222-42	97%
Copper	mg/kg	134222-51	64 || 29 || RPD: 75	134222-42	122%
Lead	mg/kg	134222-51	150 || 160 || RPD: 6	134222-42	74%
Mercury	mg/kg	134222-51	0.1 || 0.1 || RPD: 0	134222-42	113%
Nickel	mg/kg	134222-51	16 || 10 || RPD: 46	134222-42	93%
Zinc	mg/kg	134222-51	210 || 200 || RPD: 5	134222-42	87%
Manganese	mg/kg	134222-51	80 || 88 || RPD: 10	134222-42	#

QUALITY CONTROL Misc Soil - Inorg	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	134222-51	14/09/2015 || 14/09/2015	134222-22	15/09/2015
Date analysed	-	134222-51	15/09/2015 || 15/09/2015	134222-22	15/09/2015
Total Cyanide	mg/kg	134222-51	<0.5 || <0.5	134222-22	93%
Total Phenolics (as Phenol)	mg/kg	134222-51	<5 || <5	134222-22	108%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-61	14/09/2015 || 14/09/2015	134222-42	14/09/2015
Date analysed	-	134222-61	17/09/2015 || 17/09/2015	134222-42	17/09/2015
TRH C_6 - C_9	mg/kg	134222-61	<25 || <25	134222-42	111%
TRH C_6 - C_{10}	mg/kg	134222-61	<25 || <25	134222-42	111%
Benzene	mg/kg	134222-61	<0.2 || <0.2	134222-42	105%
Toluene	mg/kg	134222-61	<0.5 || <0.5	134222-42	109%
Ethylbenzene	mg/kg	134222-61	<1 || <1	134222-42	113%
m+p-xylene	mg/kg	134222-61	<2 || <2	134222-42	114%
o-Xylene	mg/kg	134222-61	<1 || <1	134222-42	112%
naphthalene	mg/kg	134222-61	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	134222-61	88 || 77 || RPD: 13	134222-42	94%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-61	14/09/2015 || 14/09/2015	134222-42	14/09/2015
Date analysed	-	134222-61	16/09/2015 || 16/09/2015	134222-42	16/09/2015
TRH C_{10} - C_{14}	mg/kg	134222-61	<50 || <50	134222-42	109%
TRH C_{15} - C_{28}	mg/kg	134222-61	<100 || <100	134222-42	97%
TRH C_{29} - C_{36}	mg/kg	134222-61	<100 || <100	134222-42	123%
TRH >C_{10}-C_{16}	mg/kg	134222-61	<50 || <50	134222-42	109%
TRH >C_{16}-C_{34}	mg/kg	134222-61	<100 || <100	134222-42	97%
TRH >C_{34}-C_{40}	mg/kg	134222-61	<100 || <100	134222-42	123%
Surrogate o-Terphenyl	%	134222-61	91 || 88 || RPD: 3	134222-42	81%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-61	14/09/2015 || 14/09/2015	134222-42	14/09/2015
Date analysed	-	134222-61	15/09/2015 || 15/09/2015	134222-42	15/09/2015
Naphthalene	mg/kg	134222-61	<0.1 || <0.1	134222-42	89%
Acenaphthylene	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	134222-61	<0.1 || <0.1	134222-42	90%
Phenanthrene	mg/kg	134222-61	<0.1 || <0.1	134222-42	95%
Anthracene	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	134222-61	<0.1 || <0.1	134222-42	95%
Pyrene	mg/kg	134222-61	<0.1 || <0.1	134222-42	98%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	134222-61	<0.1 || <0.1	134222-42	92%
Benzo(b,j+k)fluoranthene	mg/kg	134222-61	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	134222-61	<0.05 || <0.05	134222-42	110%
Indeno(1,2,3-c,d)pyrene	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	134222-61	98 || 98 || RPD: 0	134222-42	95%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-61	14/09/2015 || 14/09/2015	134222-42	14/09/2015
Date analysed	-	134222-61	18/09/2015 || 18/09/2015	134222-42	17/09/2015
HCB	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	134222-61	<0.1 || <0.1	134222-42	96%
gamma-BHC	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	134222-61	<0.1 || <0.1	134222-42	94%
Heptachlor	mg/kg	134222-61	<0.1 || <0.1	134222-42	99%
delta-BHC	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	134222-61	<0.1 || <0.1	134222-42	110%
Heptachlor Epoxide	mg/kg	134222-61	<0.1 || <0.1	134222-42	109%
gamma-Chlordane	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	134222-61	<0.1 || <0.1	134222-42	100%
Dieldrin	mg/kg	134222-61	<0.1 || <0.1	134222-42	120%
Endrin	mg/kg	134222-61	<0.1 || <0.1	134222-42	117%
pp-DDD	mg/kg	134222-61	<0.1 || <0.1	134222-42	102%
Endosulfan II	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	134222-61	<0.1 || <0.1	134222-42	106%
Methoxychlor	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	134222-61	98 || 98 || RPD: 0	134222-42	111%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-61	14/09/2015 || 14/09/2015	134222-42	14/09/2015
Date analysed	-	134222-61	18/09/2015 || 18/09/2015	134222-42	17/09/2015
Azinphos-methyl (Guthion)	mg/kg	134222-61	<0.1 || <0.1	134222-42	77%
Bromophos-ethyl	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	134222-61	<0.1 || <0.1	134222-42	88%
Chlorpyriphos-methyl	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Diazinon	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Dichlorvos	mg/kg	134222-61	<0.1 || <0.1	134222-42	100%
Dimethoate	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	134222-61	<0.1 || <0.1	134222-42	107%
Fenitrothion	mg/kg	134222-61	<0.1 || <0.1	134222-42	110%
Malathion	mg/kg	134222-61	<0.1 || <0.1	134222-42	102%
Parathion	mg/kg	134222-61	<0.1 || <0.1	134222-42	94%
Ronnel	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	134222-61	98 || 98 || RPD: 0	134222-42	111%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-61	14/09/2015 || 14/09/2015	134222-42	14/09/2015
Date analysed	-	134222-61	18/09/2015 || 18/09/2015	134222-42	17/09/2015
Aroclor 1016	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	134222-61	<0.1 || <0.1	134222-42	#
Aroclor 1260	mg/kg	134222-61	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	134222-61	98 || 98 || RPD: 0	134222-42	94%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	134222-61	14/09/2015 || 14/09/2015	LCS-9	14/09/2015
Date analysed	-	134222-61	15/09/2015 || 15/09/2015	LCS-9	15/09/2015
Arsenic	mg/kg	134222-61	<4 || <4	LCS-9	109%
Cadmium	mg/kg	134222-61	<0.4 || <0.4	LCS-9	105%
Chromium	mg/kg	134222-61	16 || 15 || RPD: 6	LCS-9	107%
Copper	mg/kg	134222-61	8 || 12 || RPD: 40	LCS-9	112%
Lead	mg/kg	134222-61	25 || 26 || RPD: 4	LCS-9	105%
Mercury	mg/kg	134222-61	<0.1 || <0.1	LCS-9	95%
Nickel	mg/kg	134222-61	3 || 2 || RPD: 40	LCS-9	102%
Zinc	mg/kg	134222-61	9 || 15 || RPD: 50	LCS-9	104%
Manganese	mg/kg	134222-61	37 || 49 || RPD: 28	LCS-9	122%

QUALITY CONTROL Misc Soil - Inorg	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	134222-61	14/09/2015 || 14/09/2015	134222-42	15/09/2015
Date analysed	-	134222-61	15/09/2015 || 15/09/2015	134222-42	15/09/2015
Total Cyanide	mg/kg	134222-61	<0.5 || <0.5	134222-42	88%
Total Phenolics (as Phenol)	mg/kg	134222-61	<5 || <5	134222-42	100%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	134222-67	14/09/2015 || 14/09/2015	134222-62	14/09/2015
Date analysed	-	134222-67	17/09/2015 || 17/09/2015	134222-62	17/09/2015
TRH C_6 - C_9	mg/kg	134222-67	<25 || <25	134222-62	91%
TRH C_6 - C_{10}	mg/kg	134222-67	<25 || <25	134222-62	91%
Benzene	mg/kg	134222-67	<0.2 || <0.2	134222-62	85%
Toluene	mg/kg	134222-67	<0.5 || <0.5	134222-62	89%
Ethylbenzene	mg/kg	134222-67	<1 || <1	134222-62	94%
m+p-xylene	mg/kg	134222-67	<2 || <2	134222-62	94%
o-Xylene	mg/kg	134222-67	<1 || <1	134222-62	93%
naphthalene	mg/kg	134222-67	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	134222-67	83 || 94 || RPD: 12	134222-62	79%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	134222-62	14/09/2015
Date analysed	-	[NT]	[NT]	134222-62	16/09/2015
TRH C_{10} - C_{14}	mg/kg	[NT]	[NT]	134222-62	116%
TRH C_{15} - C_{28}	mg/kg	[NT]	[NT]	134222-62	117%
TRH C_{29} - C_{36}	mg/kg	[NT]	[NT]	134222-62	127%
TRH >C_{10}-C_{16}	mg/kg	[NT]	[NT]	134222-62	116%
TRH >C_{16}-C_{34}	mg/kg	[NT]	[NT]	134222-62	117%
TRH >C_{34}-C_{40}	mg/kg	[NT]	[NT]	134222-62	127%
Surrogate o-Terphenyl	%	[NT]	[NT]	134222-62	86%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	134222-62	14/09/2015
Date analysed	-	[NT]	[NT]	134222-62	15/09/2015
Naphthalene	mg/kg	[NT]	[NT]	134222-62	91%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	134222-62	88%
Phenanthrene	mg/kg	[NT]	[NT]	134222-62	96%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	134222-62	94%
Pyrene	mg/kg	[NT]	[NT]	134222-62	99%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	134222-62	94%
Benzo(b,j+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	134222-62	107%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	134222-62	97%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	134222-62	14/09/2015
Date analysed	-	[NT]	[NT]	134222-62	18/09/2015
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	134222-62	108%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Heptachlor	mg/kg	[NT]	[NT]	134222-62	116%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	134222-62	109%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	134222-62	96%
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]	134222-62	93%
Dieldrin	mg/kg	[NT]	[NT]	134222-62	104%
Endrin	mg/kg	[NT]	[NT]	134222-62	102%
pp-DDD	mg/kg	[NT]	[NT]	134222-62	98%
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]	134222-62	99%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	134222-62	95%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	134222-62	14/09/2015
Date analysed	-	[NT]	[NT]	134222-62	18/09/2015
Azinphos-methyl (Guthion)	mg/kg	[NT]	[NT]	134222-62	96%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	134222-62	94%
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dichlorvos	mg/kg	[NT]	[NT]	134222-62	123%
Dimethoate	mg/kg	[NT]	[NT]	134222-62	86%
Ethion	mg/kg	[NT]	[NT]	134222-62	87%
Fenitrothion	mg/kg	[NT]	[NT]	134222-62	118%
Malathion	mg/kg	[NT]	[NT]	134222-62	81%
Parathion	mg/kg	[NT]	[NT]	134222-62	121%
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	134222-62	117%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	134222-62	14/09/2015
Date analysed	-	[NT]	[NT]	134222-62	18/09/2015
Aroclor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	[NT]	[NT]	134222-62	97%
Aroclor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	134222-62	85%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	LCS-10	14/09/2015
Date analysed	-	[NT]	[NT]	LCS-10	15/09/2015
Arsenic	mg/kg	[NT]	[NT]	LCS-10	110%
Cadmium	mg/kg	[NT]	[NT]	LCS-10	103%
Chromium	mg/kg	[NT]	[NT]	LCS-10	107%
Copper	mg/kg	[NT]	[NT]	LCS-10	110%
Lead	mg/kg	[NT]	[NT]	LCS-10	104%
Mercury	mg/kg	[NT]	[NT]	LCS-10	95%
Nickel	mg/kg	[NT]	[NT]	LCS-10	102%
Zinc	mg/kg	[NT]	[NT]	LCS-10	104%
Manganese	mg/kg	[NT]	[NT]	LCS-10	120%

QUALITY CONTROL Misc Soil - Inorg	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	134222-62	15/09/2015
Date analysed	-	[NT]	[NT]	134222-62	15/09/2015
Total Cyanide	mg/kg	[NT]	[NT]	134222-62	99%
Total Phenolics (as Phenol)	mg/kg	[NT]	[NT]	134222-62	96%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	LCS-16	14/09/2015
Date analysed	-	[NT]	[NT]	LCS-16	17/09/2015
TRHC$_6$ - C$_9$	mg/kg	[NT]	[NT]	LCS-16	101%
TRHC$_6$ - C$_{10}$	mg/kg	[NT]	[NT]	LCS-16	101%
Benzene	mg/kg	[NT]	[NT]	LCS-16	90%
Toluene	mg/kg	[NT]	[NT]	LCS-16	96%
Ethylbenzene	mg/kg	[NT]	[NT]	LCS-16	105%
m+p-xylene	mg/kg	[NT]	[NT]	LCS-16	108%
o-Xylene	mg/kg	[NT]	[NT]	LCS-16	105%
naphthalene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	LCS-16	101%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	134222-62	14/09/2015
Date analysed	-	[NT]	[NT]	134222-62	15/09/2015
Arsenic	mg/kg	[NT]	[NT]	134222-62	94%
Cadmium	mg/kg	[NT]	[NT]	134222-62	94%
Chromium	mg/kg	[NT]	[NT]	134222-62	96%
Copper	mg/kg	[NT]	[NT]	134222-62	104%
Lead	mg/kg	[NT]	[NT]	134222-62	85%
Mercury	mg/kg	[NT]	[NT]	134222-62	90%
Nickel	mg/kg	[NT]	[NT]	134222-62	90%
Zinc	mg/kg	[NT]	[NT]	134222-62	81%
Manganese	mg/kg	[NT]	[NT]	134222-62	##

Report Comments:

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 134222-11 for Mn. Therefore a triplicate result has been issued as laboratory sample number 134222-78.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 134222-41 for Cr and Mn. Therefore a triplicate result has been issued as laboratory sample number 134222-75.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 134222-51 for Cu. Therefore a triplicate result has been issued as laboratory sample number 134222-76.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 134222-61 for Zn. Therefore a triplicate result has been issued as laboratory sample number 134222-77.

METALS_S: ## Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

METALS_S: # 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.

PAH in soil: The RPD for duplicate results is accepted due to the non homogenous nature of the sample/s.

sTRH in soil: The RPD for duplicate results is accepted due to the non homogenous nature of the sample/s.
Percent recovery is not possible to report as the high concentration of analytes in the sample/s have caused interference.

OP/PCB in soil: PQL has been raised due to interference from analytes(other than those being tested) in the sample/s.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

CHAIN OF CUSTODY

Douglas Partners
Geotechnics / Environment / Groundwater

Client: Douglas Partners	**Project Number** 71459.03	**To:**	Envirolab Services
Contact Person: Chris Bagia	**Project Name:** Moorebank	**Contact Person:**	Aileen Hie
Project Mgr: John Russell	**PO No.:**	**Address:**	12 Ashley Street
	lab Quote No. :		Chatswood NSW 2068
Address: 96 Hermitage Road West Ryde NSW 2114	**Date results required:** 17/09/15 (for 14 day holding time) **Or choose:** standard *Note: Inform lab in advance if urgent turnaround is required - surcharges apply*	**Phone:**	02 9910 6200
		Fax:	02 9910 6201
		Email:	ahie@envirolab.com.au
Phone: 9809 0666 **Mob:** 0422 000 434	**Report format:** esdat / PDF / Excel	**Laboratory Report No:**	
Email: john.russell@douglaspartners.com.au 134222	**Comments:**	**Lab Comments:**	

Sample information						Tests Required											Comments
Lab Sample ID	Field Sample ID	Depth	Date sampled	Container Type	Type of sample	As, Cd, Cr, Cu, Pb, Hg, Ni, Zn, Mn	TRH	BTEX	PAH	OCP	OPP	PCB	Phenols	pH / CEC		Combo	Provide as much information about the sample as you can
27	BH202	0.9-1.35	3/09/2015	1 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
28	BH202	1.9-2.35	3/09/2015	2 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
29	BH/MW215	0.9-1.35	3/09/2015	3 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
30	BH/MW215	1.9-2.35	3/09/2015	4 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
31 • BH208/1.9-2.35	~~BH/MW215~~	~~5.9-6.35~~	3/09/2015	5 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
32	BH/MW218	0.9-1.35	3/09/2015	6 g	s	X	X	X	X	X	X	X	X	X		8 (+Mn)	
33	BH/MW218	2.9-2.35	3/09/2015	7 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
34	BH/MW218	5.9-6.35	4/09/2015	8 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
35	BH/MW216	0.1-0.2	4/09/2015	9 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
36	BH/MW216	3.9-4.35	4/09/2015	10 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
37	BH/MW216	5.9-6.35	4/09/2015	11 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
38 GW	BH/MW223	2.0-2.45	4/09/2015	12 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
39	BH/MW210	0.1-0.2	4/09/2015	13 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
40	BH/MW210	2.0-2.45	4/09/2015	14 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
41	JK107a	0.1-0.2	7/09/2015	15 g	s	X	X	X	X	X	X	X	X	X		8 (+Mn)	
42	JK107a	1.9-2.35	7/09/2015	16 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
43	JK107a	7.9-8.35	7/09/2015	17 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
44	JK107a	8.9-9.35	7/09/2015	18 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
45	BH205	0.9-1.35	7/09/2015	19 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
46	BH205	2.9-3.35	7/09/2015	20 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
47	BH205	3.9-4.35	7/09/2015	21 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
48	JK103a	0.1-0.2	7/09/2015	22 g	s	X	X	X	X	X	X	X	X	X		8 (+Mn)	
49	JK103a	1.9-2.35	7/09/2015	23 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
50	JK103a	2.9-3.35	7/09/2015	24 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
51	JK103a	5.9-6.35	7/09/2015	25 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	

Relinquished by: Douglas Partners	**Sample Receipt**	***Lab use only:***
Courier (by whom) HUNTER EXPRESS	**Received by (Company):** EnS	**Samples Received: Cool or Ambient (circle one)**
Condition of Sample at dispatch Cool or Ambient (circle)	**Print Name:** P. Roy	**Temperature Received at:** (if applicable)
Temperature (if Applicable):	**Date & Time:** 11/9/15 17:00	**Transported by: Hand delivered / courier**
Print Name: John Russell	**Signature:** PR	
Date & Time 11/09/15; 3pm		
Signature:		

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

Job No: 134222
Date Received: 11/9/2015
Time Received: 17:00
Received by: PR
Temp: ~~Cool~~/Ambient 16.2.
Cooling: Ice/Icepack
Security: Intact/Broken/None

2 1

CHAIN OF CUSTODY

Douglas Partners
Geotechnics / Environment / Groundwater

Client: Douglas Partners	**Project Number** 71459.03	**To:**	Envirolab Services
Contact Person: Chris Bagia	**Project Name:** Moorebank	**Contact Person:**	Aileen Hie
Project Mgr: John Russell	**PO No.:**	**Address:**	12 Ashley Street
	lab Quote No. :		Chatswood NSW 2068
Address: 96 Hermitage Road West Ryde NSW 2114	**Date results required:** 17/09/15 (for 14 day holding time) **Or choose:** standard *Note: Inform lab in advance if urgent turnaround is required - surcharges apply*	**Phone:**	02 9910 6200
		Fax:	02 9910 6201
		Email:	ahie@envirolab.com.au
Phone: 9809 0666 **Mob:** 0422 000 434	**Report format:** esdat / PDF / Excel	**Laboratory Report No:**	
Email: john.russell@douglaspartners.com.au	**Comments:**	**Lab Comments:**	

134222

Sample information						Tests Required											Comments
Lab Sample ID	Field Sample ID	Depth	Date sampled	Container Type	Type of sample	As, Cd, Cr, Cu, Pb, Hg, Ni, Zn, Mn	TRH	BTEX	PAH	OCP	OPP	PCB	Phenols	pH / CEC		Combo	Provide as much information about the sample as you can
1	JK118a	0.1-0.2	8/09/2015	26 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
2	JK118a	1.9-2.35	8/09/2015	27 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
3	JK118a	4.9-5.35	8/09/2015	28 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
4	BH211	0.1-0.2	8/09/2015	29 g	s	X	X	X	X	X	X	X	X	X		8 (+Mn)	
5	BH211	0.9-1.35	8/09/2015	30 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
6	BH211	2.9-2.35	8/09/2015	31 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
7	BH214	0.1-0.2	8/09/2015	32 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
8	BH214	2.2-2.65	8/09/2015	33 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
9	BH213	0.1-0.2	8/09/2015	34 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
10	BH213	2.9-3.35	8/09/2015	35 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
11	BH221	0.1-0.2	8/09/2015	36 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
12	BH221	1.9-2.35	8/09/2015	37 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
(29-335) 13	BH221	3.9-4.35	8/09/2015	38 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
14	BH221	3.9-4.35	8/09/2015	39 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
15	BH222	0.1-0.2	9/09/2015	40 g	s	X	X	X	X	X	X	X	X	X		8 (+Mn)	
16	BH222	0.9-1.35	9/09/2015	41 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
17	BH220	0.1-0.2	9/09/2015	42 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
18	BH212	0.1-0.2	9/09/2015	43 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
19	BH212	2.9-3.35	9/09/2015	44 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
20	BH209	0.1-0.2	9/09/2015	45 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
09-1.35 21	BH209	0.1-0.2	9/09/2015	46 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
22	BH209	1.9-2.35	9/09/2015	47 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
23	BH209	3.9-4.35	9/09/2015	48 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
24	BH204	0.1-0.2	9/09/2015	49 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
25	BH204	1.9-2.35	9/09/2015	50 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
26	BH204	3.9-4.35	9/09/2015	57 g	s	X	X	X	X	X	X	X	X			8 (+Mn)	

Relinquished by: Douglas Partners	**Sample Receipt**	***Lab use only:***
Courier (by whom) HUNTER EXPRESS	**Received by (Company):** ECS	**Samples Received: Cool or Ambient (circle one)**
Condition of Sample at dispatch Cool or Ambient (circle)	**Print Name:** P.Ray	**Temperature Received at:** (if applicable)
Temperature (if Applicable):	**Date & Time:** 11/9/15 17:00	**Transported by: Hand delivered / courier**
Print Name: John Russell	**Signature:**	
Date & Time 11/09/15; 3pm		
Signature:		

Page 1 of 1

ENVIROLAB GROUP

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

Job No: 134222
Date Received: 11/9/15
Time Received: 17:00
Received by: RL
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

16.2.

3 2

CHAIN OF CUSTODY

Douglas Partners
Geotechnics / Environment / Groundwater

Client: Douglas Partners	**Project Number** 71459.03	**To:**	Envirolab Services
Contact Person: Chris Bagia	**Project Name:** Moorebank	**Contact Person:**	Aileen Hie
Project Mgr: John Russell	**PO No.:**	**Address:**	12 Ashley Street
	lab Quote No. :		Chatswood NSW 2068
Address: 96 Hermitage Road West Ryde NSW 2114	**Date results required:** 17/09/15 (for 14 day holding time) **Or choose:** standard *Note: Inform lab in advance if urgent turnaround is required - surcharges apply*	**Phone:**	02 9910 6200
		Fax:	02 9910 6201
		Email:	ahie@envirolab.com.au
Phone: 9809 0666 **Mob:** 0422 000 434	**Report format:** esdat / PDF / Excel	**Laboratory Report No:**	
Email: john.russell@douglaspartners.com.au 134222	**Comments:**	**Lab Comments:**	

Sample information						Tests Required										Comments
Lab Sample ID	Field Sample ID	Depth	Date sampled	Container Type	Type of sample	As, Cd, Cr, Cu, Pb, Hg, Ni, Zn, Mn	TRH	BTEX	PAH	OCP	OPP	PCB	Phenols	pH / CEC		Combo	Provide as much information about the sample as you can
52	BH203	0.1-0.2	10/09/2015	g	s	X	X	X	X	X	X	X	X	X		8 (+Mn)	
53	BH203	0.9-1.35	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
54	BH203	2.9-3.35	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
55	BH201	0.1-0.2	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
56	BH201	0.9-1.35	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
57	BH207	0.1-0.2	10/09/2015	g	s	X	X	X	X	X	X	X	X	X		8 (+Mn)	
58	BH207	0.9-1.35	10/09/2015	g	s	X			X								
59	BH206	0.1-0.2	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
60	BH206	0.9-1.35	10/09/2015	g	s	X			X								
61	BH206	2.9-2.35	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
62	BH206	4.9-4.35	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
63	BH208	0.9-1.35	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
64	BH208	3.9-4.35	10/09/2015	g	s	X			X								
65	BD1/070815		7/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
66	BD2/080915		8/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
67	BD3/090915		9/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
—	BD4/100915		10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	Please send to ALS
68	BD5/100915		10/09/2015	g	s	X			X								
—	BD6/100915		10/09/2015	g	s	X			X								Please send to ALS
—	BD7/100915		10/09/2015	g	s	X			X								Please send to ALS
69	TS1	prepared on	1/09/2015				X	X									
70	TB1	prepared on	1/09/2015				X	X									
71	TS2	prepared on	1/09/2015				X	X									
72	TB2	prepared on	1/09/2015				X	X									
73	TS3	prepared on	1/09/2015				X	X									
74	TB3	prepared on	1/09/2015				X	X									

Relinquished by: Douglas Partners	**Sample Receipt**	***Lab use only:***
Courier (by whom) HUNTER EXPRESS	**Received by (Company):** EJS	**Samples Received: Cool or Ambient (circle one)**
Condition of Sample at dispatch Cool or Ambient (circle)	**Print Name:** P.Ray	**Temperature Received at:** (if applicable)
Temperature (if Applicable):	**Date & Time:** 11/9/2015 1700	**Transported by: Hand delivered / courier**
Print Name: John Russell	**Signature:**	
Date & Time 11/09/15; 3pm		
Signature:		

3

Aileen Hie

From: John Russell <John.Russell@douglaspartners.com.au>
Sent: Friday, 11 September 2015 4:27 PM
To: Aileen Hie; Geoff Weir
Subject: samples
Attachments: 11092015161454-0001.pdf

Geoff / Aileen

I've just sent a batch of ~70 soil samples for project **71459.03**. The PO is attached.

I noticed some typos on the COC when I was packing the samples. Can you please amend as follows:

- Sample BH/MW215/5.9-6.35, the sample will be missing. Please add sample BH208/1.9-2.35 instead;
- Sample BH221/3.9-4.35 is listed twice, additional sample is actually BH221/2.9-3.35; and
- Sample BH209/0.1-0.2 is listed twice, additional sample is actually BH209/0.9-1.35.

Thanks

John Russell | Associate
Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au
96 Hermitage Road West Ryde NSW 2114 | PO Box 472 West Ryde NSW 1685
P: 02 9809 0666 | F: 02 9809 4095 | M: 0422 000 434 | E: John.Russell@douglaspartners.com.au

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd
Attention	John Russell, Chris Bagia

Sample Login Details	
Your Reference	71459.03, Moorebank
Envirolab Reference	134222
Date Sample Received	11/09/2015
Date Instructions Received	11/09/2015
Date Results Expected to be Reported	18/09/2015

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	74 Soils
Turnaround Time Requested	Standard
Temperature on receipt (°C)	16.2
Cooling Method	Ice Pack
Sampling Date Provided	YES

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

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page

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Sample Id	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides	PCBs in Soil	Acid Extractable metals in soil	Misc Soil - Inorg	pH 1:5 soil:water	CEC
BH202-0.9-1.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH202-1.9-2.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH/MW215-0.9-1.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH/MW215-1.9-2.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH208-1.9-2.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH/MW218-0.9-1.35	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH/MW218-2.9-2.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH/MW218-5.9-6.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH/MW216-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH/MW216-3.9-4.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH/MW216-5.9-6.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH/MW223-2.0-2.45	✓	✓	✓	✓	✓	✓	✓	✓		
BH/MW210-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH/MW210-2.0-2.45	✓	✓	✓	✓	✓	✓	✓	✓		
JK107a-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
JK107a-1.9-2.35	✓	✓	✓	✓	✓	✓	✓	✓		
JK107a-7.9-8.35	✓	✓	✓	✓	✓	✓	✓	✓		
JK107a-8.9-9.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH205-0.9-1.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH205-2.9-3.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH205-3.9-4.35	✓	✓	✓	✓	✓	✓	✓	✓		

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JK103a-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
JK103a-1.9-2.35	✓	✓	✓	✓	✓	✓	✓	✓		
JK103a-2.9-3.35	✓	✓	✓	✓	✓	✓	✓	✓		
JK103a-5.9-6.35	✓	✓	✓	✓	✓	✓	✓	✓		
JK118a-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
JK118a-1.9-2.35	✓	✓	✓	✓	✓	✓	✓	✓		
JK118a-4.9-5.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH211-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH211-0.9-1.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH211-2.9-2.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH214-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH214-2.2-2.65	✓	✓	✓	✓	✓	✓	✓	✓		
BH213-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH213-2.9-3.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH221-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH221-1.9-2.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH221-2.9-3.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH221-3.9-4.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH222-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH222-0.9-1.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH222-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH212-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH212-2.9-3.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH209-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH209-0.9-1.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH209-1.9-2.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH209-3.9-4.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH204-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH204-1.9-2.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH204-3.9-4.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH203-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH203-0.9-1.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH203-2.9-3.35	✓	✓	✓	✓	✓	✓	✓	✓		

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BH201-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH201-0.9-1.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH207-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH207-0.9-1.35			✓				✓			
BH206-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
BH206-0.9-1.35			✓				✓			
BH206-2.35-2.9	✓	✓	✓	✓	✓	✓	✓	✓		
BH206-4.35-4.9	✓	✓	✓	✓	✓	✓	✓	✓		
BH208-0.9-1.35	✓	✓	✓	✓	✓	✓	✓	✓		
BH208-3.9-4.35			✓				✓			
BD1/070815	✓	✓	✓	✓	✓	✓	✓	✓		
BD2/080915	✓	✓	✓	✓	✓	✓	✓	✓		
BD3/090915	✓	✓	✓	✓	✓	✓	✓	✓		
BD5/100915			✓				✓			
TS1	✓									
TB1	✓									
TS2	✓									
TB2	✓									
TS3	✓									
TB3	✓									

12 Ashley Street, Chatswood, NSW 2067
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email: sydney@envirolab.com.au
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Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 135866

Client:
Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: John Russell, Chris Bagia

Sample log in details:

Your Reference:	**71459.03, Moorebank**		
No. of samples:	2 Soils		
Date samples received / completed instructions received	14/10/15	/	14/10/15

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:	21/10/15	/	20/10/15
Date of Preliminary Report:	Not Issued		

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Results Approved By:

Jacinta Hurst
Laboratory Manager

ACCREDITED FOR TECHNICAL COMPETENCE

vTRH(C6-C10)/BTEXN in Soil			
Our Reference:	UNITS	135866-1	135866-2
Your Reference	----------	SS217	SS219
Date Sampled	----------	14/10/2015	14/10/2015
Type of sample		Soil	Soil
Date extracted	-	15/10/2015	15/10/2015
Date analysed	-	15/10/2015	16/10/2015
TRHC$_6$ - C$_9$	mg/kg	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	97	94

svTRH (C10-C40) in Soil			
Our Reference:	UNITS	135866-1	135866-2
Your Reference	----------	SS217	SS219
Date Sampled	----------	14/10/2015	14/10/2015
Type of sample		Soil	Soil
Date extracted	-	15/10/2015	15/10/2015
Date analysed	-	15/10/2015	15/10/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100
Surrogate o-Terphenyl	%	87	90

PAHs in Soil			
Our Reference:	UNITS	135866-1	135866-2
Your Reference	----------	SS217	SS219
Date Sampled	----------	14/10/2015	14/10/2015
Type of sample		Soil	Soil
Date extracted	-	15/10/2015	15/10/2015
Date analysed	-	15/10/2015	15/10/2015
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	0.4
Anthracene	mg/kg	<0.1	0.1
Fluoranthene	mg/kg	0.2	0.6
Pyrene	mg/kg	0.2	0.6
Benzo(a)anthracene	mg/kg	0.1	0.3
Chrysene	mg/kg	0.2	0.3
Benzo(b,j+k)fluoranthene	mg/kg	0.3	0.5
Benzo(a)pyrene	mg/kg	0.1	0.3
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	0.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Total Positive PAHs	mg/kg	1.3	3.4
Surrogate p-Terphenyl-d14	%	93	90

Organochlorine Pesticides in soil			
Our Reference:	UNITS	135866-1	135866-2
Your Reference	----------	SS217	SS219
Date Sampled	----------	14/10/2015	14/10/2015
Type of sample		Soil	Soil
Date extracted	-	15/10/2015	15/10/2015
Date analysed	-	16/10/2015	16/10/2015
HCB	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Surrogate TCMX	%	122	129

Organophosphorus Pesticides			
Our Reference:	UNITS	135866-1	135866-2
Your Reference	----------	SS217	SS219
Date Sampled	----------	14/10/2015	14/10/2015
Type of sample		Soil	Soil
Date extracted	-	15/10/2015	15/10/2015
Date analysed	-	16/10/2015	16/10/2015
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Surrogate TCMX	%	122	129

PCBs in Soil			
Our Reference:	UNITS	135866-1	135866-2
Your Reference	----------	SS217	SS219
Date Sampled	----------	14/10/2015	14/10/2015
Type of sample		Soil	Soil
Date extracted	-	15/10/2015	15/10/2015
Date analysed	-	16/10/2015	16/10/2015
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Surrogate TCLMX	%	122	129

Acid Extractable metals in soil			
Our Reference:	UNITS	135866-1	135866-2
Your Reference	----------	SS217	SS219
Date Sampled	----------	14/10/2015	14/10/2015
Type of sample		Soil	Soil
Date prepared	-	15/10/2015	15/10/2015
Date analysed	-	15/10/2015	15/10/2015
Arsenic	mg/kg	5	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	9	9
Copper	mg/kg	18	24
Lead	mg/kg	25	45
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	6	7
Zinc	mg/kg	55	80
Manganese	mg/kg	120	120

Misc Soil - Inorg			
Our Reference:	UNITS	135866-1	135866-2
Your Reference	----------	SS217	SS219
Date Sampled	----------	14/10/2015	14/10/2015
Type of sample		Soil	Soil
Date prepared	-	15/10/2015	15/10/2015
Date analysed	-	15/10/2015	15/10/2015
Total Phenolics (as Phenol)	mg/kg	<5	<5

Moisture			
Our Reference:	UNITS	135866-1	135866-2
Your Reference	----------	SS217	SS219
Date Sampled	----------	14/10/2015	14/10/2015
Type of sample		Soil	Soil
Date prepared	-	15/10/2015	15/10/2015
Date analysed	-	16/10/2015	16/10/2015
Moisture	%	5.1	7.8

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 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. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2015	[NT]	[NT]	LCS-1	15/10/2015
Date analysed	-			15/10/2015	[NT]	[NT]	LCS-1	15/10/2015
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	100%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-1	100%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-1	94%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-1	99%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	100%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-1	103%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-1	102%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	97	[NT]	[NT]	LCS-1	101%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2015	[NT]	[NT]	LCS-1	15/10/2015
Date analysed	-			15/10/2015	[NT]	[NT]	LCS-1	15/10/2015
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	99%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	85%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	79%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-1	99%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	85%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-1	79%
Surrogate o-Terphenyl	%		Org-003	90	[NT]	[NT]	LCS-1	100%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2015	[NT]	[NT]	LCS-1	15/10/2015
Date analysed	-			15/10/2015	[NT]	[NT]	LCS-1	15/10/2015
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	97%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	99%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	98%
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	91%
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	101%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	LCS-1	118%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	LCS-1	111%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	96	[NT]	[NT]	LCS-1	93%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2015	[NT]	[NT]	LCS-1	15/10/2015
Date analysed	-			16/10/2015	[NT]	[NT]	LCS-1	16/10/2015
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	102%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	82%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	89%
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	92%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	89%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	85%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	119%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	106%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	93%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-1	95%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	105	[NT]	[NT]	LCS-1	123%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2015	[NT]	[NT]	LCS-1	15/10/2015
Date analysed	-			16/10/2015	[NT]	[NT]	LCS-1	16/10/2015
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	69%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	91%
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	95%
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	100%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	118%
Malathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	93%
Parathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-1	114%
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-008	105	[NT]	[NT]	LCS-1	123%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2015	[NT]	[NT]	LCS-1	15/10/2015
Date analysed	-			16/10/2015	[NT]	[NT]	LCS-1	16/10/2015
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	LCS-1	114%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	105	[NT]	[NT]	LCS-1	106%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			15/10/2015	[NT]	[NT]	LCS-3	15/10/2015
Date analysed	-			15/10/2015	[NT]	[NT]	LCS-3	15/10/2015
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-3	108%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-3	107%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	104%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	116%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	102%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-3	106%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	101%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	101%
Manganese	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-3	106%
QUALITY CONTROL Misc Soil - Inorg	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			15/10/2015	[NT]	[NT]	LCS-1	15/10/2015
Date analysed	-			15/10/2015	[NT]	[NT]	LCS-1	15/10/2015
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	LCS-1	104%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in 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.

CHAIN OF CUSTODY

Douglas Partners
Geotechnics / Environment / Groundwater

Client: Douglas Partners	**Project Number** 71459.03	**To:**	Envirolab Services
Contact Person: John Russell	**Project Name:** Moorebank	**Contact Person:**	Aileen Hie
Project Mgr: John Russell	**PO No.:**	**Address:**	12 Ashley Street
	lab Quote No. :		Chatswood NSW 2068
Address: 96 Hermitage Road West Ryde NSW 2114	**Date results required:** Standard **Or choose:** standard *Note: Inform lab in advance if urgent turnaround is required - surcharges apply*	**Phone:**	02 9910 6200
		Fax:	02 9910 6201
		Email:	ahie@envirolab.com.au
Phone: 9809 0666 **Mob:** 0422 000 434	**Report format:** esdat / PDF / Excel	**Laboratory Report No:**	
Email: john.russell@douglaspartners.com.au	**Comments:**	**Lab Comments:**	

Sample information						Tests Required											Comments
Lab Sample ID	Field Sample ID	Depth	Date sampled	Container Type	Type of sample	As, Cd, Cr, Cu, Pb, Hg, Ni, Zn, Mn	TRH	BTEX	PAH	OCP	OPP	PCB	Phenols	pH / CEC		Combo	Provide as much information about the sample as you can
1	SS217		14/10/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
2	SS219		14/10/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	

ENVIROLAB GROUP

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

Job No: 135866
Date Received: 14/10/15
Time Received: 14:00
Received by: D.F
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Relinquished by: Douglas Partners	**Sample Receipt**	***Lab use only:***
Courier (by whom) HUNTER EXPRESS	**Received by (Company):** Douglas Partners	**Samples Received:** Cool or Ambient (circle one)
Condition of Sample at dispatch Cool or Ambient (circle)	**Print Name:**	**Temperature Received at:** (if applicable)
Temperature (if Applicable):	**Date & Time:** 14/10/15 14:00	**Transported by:** Hand delivered / courier
Print Name: John Russell	**Signature:**	
Date & Time 14/10/2015		
Signature:		

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd
Attention	John Russell, Chris Bagia

Sample Login Details	
Your Reference	71459.03, Moorebank
Envirolab Reference	135866
Date Sample Received	14/10/2015
Date Instructions Received	14/10/2015
Date Results Expected to be Reported	21/10/2015

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	2 Soils
Turnaround Time Requested	Standard
Temperature on receipt (°C)	9.6
Cooling Method	Ice Pack
Sampling Date Provided	YES

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

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page

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

Sample Id	*vTRH(C6-C10)/BTEXN in Soil*	*svTRH (C10-C40) in Soil*	*PAHs in Soil*	*Organochlorine Pesticides in soil*	*Organophosphorus Pesticides*	*PCBs in Soil*	*Acid Extractable metals in soil*	*Misc Soil - Inorg*
SS217	✓	✓	✓	✓	✓	✓	✓	✓
SS219	✓	✓	✓	✓	✓	✓	✓	✓

12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200

email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 134222-B

Client:
Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: John Russell, Chris Bagia

Sample log in details:

Your Reference:	**71459.03, Moorebank**
No. of samples:	Additional Testing on 6 Soils
Date samples received / completed instructions received	11/9/2015 / 08/10/15

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:	15/10/15 / 15/10/15
Date of Preliminary Report:	Not Issued

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

Metals in TCLP USEPA1311						
Our Reference:	UNITS	134222-B-24	134222-B-38	134222-B-41	134222-B-46	134222-B-54
Your Reference	----------	JK103a	BH221	BH222	BH209	BH203
Depth	----------	2.9-3.35	2.9-3.35	0.9-1.35	0.9-1.35	2.9-3.35
Date Sampled		7/09/2015	8/09/2015	9/09/2015	9/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/10/2015	15/10/2015	11/10/2015	11/10/2015	15/10/2015
Date analysed	-	[NA]	15/10/2015	[NA]	[NA]	15/10/2015
pH of soil for fluid# determ.	pH units	9.3	9.3	8.8	9.2	8.6
pH of soil for fluid # determ. (acid)	pH units	1.6	1.7	1.6	1.6	1.7
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	5.1	6.3	5.7	5.6	5.6
Arsenic in TCLP	mg/L	[NA]	<0.05	[NA]	[NA]	<0.05
Cadmium in TCLP	mg/L	[NA]	<0.01	[NA]	[NA]	0.01
Chromium in TCLP	mg/L	[NA]	<0.01	[NA]	[NA]	<0.01
Copper in TCLP	mg/L	[NA]	<0.01	[NA]	[NA]	0.04
Lead in TCLP	mg/L	[NA]	0.2	[NA]	[NA]	1.0
Mercury in TCLP	mg/L	[NA]	<0.0005	[NA]	[NA]	<0.0005
Nickel in TCLP	mg/L	[NA]	<0.02	[NA]	[NA]	<0.02
Zinc in TCLP	mg/L	[NA]	1.1	[NA]	[NA]	1.8

Metals in TCLP USEPA1311		
Our Reference:	UNITS	134222-B-57
Your Reference	----------	BH207
Depth	----------	0.1-0.2
Date Sampled		10/09/2015
Type of sample		Soil
Date extracted	-	11/10/2015
pH of soil for fluid# determ.	pH units	9.5
pH of soil for fluid # determ. (acid)	pH units	1.6
Extraction fluid used	-	1
pH of final Leachate	pH units	5.2

PAHs in TCLP (USEPA 1311)					
Our Reference:	UNITS	134222-B-24	134222-B-41	134222-B-46	134222-B-57
Your Reference	----------	JK103a	BH222	BH209	BH207
Depth	----------	2.9-3.35	0.9-1.35	0.9-1.35	0.1-0.2
Date Sampled		7/09/2015	9/09/2015	9/09/2015	10/09/2015
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	12/10/2015	12/10/2015	12/10/2015	12/10/2015
Date analysed	-	12/10/2015	12/10/2015	12/10/2015	12/10/2015
Naphthalene in TCLP	mg/L	0.004	<0.001	<0.001	<0.001
Acenaphthylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Acenaphthene in TCLP	mg/L	0.010	<0.001	<0.001	<0.001
Fluorene in TCLP	mg/L	0.005	<0.001	<0.001	<0.001
Phenanthrene in TCLP	mg/L	0.006	<0.001	<0.001	<0.001
Anthracene in TCLP	mg/L	0.001	<0.001	<0.001	<0.001
Fluoranthene in TCLP	mg/L	0.002	<0.001	<0.001	<0.001
Pyrene in TCLP	mg/L	0.001	<0.001	<0.001	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Chrysene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.002	<0.002	<0.002	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001
Total +ve PAH's	mg/L	0.029	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	101	118	104	110

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) based upon AS 4439 and USEPA 1311. Additional information as required in AS4439.3 section 11 can be provided on request.
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
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.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Org-012	Leachates are extracted with Dichloromethane and analysed by GC-MS.
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-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.

QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2015	[NT]	[NT]	LCS-W1	15/10/2015
Date analysed	-			15/10/2015	[NT]	[NT]	LCS-W1	15/10/2015
Arsenic in TCLP	mg/L	0.05	Metals-020 ICP-AES	<0.05	[NT]	[NT]	LCS-W1	114%
Cadmium in TCLP	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	117%
Chromium in TCLP	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	110%
Copper in TCLP	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	107%
Lead in TCLP	mg/L	0.03	Metals-020 ICP-AES	<0.03	[NT]	[NT]	LCS-W1	107%
Mercury in TCLP	mg/L	0.0005	Metals-021 CV-AAS	<0.0005	[NT]	[NT]	LCS-W1	114%
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	107%
Zinc in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	114%
QUALITY CONTROL PAHs in TCLP (USEPA 1311)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/10/2015	[NT]	[NT]	LCS-W4	12/10/2015
Date analysed	-			12/10/2015	[NT]	[NT]	LCS-W4	12/10/2015
Naphthalene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	LCS-W4	111%
Acenaphthylene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NR]	[NR]
Acenaphthene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NR]	[NR]
Fluorene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	LCS-W4	105%
Phenanthrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	LCS-W4	128%
Anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NR]	[NR]
Fluoranthene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	LCS-W4	120%
Pyrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	LCS-W4	122%
Benzo(a)anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NR]	[NR]
Chrysene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	LCS-W4	115%
Benzo(bjk)fluoranthene in TCLP	mg/L	0.002	Org-012	<0.002	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	LCS-W4	128%
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	78	[NT]	[NT]	LCS-W4	87%

Report Comments:

Samples requested and analysed out of holding time for TCLP PAH.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in 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.

Aileen Hie

From: John Russell <John.Russell@douglaspartners.com.au>
Sent: Thursday, 8 October 2015 10:55 AM
To: Nancy Zhang; Aileen Hie
Subject: RE: Results for Registration 134222 71459.03, Moorebank
Attachments: 08102015095430-0001.pdf

Nancy / Aileen

Can we please get the following additional testing done on some of these samples:

TCLP on PAH

JK103a	24	0	7/09/2015	Soil	2.9-3.35
BH222	41	0	9/09/2015	Soil	0.9-1.35
BH209	46	0	9/09/2015	Soil	0.9-1.35
BH207	57	0	10/09/2015	Soil	0.1-0.2

Envirolab Ref: 134222B
Due: ~~16/10/15~~ 15/10/15
Std T/A.

TCLP on Metals

BH221	38	0	8/09/2015	Soil	2.9-3.35
BH203	54	0	10/09/2015	Soil	2.9-3.35

PO is attached.

Thanks

John Russell | Associate
Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au
96 Hermitage Road West Ryde NSW 2114 | PO Box 472 West Ryde NSW 1685
P: 02 9809 0666 | F: 02 9809 4095 | M: 0422 000 434 | E: John.Russell@douglaspartners.com.au

This email is confidential. If you are not the intended recipient, please notify us immediately and be aware that any disclosure, copying, distribution or use of the contents of this information is prohibited. Please note that the company does not make any commitment through emails not confirmed by fax or letter.

From: Nancy Zhang [mailto:NZhang@envirolab.com.au]
Sent: Friday, 18 September 2015 6:03 PM
To: John Russell
Subject: Results for Registration 134222 71459.03, Moorebank

Please refer to attached for:
a copy of the Certificate of Analysis
a copy of the Invoice
a copy of the COC
an excel file containing the results

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1531108**	Page	: 1 of 7
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR JOHN RUSSELL	Contact	: Jenny Bevan
Address	: PO BOX 472 96 HERMITAGE ROAD WEST RYDE NSW, AUSTRALIA 1685	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.russell@douglaspartners.com.au	E-mail	: jenny.bevan@alsglobal.com
Telephone	: ----	Telephone	: 07 3552 8657
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 71459.03 MOOREBANK	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 14-Sep-2015 15:20
C-O-C number	: ----	Date Analysis Commenced	: 14-Sep-2015
Sampler	: ----	Issue Date	: 17-Sep-2015 16:11
Site	: ----		
		No. of samples received	: 3
Quote number	: ----	No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodore	Instrument Chemist	Sydney Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BD4/100915	BD6/100915	BD7/100915	----	----
			Client sampling date / time	[10-Sep-2015]	[10-Sep-2015]	[10-Sep-2015]	----	----
Compound	CAS Number	LOR	Unit	ES1531108-001	ES1531108-002	ES1531108-003	--------	--------
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	16.3	18.2	21.9	----	----
EG005T: Total Metals by ICP-AES								
Manganese	7439-96-5	5	mg/kg	254	152	<5	----	----
Arsenic	7440-38-2	5	mg/kg	9	6	10	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	18	8	30	----	----
Copper	7440-50-8	5	mg/kg	23	15	13	----	----
Lead	7439-92-1	5	mg/kg	25	14	27	----	----
Nickel	7440-02-0	2	mg/kg	6	7	2	----	----
Zinc	7440-66-6	5	mg/kg	35	15	11	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
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	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	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	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BD4/100915	BD6/100915	BD7/100915	----	----
				Client sampling date / time	[10-Sep-2015]	[10-Sep-2015]	[10-Sep-2015]	----	----
Compound	CAS Number	LOR	Unit		ES1531108-001	ES1531108-002	ES1531108-003	--------	--------
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
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	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BD4/100915	BD6/100915	BD7/100915	----	----
				Client sampling date / time	[10-Sep-2015]	[10-Sep-2015]	[10-Sep-2015]	----	----
Compound	CAS Number	LOR	Unit		ES1531108-001	ES1531108-002	ES1531108-003	--------	--------
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BD4/100915	BD6/100915	BD7/100915	----	----
				Client sampling date / time	[10-Sep-2015]	[10-Sep-2015]	[10-Sep-2015]	----	----
Compound	CAS Number	LOR	Unit		ES1531108-001	ES1531108-002	ES1531108-003	--------	--------
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	----	----	----	----
^ **Total Xylenes**	1330-20-7	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**77.0**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**92.2**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**75.2**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**93.2**	**94.8**	**92.8**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**93.5**	**95.0**	**93.1**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**66.9**	**72.8**	**77.9**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**85.2**	**83.5**	**83.5**	----	----
Anthracene-d10	1719-06-8	0.5	%		**116**	**114**	**117**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**80.8**	**84.4**	**81.9**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**114**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**122**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BD4/100915	BD6/100915	BD7/100915	----	----
				Client sampling date / time	[10-Sep-2015]	[10-Sep-2015]	[10-Sep-2015]	----	----
Compound	CAS Number	LOR	Unit		ES1531108-001	ES1531108-002	ES1531108-003	--------	--------
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**127**	----	----	----	----

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1531108**	Page	: 1 of 11
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR JOHN RUSSELL	Contact	: Jenny Bevan
Address	: PO BOX 472 96 HERMITAGE ROAD WEST RYDE NSW, AUSTRALIA 1685	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.russell@douglaspartners.com.au	E-mail	: jenny.bevan@alsglobal.com
Telephone	: ----	Telephone	: 07 3552 8657
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 71459.03 MOOREBANK	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 14-Sep-2015
C-O-C number	: ----	Date Analysis Commenced	: 14-Sep-2015
Sampler	: ----	Issue Date	: 17-Sep-2015
Site	: ----	No. of samples received	: 3
Quote number	: ----	No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

NATA WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out ir compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Raymond Commodore	Instrument Chemist	Sydney Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been 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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (QC Lot: 213199)									
ES1531077-005	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	12.9	12.8	0.00	0% - 50%
EW1511692-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	19.8	19.6	1.10	0% - 50%
EA055: Moisture Content (QC Lot: 214352)									
ES1530881-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	11.5	11.8	2.55	0% - 50%
ES1531127-005	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	20.6	20.3	1.40	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 213241)									
ES1530957-027	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	7	47.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	3	52.4	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	14	10	32.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	<5	44.5	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	6	<5	25.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	26	15	52.7	No Limit
ES1531032-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	17	13.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	8	10	19.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	12	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	26	30	12.9	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	82	75	9.03	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	14	18	23.4	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 213242)									
ES1531032-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 215406)									
ES1531108-001	BD4/100915	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 215405)									
ES1531108-001	BD4/100915	EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 215405) - continued									
ES1531108-001	BD4/100915	EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 215405)									
ES1531108-001	BD4/100915	EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 215408)									
ES1531108-001	BD4/100915	EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 215408) - continued									
ES1531108-001	BD4/100915	EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 215408)									
ES1531108-001	BD4/100915	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 214548)									
ES1530944-021	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1530944-032	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 215407)									
ES1531108-001	BD4/100915	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 214548)									
ES1530944-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1530944-032	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 215407)									
ES1531108-001	BD4/100915	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 215407) - continued									
ES1531108-001	BD4/100915	EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 214548)									
ES1530944-021	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1530944-032	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 213241)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	104	92	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	97.8	87	121
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	80.0	80	136
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	98.4	93	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	99.8	86	124
EG005T: Manganese	7439-96-5	5	mg/kg	<5	130 mg/kg	101	97	131
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	93.1	93	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	96.4	81	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 213242)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	83.3	70	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 215406)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	111	57	117
EP068A: Organochlorine Pesticides (OC) (QCLot: 215405)								
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	76	120
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	69	117
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	82.2	67	127
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	68	118
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	71	113
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	69	119
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	91.0	69	119
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.7	76	120
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.8	67	121
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	65	113
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.7	66	118
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.8	60	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.3	67	123
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	85.6	57	115
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	65	123
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	71	115
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	68	116
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	68	116
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	66	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	79.4	65	129
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	68	120

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 215405)								
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	68.2	42	126
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	68	116
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	67	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	99.8	70	118
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	68	114
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	88.3	55	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.9	64	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	73	117
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	56	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	64	124
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.1	70	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	64	120
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	71	115
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	70	120
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	76.0	54	122
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	84.8	68	122
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	82.6	69	123
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	69	115
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	68	116
EP075(SIM)A: Phenolic Compounds (QCLot: 215408)								
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	79.6	69	112
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	81.1	57	111
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	88.7	68	112
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	95.9	69	117
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	96.6	73	117
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	100	74	116
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	98.6	72	116
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	82.2	60	117
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	99.3	69	123
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	87.5	76	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	37.0	10	57
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	97.7	74	116
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 215408)								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	104	79	123
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	101	77	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	95.1	79	123
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	90.1	73	121
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	97.9	76	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 215408) - continued								
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	89.7	70	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	103	72	114
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	100	77	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	90.2	81	123
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	100	72	113
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	99.4	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	104	77	123
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	99.9	71	113
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	104	80	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	103	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	104	79	125
EP080/071: Total Petroleum Hydrocarbons (QCLot: 214548)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	95.7	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 215407)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	101	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	102	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	99.0	64	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 214548)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	97.2	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 215407)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	103	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	112	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	93.1	63	131
EP080: BTEXN (QCLot: 214548)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	82.0	62	116
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.3	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	95.1	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	80.8	62	138
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	92.3	60	120
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.9	62	128

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Matrix Spike (MS) Report

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG005T: Total Metals by ICP-AES (QCLot: 213241)							
ES1531032-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	84.2	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.9	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	85.4	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	94.5	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	91.0	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	93.0	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	87.3	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 213242)							
ES1531032-005	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	109	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 215406)							
ES1531108-001	BD4/100915	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	96.0	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 215405)							
ES1531108-001	BD4/100915	EP068: 4.4`-DDT	50-29-3	2 mg/kg	96.7	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	94.8	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	78.3	70	130
		EP068: Endrin	72-20-8	2 mg/kg	90.3	70	130
		EP068: gamma-BHC	58-89-9	0.5 mg/kg	86.1	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	76.6	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 215405)							
ES1531108-001	BD4/100915	EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	86.1	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	97.5	70	130
		EP068: Diazinon	333-41-5	0.5 mg/kg	78.0	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	87.2	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	74.8	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 215408)							
ES1531108-001	BD4/100915	EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	106	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	77.5	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	84.5	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	88.4	20	130
		EP075(SIM): Phenol	108-95-2	10 mg/kg	106	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 215408)							
ES1531108-001	BD4/100915	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.9	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 214548)							
ES1530944-021	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	104	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 215407)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 215407) - continued							
ES1531108-001	BD4/100915	EP071: C10 - C14 Fraction	----	523 mg/kg	104	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	104	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	124	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 214548)							
ES1530944-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	105	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 215407)							
ES1531108-001	BD4/100915	EP071: >C10 - C16 Fraction	>C10_C16	860 mg/kg	93.5	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	117	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	112	52	132
EP080: BTEXN (QCLot: 214548)							
ES1530944-021	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	91.1	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	108	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	111	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.4	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	112	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	103	70	130

ALS Environmental

QA/QC Compliance Assessment for DQO Reporting

Work Order	: **ES1531108**	Page	: 1 of 4
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR JOHN RUSSELL	Telephone	: 07 3552 8657
Project	: 71459.03 MOOREBANK	Date Samples Received	: 14-Sep-2015
Site	: ----	Issue Date	: 17-Sep-2015
Sampler	: ----	No. of samples received	: 3
Order number	: ----	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) BD4/100915, BD6/100915	**10-Sep-2015**	**----**	----	----	**14-Sep-2015**	24-Sep-2015	✓
Soil Glass Jar - Unpreserved (EA055-103) BD7/100915	**10-Sep-2015**	**----**	----	----	**15-Sep-2015**	24-Sep-2015	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) BD4/100915, BD6/100915, BD7/100915	**10-Sep-2015**	**14-Sep-2015**	08-Mar-2016	✓	**15-Sep-2015**	08-Mar-2016	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) BD4/100915, BD6/100915, BD7/100915	**10-Sep-2015**	**14-Sep-2015**	08-Oct-2015	✓	**15-Sep-2015**	08-Oct-2015	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066) BD4/100915	**10-Sep-2015**	**16-Sep-2015**	24-Sep-2015	✓	**16-Sep-2015**	26-Oct-2015	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068) BD4/100915	**10-Sep-2015**	**16-Sep-2015**	24-Sep-2015	✓	**16-Sep-2015**	26-Oct-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) BD4/100915	**10-Sep-2015**	**16-Sep-2015**	24-Sep-2015	✓	**17-Sep-2015**	26-Oct-2015	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BD4/100915, BD6/100915, BD7/100915	**10-Sep-2015**	**16-Sep-2015**	24-Sep-2015	✓	**17-Sep-2015**	26-Oct-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) BD4/100915	**10-Sep-2015**	**16-Sep-2015**	24-Sep-2015	✓	**16-Sep-2015**	24-Sep-2015	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	9	**11.11**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	9	**11.11**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	9	**11.11**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	12	**16.67**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	2	18	**11.11**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	12	**8.33**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	12	**8.33**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Polychlorinated Biphenyls (PCB)	EP066	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	12	**8.33**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	In-house. A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

CHAIN OF CUSTODY

Douglas Partners
Geotechnics / Environment / Groundwater

Client: Douglas Partners	**Project Number** 71459.03	**To:**	Envirolab Services
Contact Person: Chris Bagia	**Project Name:** Moorebank	**Contact Person:**	Aileen Hie
Project Mgr: John Russell	**PO No.:**	**Address:**	12 Ashley Street
	lab Quote No. :		Chatswood NSW 2068
Address: 96 Hermitage Road	**Date results required:** 17/09/15 (for 14 day holding time)	**Phone:**	02 9910 6200
West Ryde NSW 2114	**Or choose:** standard	**Fax:**	02 9910 6201
	Note: Inform lab in advance if urgent turnaround is required - surcharges apply	**Email:**	ahie@envirolab.com.au
Phone: 9809 0666 **Mob:** 0422 000 434	**Report format:** esdat / PDF / Excel	**Laboratory Report No:**	
Email: john.russell@douglaspartners.com.au	**Comments:**	**Lab Comments:**	

Sample information						Tests Required											Comments
Lab Sample ID	Field Sample ID	Depth	Date sampled	Container Type	Type of sample	As, Cd, Cr, Cu, Pb, Hg, Ni, Zn, Mn	TRH	BTEX	PAH	OCP	OPP	PCB	Phenols	pH / CEC		Combo	Provide as much information about the sample as you can
	BH203	0.1-0.2	10/09/2015	g	s	X	X	X	X	X	X	X	X	X		8 (+Mn)	
	BH203	0.9-1.35	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
	BH203	2.9-3.35	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
	BH201	0.1-0.2	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
	BH201	0.9-1.35	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
	BH207	0.1-0.2	10/09/2015	g	s	X	X	X	X	X	X	X	X	X		8 (+Mn)	
	BH207	0.9-1.35	10/09/2015	g	s	X			X								
	BH206	0.1-0.2	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
	BH206	0.9-1.35	10/09/2015	g	s	X			X								
	BH206	2.9-2.35	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
	BH206	4.9-4.35	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
	BH208	0.9-1.35	10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
	BH208	3.9-4.35	10/09/2015	g	s	X			X								
	BD1/070815		7/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
	BD2/080915		8/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
	BD3/090915		9/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	
1 –	BD4/100915		10/09/2015	g	s	X	X	X	X	X	X	X	X			8 (+Mn)	Please send to ALS
	BD5/100915		10/09/2015	g	s	X			X								
2 –	BD6/100915		10/09/2015	g	s	X			X								Please send to ALS
3 –	BD7/100915		10/09/2015	g	s	X			X								Please send to ALS
	TS1	prepared on	1/09/2015				X	X									
	TB1	prepared on	1/09/2015				X	X									
	TS2	prepared on	1/09/2015				X	X									
	TB2	prepared on	1/09/2015				X	X									
	TS3	prepared on	1/09/2015				X	X									
	TB3	prepared on	1/09/2015				X	X									

Relinquished by: Douglas Partners	**Sample Receipt**	***Lab use only:***
Courier (by whom) HUNTER EXPRESS	**Received by (Company):** ALS	**Samples Received: Cool or Ambient (circle one)**
Condition of Sample at dispatch Cool or Ambient (circle)	**Print Name:** Ron	**Temperature Received at:** (if applicable)
Temperature (if Applicable):	**Date & Time:** 14-9-15 15:20	**Transported by: Hand delivered / courier**
Print Name: John Russell	**Signature:**	
Date & Time 11/09/15; 3pm		13.4 222.
Signature:		

Relinquished by: PT(ELS) 14/9/15 12:00

FAIL

Environmental Division
Sydney
Work Order Reference
ES1531108

Telephone : +61-2-8784 8555

12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200

email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 136637

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: John Russell

Sample log in details:

Your Reference:	**Moorebank**		
No. of samples:	4 suma canisters		
Date samples received / completed instructions received	29/10/15	/	29/10/15

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:	5/11/15	/	5/11/15
Date of Preliminary Report:	Not Issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

TO15 in Canisters + ug/m3 calc Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	136637-1 JK101 27/10/2015 AIR	136637-2 JK107B 27/10/2015 AIR	136637-3 BH/MW216 27/10/2015 AIR	136637-4 BD1 27/10/2015 AIR
Vacuum before Shipment	Hg"	-30	-30	-30	-30
Vacuum before Analysis	Hg"	-4	-5	-4	-4
Date prepared	-	04/11/2015	04/11/2015	04/11/2015	04/11/2015
Date analysed	-	04/11/2015	04/11/2015	04/11/2015	04/11/2015
Propylene	ppbv	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	ppbv	4	25	43	46
Chloromethane	ppbv	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorotetrafluoroethane	ppbv	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	ppbv	<0.5	<0.5	<0.5	<0.5
1,3-Butadiene	ppbv	<0.5	<0.5	<0.5	<0.5
Bromomethane	ppbv	<0.5	<0.5	<0.5	<0.5
Chloroethane	ppbv	<0.5	1	1	2
Ethanol	ppbv	12	9.0	9.7	10
Acrolein	ppbv	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane (Freon 11)	ppbv	<0.5	<0.5	<0.5	<0.5
Isopropyl Alcohol	ppbv	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	ppbv	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichlorotrifluoroethane	ppbv	<0.5	<0.5	<0.5	<0.5
Carbon Disulfide	ppbv	2	0.7	<0.5	<0.5
trans-1,2-dichloroethene	ppbv	<0.5	<0.5	<0.5	<0.5
MTBE	ppbv	<0.5	<0.5	<0.5	<0.5
1,1- Dichloroethane	ppbv	<0.5	<0.5	<0.5	<0.5
Vinyl Acetate	ppbv	<0.5	<0.5	<0.5	<0.5
MEK	ppbv	<0.5	<0.5	<0.5	<0.5
Hexane	ppbv	28	11	13	15
cis-1,2-Dichloroethene	ppbv	<0.5	<0.5	2	2
Ethyl Acetate	ppbv	<0.5	<0.5	<0.5	<0.5
Chloroform	ppbv	<0.5	<0.5	<0.5	<0.5
Tetrahydrofuran	ppbv	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	ppbv	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	ppbv	<0.5	<0.5	<0.5	<0.5
Benzene	ppbv	1	2	1	2
Carbon tetrachloride	ppbv	<0.5	<0.5	<0.5	<0.5
Cyclohexane	ppbv	33	40	26	29
Heptane	ppbv	7.5	3	1	1
Trichloroethene	ppbv	<0.5	<0.5	0.9	<0.5
1,2-Dichloropropane	ppbv	<0.5	<0.5	<0.5	<0.5
1,4-Dioxane	ppbv	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	ppbv	<0.5	<0.5	<0.5	<0.5
Methyl Methacrylate	ppbv	<0.5	<0.5	<0.5	<0.5
MIBK	ppbv	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	ppbv	<0.5	<0.5	<0.5	<0.5

TO15 in Canisters + ug/m3 calc Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	136637-1 JK101 27/10/2015 AIR	136637-2 JK107B 27/10/2015 AIR	136637-3 BH/MW216 27/10/2015 AIR	136637-4 BD1 27/10/2015 AIR
trans-1,3-Dichloropropene	ppbv	<0.5	<0.5	<0.5	<0.5
Toluene	ppbv	2	2	2	2
1,1,2-Trichloroethane	ppbv	<0.5	<0.5	<0.5	<0.5
Methyl Butyl Ketone	ppbv	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	ppbv	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	ppbv	<0.5	<0.5	<0.5	<0.5
1,2-Dibromoethane	ppbv	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	ppbv	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ppbv	1	1	2	2
m-& *p*-Xylene	ppbv	2	2	2	2
Styrene	ppbv	<0.5	10	3	4
o-Xylene	ppbv	0.8	0.9	0.8	0.7
Bromoform	ppbv	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	ppbv	<0.5	<0.5	<0.5	<0.5
4-ethyl toluene	ppbv	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	ppbv	<0.5	<0.5	<0.5	<0.5
1,2,4-Trimethylbenzene	ppbv	1	0.9	1	0.9
1,3-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5	<0.5
Benzyl chloride	ppbv	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ppbv	<0.5	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	ppbv	<0.5	<0.5	<0.5	<0.5
Naphthalene	ppbv	3	2	1	0.8
Hexachloro- 1,3-butadiene	ppbv	<0.5	<0.5	<0.5	<0.5
Surrogate-Bromochloromethane	% rec	100	103	98	99
Surrogate-1,4-Difluorobenzene	% rec	104	105	96	99
Surrogate-Chlorobenzene-D5	% rec	105	103	99	98
Propylene	µg/m^3	<0.9	<0.9	<0.9	<0.9
Dichlorodifluoromethane	µg/m^3	20	120	210	230
Chloromethane	µg/m^3	<1	<1	<1	<1
1,2-Dichlorotetrafluoroethane	µg/m^3	<2	<2	<2	<2
Vinyl chloride	µg/m^3	<1	<1	<1	<1
1,3-Butadiene	µg/m^3	<1	<1	<1	<1
Bromomethane	µg/m^3	<2	<2	<2	<2
Chloroethane	µg/m^3	<1	4	3	4
Ethanol	µg/m^3	22	17	18	19
Acrolein	µg/m^3	<1	<1	<1	<1
Trichlorofluoromethane	µg/m^3	<3	<3	<3	<3
Isopropyl Alcohol	µg/m^3	<1	<1	<1	<1
1,1-Dichloroethene	µg/m^3	<2	<2	<2	<2
1,1,2-Trichlorotrifluoroethane	µg/m^3	<4	<4	<4	<4
Carbon Disulfide	µg/m^3	6	2	<2	<2
trans-1,2-dichloroethene	µg/m^3	<2	<2	<2	<2

TO15 in Canisters + ug/m3 calc Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	136637-1 JK101 27/10/2015 AIR	136637-2 JK107B 27/10/2015 AIR	136637-3 BH/MW216 27/10/2015 AIR	136637-4 BD1 27/10/2015 AIR
MTBE	µg/m^3	<2	<2	<2	<2
1,1-Dichloroethane	µg/m^3	<2	<2	<2	<2
Vinyl Acetate	µg/m^3	<2	<2	<2	<2
MEK	µg/m^3	<1	<1	<1	<1
Hexane	µg/m^3	100	38	47	53
cis-1,2-Dichloroethene	µg/m^3	<2	<2	6	7
Ethyl Acetate	µg/m^3	<2	<2	<2	<2
Chloroform	µg/m^3	<2	<2	<2	<2
Tetrahydrofuran	µg/m^3	<1	<1	<1	<1
1,1,1-Trichloroethane	µg/m^3	<3	<3	<3	<3
1,2-Dichloroethane	µg/m^3	<2	<2	<2	<2
Benzene	µg/m^3	4	8	5	6
Carbon tetrachloride	µg/m^3	<3	<3	<3	<3
Cyclohexane	µg/m^3	110	130	88	98
Heptane	µg/m^3	30	10	4	5
Trichloroethene	µg/m^3	<3	<3	5	<3
1,2-Dichloropropane	µg/m^3	<2	<2	<2	<2
1,4-Dioxane	µg/m^3	<2	<2	<2	<2
Bromodichloromethane	µg/m^3	<3	<3	<3	<3
Methyl Methacrylate	µg/m^3	<2	<2	<2	<2
MIBK	µg/m^3	<2	<2	<2	<2
cis-1,3-Dichloropropene	µg/m^3	<2	<2	<2	<2
trans-1,3-Dichloropropene	µg/m^3	<2	<2	<2	<2
Toluene	µg/m^3	9	8	9	8
1,1,2-Trichloroethane	µg/m^3	<3	<3	<3	<3
Methyl Butyl Ketone	µg/m^3	<2	<2	<2	<2
Dibromochloromethane	µg/m^3	<2	<2	<2	<2
Tetrachloroethene	µg/m^3	<3	<3	<3	<3
1,2-Dibromoethane	µg/m^3	<4	<4	<4	<4
Chlorobenzene	µg/m^3	<2	<2	<2	<2
Ethylbenzene	µg/m^3	5	6	7	7
m-& *p*-Xylene	µg/m^3	10	10	10	9
Styrene	µg/m^3	<2	43	10	10
o-Xylene	µg/m^3	4	4	4	3
Bromoform	µg/m^3	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/m^3	<3	<3	<3	<3
4-ethyl toluene	µg/m^3	<2	<2	<2	<2
1,3,5-Trimethylbenzene	µg/m^3	<2	<2	<2	<2
1,2,4-Trimethylbenzene	µg/m^3	6	5	5	5
1,3-Dichlorobenzene	µg/m^3	<3	<3	<3	<3
Benzyl chloride	µg/m^3	<3	<3	<3	<3
1,4-Dichlorobenzene	µg/m^3	<3	<3	<3	<3
1,2-Dichlorobenzene	µg/m^3	<3	<3	<3	<3

TO15 in Canisters + ug/m3 calc					
Our Reference:	UNITS	136637-1	136637-2	136637-3	136637-4
Your Reference	----------	JK101	JK107B	BH/MW216	BD1
Date Sampled	----------	27/10/2015	27/10/2015	27/10/2015	27/10/2015
Type of sample		AIR	AIR	AIR	AIR
1,2,4-Trichlorobenzene	µg/m^3	<4	<4	<4	<4
Naphthalene	µg/m^3	10	10	7	4
Hexachloro-1,3-butadiene	µg/m^3	<5	<5	<5	<5

Method ID	Methodology Summary
TO15	USEPA TO15 - Analysis of VOC's in air following USEPA TO15 protocols

QUALITY CONTROL TO15 in Canisters + ug/m3 calc	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Vacuum before Shipment	Hg"			[NT]	136637-3	-30 || -30 || RPD: 0	[NR]	[NR]
Vacuum before Analysis	Hg"			[NT]	136637-3	-4 || -4 || RPD: 0	[NR]	[NR]
Date prepared	-			04/11/2015	136637-3	04/11/2015 || 04/11/2015	LCS-1	04/11/2015
Date analysed	-			04/11/2015	136637-3	04/11/2015 || 04/11/2015	LCS-1	04/11/2015
Propylene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	LCS-1	99%
Dichlorodifluoromethane	ppbv	0.5	TO15	<0.5	136637-3	43 || 42 || RPD: 2	[NR]	[NR]
Chloromethane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,2-Dichlorotetrafluoroethane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Vinyl chloride	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,3-Butadiene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Bromomethane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Chloroethane	ppbv	0.5	TO15	<0.5	136637-3	1 || 2 || RPD: 67	[NR]	[NR]
Ethanol	ppbv	0.5	TO15	<0.5	136637-3	9.7 || 9.9 || RPD: 2	[NR]	[NR]
Acrolein	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Trichlorofluoromethane (Freon 11)	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Isopropyl Alcohol	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,1-Dichloroethene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,1,2-Trichlorotrifluoroethane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Carbon Disulfide	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
trans-1,2-dichloroethene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
MTBE	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,1-Dichloroethane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Vinyl Acetate	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
MEK	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Hexane	ppbv	0.5	TO15	<0.5	136637-3	13 || 13 || RPD: 0	LCS-1	88%
cis-1,2-Dichloroethene	ppbv	0.5	TO15	<0.5	136637-3	2 || 2 || RPD: 0	[NR]	[NR]
Ethyl Acetate	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Chloroform	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Tetrahydrofuran	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,1,1-Trichloroethane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,2-Dichloroethane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Benzene	ppbv	0.5	TO15	<0.5	136637-3	1 || 2 || RPD: 67	LCS-1	95%
Carbon tetrachloride	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Cyclohexane	ppbv	0.5	TO15	<0.5	136637-3	26 || 26 || RPD: 0	LCS-1	99%
Heptane	ppbv	0.5	TO15	<0.5	136637-3	1 || 1 || RPD: 0	LCS-1	98%
Trichloroethene	ppbv	0.5	TO15	<0.5	136637-3	0.9 || 0.8 || RPD: 12	[NR]	[NR]
1,2-Dichloropropane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,4-Dioxane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Bromodichloromethane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Methyl Methacrylate	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]

QUALITY CONTROL TO15 in Canisters + ug/m3 calc	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
MIBK	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
cis-1,3-Dichloropropene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
trans-1,3-Dichloropropene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Toluene	ppbv	0.5	TO15	<0.5	136637-3	2 || 2 || RPD: 0	LCS-1	101%
1,1,2-Trichloroethane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Methyl Butyl Ketone	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Dibromochloromethane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Tetrachloroethene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,2-Dibromoethane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Chlorobenzene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Ethylbenzene	ppbv	0.5	TO15	<0.5	136637-3	2 || 2 || RPD: 0	LCS-1	104%
m-& *p*-Xylene	ppbv	1	TO15	<1	136637-3	2 || 2 || RPD: 0	LCS-1	102%
Styrene	ppbv	0.5	TO15	<0.5	136637-3	3 || 3 || RPD: 0	LCS-1	104%
o-Xylene	ppbv	0.5	TO15	<0.5	136637-3	0.8 || 0.8 || RPD: 0	LCS-1	106%
Bromoform	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,1,2,2-Tetrachloroethane	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
4-ethyl toluene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	LCS-1	109%
1,3,5-Trimethylbenzene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	LCS-1	99%
1,2,4-Trimethylbenzene	ppbv	0.5	TO15	<0.5	136637-3	1 || 0.9 || RPD: 11	LCS-1	107%
1,3-Dichlorobenzene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Benzyl chloride	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,4-Dichlorobenzene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,2-Dichlorobenzene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
1,2,4-Trichlorobenzene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Naphthalene	ppbv	0.5	TO15	<0.5	136637-3	1 || 1 || RPD: 0	[NR]	[NR]
Hexachloro- 1,3-butadiene	ppbv	0.5	TO15	<0.5	136637-3	<0.5 || <0.5	[NR]	[NR]
Surrogate-Bromochloromethane	% rec		TO15	102	136637-3	98 || 103 || RPD: 5	LCS-1	106%
Surrogate-1,4-Difluorobenzene	% rec		TO15	101	136637-3	96 || 106 || RPD: 10	LCS-1	112%
Surrogate-Chlorobenzene-D5	% rec		TO15	104	136637-3	99 || 103 || RPD: 4	LCS-1	108%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

CANISTER CHAIN OF CUSTODY RECORD

Page 1 of 1

Client Name	Douglas Partners	Project Contact	John Russell	Quote No	
Client Address	Moorebank	Contact Phone No		Date Results Required	1 day / 2 days / 3 days / Standard
		Contact Mobile No	0422 000 434		
Project Name		Results Required by	Standard	E-mail Report To	John Russell
Site Location	Moorebank	Sampled by	RL	PO No	123602

	Client sample ID (Field location)	Canister #	Soil gas train / Mass flow controller #	Leak Test Passed	PID Reading (ppmv)	Date of Collection	Collection Time		Canister vacuum (Hg")		Analysis requested							
							Time on	Time off	Initial	Final	TO-15	TPH	5-Sulfides	Ozone precursors	RGA gases			
1)	JK101	2276	635			27/10/15	11:22	11:24	-28	-5	✓							
2)	JK107b	2275	1538			27/10/15	10:02	10:04	-28	-5	✓							
3)	BH/MW 216	1879	1541			27/10/15	10:28	10:30	-28	-5	✓							
4)	BD1	2240	1549			27/10/15	—	—	-28	-5	✓							

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

Job No: 136637

Date Received: 29/10/15
Time Received: 17:00
Received by: PT
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Relinquished by	JRR	Date & Time	29/10/15	Received by	Lab	Date & Time	29/10/15	Notes:
Print Name		Signature		Print Name	ELS	Signature	17:00	
				PT				

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12 Ashley St Chatswood NSW 2067
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enquiries@envirolabservices.com.au
www.envirolabservices.com.au

Canister Sampling Field Test Data Sheet and Custody Record

General Information (where applicable)

Company: Douglas Partners Project Contact: John Russell
Project Name: Canister Serial No: 2276
Site Location: Moore Park Restrictor Serial No.: 635
Site Address: Sampling Date: 27/10/15
Canister Leak check Date: 23/10/2015 Cleaned/certified Date: 25/9/15

Canister Sampling Details

SK101

Sample ID SK 101	Before shipment (determined in lab with certified gauge)	Before sampling in Field (from canister gauge)	After sampling in Field (from canister gauge)	After receipt (determined in lab with certified gauge)
Vacuum (-"Hg)	-29.75 Hg "	-28	-5	
Passive Flow Leak Check		n/a	n/a	n/a
Date/Time/Initial/	23/10/2015	27/10/15	27/10/15	
	Temperature (°C)	Humidity (%)	Weather Conditions	
Start	16.5	68	Overcast	
Stop				
Date/Time	27/10/15			
Initial				

	Sampling Times		Flow Rates (mL/min)	
	Time	Elapsed Time	Restrictor Flow Rate before shipping	Restrictor Flow Rate on sample receipt
Start	11:22	2 min		-----
Stop	11:24		----	
Date/Time	27/10/15		----	
Initial				

Canister Pressurised to _____ PSI with Helium / Nitrogen PLEASE CIRCLE **on receipt**

Canister and Sample Gauge Details

	Relinquished Date/Initial (lab)	Received by Date/Time (sampler)	Relinquished Date/Initial (sampler)	Received by Date/Initial (lab)
Canister	23/10/2015	23/10/15	29/10	
Sample Restrictor	-----			

(customers please complete shaded areas for each canister)

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Canister Sampling Field Test Data Sheet and Custody Record

General Information (where applicable)

Company: Douglas Partners Project Contact: John Russell

Project Name Canister Serial No: 2275

Site Location: Moorebank Restrictor Serial No.: 1538

Site Address: Sampling Date: 27/10/15

Canister Leak check Date: 23/10/2015 Cleaned/certified Date: 20/10/15

Canister Sampling Details

JK107B

Sample ID JK107b	Before shipment (determined in lab with certified gauge)	Before sampling in Field (from canister gauge)	After sampling in Field (from canister gauge)	After receipt (determined in lab with certified gauge)
Vacuum (-"Hg)	-29.74Hg"	~~-24~~ -28	-05	
Passive Flow Leak Check		n/a	n/a	n/a
Date/Time/Initial/	23/10/2015 H	27/10/15	27/10/15	
	Temperature (°C)	Humidity (%)	Weather Conditions	
Start	16.6	64	Overcast	
Stop	16.6	64		
Date/Time	27/10/15	10.04		
Initial				

	Sampling Times		Flow Rates (mL/min)	
	Time	Elapsed Time	Restrictor Flow Rate before shipping	Restrictor Flow Rate on sample receipt
Start	10.02	2min	34a	-----
Stop	10.04		----	
Date/Time	27/10/15		----	
Initial				

Canister Pressurised to PSI with Helium / Nitrogen PLEASE CIRCLE **on receipt**

Canister and Sample Gauge Details

	Relinquished Date/Initial(lab)	Received by Date/Time(sampler)	Relinquished Date/Initial(sampler)	Received by Date/Initial(lab)
Canister	23/10/2015 H	23/10/15	29/10	
Sample Restrictor	-----			

(customers please complete shaded areas for each canister)

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Canister Sampling Field Test Data Sheet and Custody Record

General Information (where applicable)

Company: Douglas Partners Project Contact: John Russell

Project Name: Canister Serial No: 1879

Site Location: Moorebank Restrictor Serial No.: 1541

Site Address: Sampling Date: ~~27~~/10/15

Canister Leak check Date: 23/10/2015 Cleaned/certified Date: 25/9/15

Canister Sampling Details

BH216

Sample ID BH/MW216	Before shipment (determined in lab with certified gauge)	Before sampling in Field (from canister gauge)	After sampling in Field (from canister gauge)	After receipt (determined in lab with certified gauge)
Vacuum (-"Hg)	-29.73 Hg"	~~-25~~ -28	-5	
Passive Flow Leak Check		n/a	n/a	n/a
Date/Time/Initial/	23/10/2015 [initial]			
	Temperature (°C)	Humidity (%)	Weather Conditions	
Start	16.9	65	Overcast	
Stop	16.9	65		
Date/Time	27/10/15			
Initial	[initial]	[initial]		

	Sampling Times		Flow Rates (mL/min)	
	Time	Elapsed Time	Restrictor Flow Rate before shipping	Restrictor Flow Rate on sample receipt
Start	10.28			-----
Stop	10.30	2 min	----	
Date/Time	27/10/15		----	
Initial	[initial]			

Canister Pressurised to _____ PSI with Helium / Nitrogen PLEASE CIRCLE **on receipt**

Canister and Sample Gauge Details

	Relinquished Date/Initial (lab)	Received by Date/Time (sampler)	Relinquished Date/Initial (sampler)	Received by Date/Initial (lab)
Canister	23/10/2015 [initial]	23/10/15	29/10 [initial]	
Sample Restrictor	-----			

(customers please complete shaded areas for each canister)

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Canister Sampling Field Test Data Sheet and Custody Record

General Information (where applicable)

Company: Douglas Partners Project Contact: John Russell

Project Name: Canister Serial No: 2240

Site Location: Moorebank Restrictor Serial No.: 1549

Site Address: Sampling Date: 27/10/15

Canister Leak check Date: 23/10/2015 Cleaned/certified Date: 25/9/15

Canister Sampling Details

BDI - 1879

Sample ID BDI	Before shipment (determined in lab with certified gauge)	Before sampling in Field (from canister gauge)	After sampling in Field (from canister gauge)	After receipt (determined in lab with certified gauge)
Vacuum (-"Hg)	-29.74Hg"	-28	-5	
Passive Flow Leak Check		n/a	n/a	n/a
Date/Time/Initial/	23/10/2015 ✓			
	Temperature (°C)	Humidity (%)	Weather Conditions	
Start	16.4	65	Overcast	
Stop	16.4	65		
Date/Time	27/10/15			
Initial	✓			

	Sampling Times		Flow Rates (mL/min)	
	Time	Elapsed Time	Restrictor Flow Rate before shipping	Restrictor Flow Rate on sample receipt
Start	10.28	2min		-----
Stop	10.30		----	
Date/Time	27/10/15		----	
Initial	✓			

Canister Pressurised to PSI with Helium / Nitrogen PLEASE CIRCLE **on receipt**

Canister and Sample Gauge Details

	Relinquished Date/Initial (lab)	Received by Date/Time (sampler)	Relinquished Date/Initial (sampler)	Received by Date/Initial (lab)
Canister	23/10/2015 ✓	23/10/15	29/10	
Sample Restrictor	-----			

(customers please complete shaded areas for each canister)

Dilution Factor for Pressurization of Subatmospheric Samples in Canister

136637 DP

DF=(Pf+14.7)/(Pi+14.7)

psig																
	Pressure (psig) prior to pressurization (Pi):	**-14.5**	**-14.5**	**-14.5**	**-14.5**	**-14.5**	**-14.5**	**-14.5**	**-14.5**	**-14.5**	**-14.5**	**-14.5**	**-14.5**	**-14.5**	**-14.5**	**-14.5**
	Pressure (psig) after pressurization (Pf):	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
	Dilution Factor (DF):	**223.500**	**223.500**	**223.500**	**223.500**	**223.500**	**223.500**	**223.500**	**223.500**	**223.500**	**223.500**	**223.500**	**223.500**	**223.500**	**223.500**	**223.500**

1 "Hg=0.491 psig

DF=(Pf+14.7)/(Pi*0.491+14.7)

133619-5

	canister ID:	2276	2275	1879	2240											
	Job ID:	136637-1	136637-2	136637-3	136637-4											
"Hg	**Pressure ("Hg) prior to pressurization (Pi):**	**-3.660**	**-4.750**	**-4.190**	**-4.170**											
	Pressure (psig) after pressurization (Pf):	**20.29**	**17.47**	**21.2**	**21.07**											
	Dilution Factor (DF): (250ml sample)	**2.71**	**2.60**	**2.84**	**2.83**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
	Dilution Factor (DF): (125ml sample)	5.42	5.20	5.68	5.65	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
	Dilution Factor (DF): (65ml sample)	10.85	10.40	11.36	11.31	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
	Dilution Factor (DF): (30ml sample)	22.60	21.68	23.66	23.56	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33
	Dilution Factor (DF): (9ml sample)	75.33	72.25	78.88	78.53	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78
	Dilution Factor (DF): (1ml sample)	**677.95**	**650.28**	**709.90**	**706.78**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**
	Dilution Factor (DF): (100ul sample)	6779.46	6502.80	7098.95	7067.76	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00
	Dilution Factor (DF): (10ul sample)	67794.63	65028.00	70989.53	70677.56	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00

	canister ID:															
	Job ID:															
"Hg	**Pressure ("Hg) prior to pressurization (Pi):**															
	Pressure (psig) after pressurization (Pf):															
	Dilution Factor (DF): (250ml sample)	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
	Dilution Factor (DF): (125ml sample)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
	Dilution Factor (DF): (65ml sample)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
	Dilution Factor (DF): (30ml sample)	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33
	Dilution Factor (DF): (9ml sample)	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78	27.78
	Dilution Factor (DF): (1ml sample)	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**	**250.00**
	Dilution Factor (DF): (100ul sample)	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00	2500.00
	Dilution Factor (DF): (10ul sample)	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00	25000.00

14.7 psi is 1 Atmosphere

COPY 30/10/15

CUSTOMER RECEIPT OF AIR SAMPLING EQUIPMENT

CUSTOMER DETAILS

ELS Job No: 136637-1

Name	John Russell	**Delivery date**	23/10/2015
Company	Douglas Partners Pty Ltd		
Contact Email	John.Russell@douglaspartners.com.au		
Telephone Number	02-98090666, 0422 000 434		
Deliver address	96 Hermitage Road, West Ryde, NSW 2114		

Received the following Air Sampling Equipment from Envirolab:

Quantity	Descriptions
	6L Canisters
	3.2L Canisters
4 ✓	1L canisters
	Flow restrictors at mL/min for sampling.
	Flow restrictors at mL/min for sampling.
	Flow restrictors at mL/min for sampling.
1 ✓	Dual canister manifolds
	SS-400-NFSET nut and ferrule set (1/4")
8 ✓	SS-400-6 Union each with 2 nut and ferrule set (1/4")
	SS-400-3 Union tee each with 3 nut and ferrule set (1/4")
1 ?	2 meter (length) ¼" Teflon tubing
	SS-43GS4 40G ball valve (1/4")
	TD Tubes
	Carbon tubes (SKC 226-09)
	50 mL of isopropyl alcohol (IPA)
	3L Tedlar bags
	1L Tedlar bags
1 ✓	Pressure gauge with ¼"female connection

Customer Signature		**Relinquished by**	TT (ELS)
Date		**Date**	23/10/2015

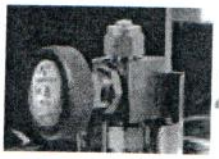
(the signature accepts the terms and conditions below)

Please note: All samples will be disposed after 1 week of issuing the "Certificate of Analysis" (CoA): this means that 1 week after the issuing the CoA, all canisters will be cleaned, all TD Tubes will be conditioned, all carbon tubes and Tedlar bags will be disposed, unless there is a pre-arrangement (please inform Envirolab if you need to hold the samples – fees apply as below).
For on hold samples, the sample holding fee will apply: $50 per week per canister sample; $25 per week per TD tube sample.

*Please fax (**02-99106299**) /email signed receipt of sampling equipment*
*(**enquires@envirolab.com.au**)*

Canisters

Canister size	Quantity	With ¼" connection	With male quick-fit connection	Cost (each/per week)	Total $
1 L	4	yes		$50	200
3.2 L				$50	
6 L				$50	
Dual canister manifold	1	¼"	----	$20	20



6L canister 3.2L canister 1L canister 1L canister ¼"connection Dual canister manifold

Flow Restrictors (flow restrictors will be modified if Quick-fit connections are required)

Quantity	Flow rate	Cost (each/per week)	Total $
		$50	
		$50	
		$50	

*Please DO NOT LOSS the Frit and Spring Washer if you need to disconnect the sampling tube of the flow restrictor. Otherwise, there will be $30 charge to cover the cost for each pair of them.

Thermal Desorption and charcoal Tubes, Tedlar bags

	Quantity	Cost	Total $
TD tube		$25each/week	
SKC Anasorb 226-09 (Charcoal tube)		$10 each	
Tedlar bags (1L)		$50 each	
Tedlar bags (3L)		$50 each	

Fittings and Miscellaneous

Item	Quantity	Size	Cost ($) (no charge if returned)	Total $	Images
Union Tee with two female Quick-fit connections		¼"	$300		
SS-400-3 Union Tee		¼"	$45		
SS-400-6 Union		¼"	$25		
SS-400-NFSET (nut and ferrule set)		¼"	$8		
SS-400-SET (ferrule set)		¼"	$5		
SS-43GS4 Ball valve		¼"	$180		
NAL8050-0250 Teflon tubing	2m	¼"	$20/meter		
Isopropyl alcohol (40mL)		40 mL	$50		
Pressure gauge with ¼"female connection	1	¼"	no charge if returned	---	

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

136637-1

Canister Sampling Field Test Data Sheet and Custody Record

General Information (where applicable)

Company: Douglas Partners Project Contact: John Russell
Project Name: Canister Serial No: 2276
Site Location: Moore Park Restrictor Serial No.: 635
Site Address: Sampling Date: 27/10/15
Canister Leak check Date: 23/10/2015 Cleaned/certified Date: 25/9/15

Canister Sampling Details

SK101

Sample ID SK 101	Before shipment (determined in lab with certified gauge)	Before sampling in Field (from canister gauge)	After sampling in Field (from canister gauge)	After receipt (determined in lab with certified gauge)
Vacuum (-"Hg)	-29.75 Hg"	-28	-5	-3.66 Hg"
Passive Flow Leak Check		n/a	n/a	n/a
Date/Time/Initial/	23/10/2015 TT	27/10/15	27/10/15	30/10/15 TT
	Temperature (°C)	Humidity (%)	Weather Conditions	
Start	16.5	68	Overcast	
Stop				
Date/Time	27/10/15			
Initial	✓			

	Sampling Times		Flow Rates (mL/min)	
	Time	Elapsed Time	Restrictor Flow Rate before shipping	Restrictor Flow Rate on sample receipt
Start	11:22	2 min		-----
Stop	11:24		----	
Date/Time	27/10/15		----	
Initial	✓			

Canister Pressurised to 20.29 PSI with Helium / Nitrogen PLEASE CIRCLE on receipt

Canister and Sample Gauge Details

	Relinquished Date/Initial (lab)	Received by Date/Time (sampler)	Relinquished Date/Initial (sampler)	Received by Date/Initial (lab)
Canister	23/10/2015 TT	23/10/15	29/10	
Sample Restrictor	-----			

(customers please complete shaded areas for each canister)

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

136637-2

Canister Sampling Field Test Data Sheet and Custody Record

General Information (where applicable)

Company: Douglas Partners Project Contact: John Russell
Project Name: Canister Serial No: 2275
Site Location: Moorebank Restrictor Serial No.: 1538
Site Address: Sampling Date: 27/10/15
Canister Leak check Date: 23/10/2015 Cleaned/certified Date: 20/10/15

Canister Sampling Details

JK107B

Sample ID JK107b	Before shipment (determined in lab with certified gauge)	Before sampling in Field (from canister gauge)	After sampling in Field (from canister gauge)	After receipt (determined in lab with certified gauge)
Vacuum (-"Hg)	-29.74 Hg"	~~-24~~ -28	-05	-4.75 Hg"
Passive Flow Leak Check		n/a	n/a	n/a
Date/Time/Initial/	23/10/2015	27/10/15	27/10/15	30/10/15

	Temperature (°C)	Humidity (%)	Weather Conditions
Start	16.6	64	Overcast
Stop	16.6	64	
Date/Time	27/10/15	10.04	
Initial			

	Sampling Times		Flow Rates (mL/min)	
	Time	Elapsed Time	Restrictor Flow Rate before shipping	Restrictor Flow Rate on sample receipt
Start	10.02	2 min	344	-----
Stop	10.04		----	
Date/Time	27/10/15		----	
Initial				

Canister Pressurised to 17.47 PSI with Helium / Nitrogen PLEASE CIRCLE on receipt

Canister and Sample Gauge Details

	Relinquished Date/Initial (lab)	Received by Date/Time (sampler)	Relinquished Date/Initial (sampler)	Received by Date/Initial (lab)
Canister	23/10/2015	23/10/15	29/10	
Sample Restrictor	-----			

(customers please complete shaded areas for each canister)

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

136637-3

Canister Sampling Field Test Data Sheet and Custody Record

General Information (where applicable)

Company: Douglas Partners Project Contact: John Russell

Project Name: Canister Serial No: 1879 (133619-5)

Site Location: Moorebank Restrictor Serial No.: 1541 (136292-20)

Site Address: Sampling Date: 27/10/15

Canister Leak check Date: 23/10/2015 Cleaned/certified Date: 25/9/15

Canister Sampling Details

BH216

Sample ID BH/MW216	Before shipment (determined in lab with certified gauge)	Before sampling in Field (from canister gauge)	After sampling in Field (from canister gauge)	After receipt (determined in lab with certified gauge)
Vacuum (-"Hg)	-29.73 Hg"	~~-25~~ -28	-5	-4.19 Hg"
Passive Flow Leak Check		n/a	n/a	n/a
Date/Time/Initial/	23/10/2015 TT			30/10/15 TT
	Temperature (°C)	Humidity (%)	Weather Conditions	
Start	16.9	65	Overcast	
Stop	16.9	65		
Date/Time	27/10/15			
Initial				

	Sampling Times		Flow Rates (mL/min)	
	Time	Elapsed Time	Restrictor Flow Rate before shipping	Restrictor Flow Rate on sample receipt
Start	10.28			-----
Stop	10.30	2 min	----	
Date/Time	27/10/15		----	
Initial				

Canister Pressurised to 21.20 PSI with Helium / (Nitrogen) PLEASE CIRCLE on receipt

Canister and Sample Gauge Details

	Relinquished Date/Initial (lab)	Received by Date/Time (sampler)	Relinquished Date/Initial (sampler)	Received by Date/Initial (lab)
Canister	23/10/2015 TT	23/10/15	29/10	
Sample Restrictor	-----			

(customers please complete shaded areas for each canister)

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

136637 - 4

Canister Sampling Field Test Data Sheet and Custody Record

General Information (where applicable)

Company: Douglas Partners Project Contact: John Russell

Project Name: Canister Serial No: 2240

Site Location: Moorebank Restrictor Serial No.: 1549

Site Address: Sampling Date: 27/10/15

Canister Leak check Date: 23/10/2015 Cleaned/certified Date: 25/9/15

133619-8
136292-5

Canister Sampling Details

BD1 - 1574

Sample ID BD1	Before shipment (determined in lab with certified gauge)	Before sampling in Field (from canister gauge)	After sampling in Field (from canister gauge)	After receipt (determined in lab with certified gauge)
Vacuum (-"Hg)	-29.74Hg"	-28	-5	-4.17Hg"
Passive Flow Leak Check		n/a	n/a	n/a
Date/Time/Initial/	23/10/2015 T			30/10/15 T
	Temperature (°C)	Humidity (%)	Weather Conditions	
Start	16.9	65	Overcast	
Stop	16.9	65		
Date/Time	27/10/15			
Initial				

	Sampling Times		Flow Rates (mL/min)	
	Time	Elapsed Time	Restrictor Flow Rate before shipping	Restrictor Flow Rate on sample receipt
Start	10.25	2min		-----
Stop	10.30		----	
Date/Time	27/10/15		----	
Initial				

Canister Pressurised to 21.07 PSI with Helium / Nitrogen PLEASE CIRCLE on receipt

Canister and Sample Gauge Details

	Relinquished Date/Initial (lab)	Received by Date/Time (sampler)	Relinquished Date/Initial (sampler)	Received by Date/Initial (lab)
Canister	23/10/2015 T	23/10/15	29/10	
Sample Restrictor	-----			

(customers please complete shaded areas for each canister)

COPY

CUSTOMER RECEIPT OF AIR SAMPLING EQUIPMENT

CUSTOMER DETAILS

ELS Job No:

Name	John Russell	**Delivery date**	26/10/2015
Company	Douglas Partners Pty Ltd		
Contact Email	John.Russell@douglaspartners.com.au		
Telephone Number	02-98090666, 0422 000 434		
Deliver address	96 Hermitage Road, West Ryde, NSW 2114		

Received the following Air Sampling Equipment from Envirolab:

Quantity	Descriptions
	6L Canisters
	3.2L Canisters
	1L canisters
4 ✓	Flow restrictors at 350 mL/min for 2 minute sampling.
	Flow restrictors at mL/min for sampling.
	Flow restrictors at mL/min for sampling.
	Dual canister manifolds
	SS-400-NFSET nut and ferrule set (1/4")
	SS-400-6 Union each with 2 nut and ferrule set (1/4")
	SS-400-3 Union tee each with 3 nut and ferrule set (1/4")
	2 meter (length) ¼" Teflon tubing
	SS-43GS4 40G ball valve (1/4")
	TD Tubes
	Carbon tubes (SKC 226-09)
	50 mL of isopropyl alcohol (IPA)
	3L Tedlar bags
	1L Tedlar bags
	Pressure gauge with ¼"female connection

Customer Signature		**Relinquished by**	TT (ELS)
Date		**Date**	26/10/2015

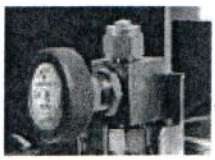
(the signature accepts the terms and conditions below)

Please note: All samples will be disposed after 1 week of issuing the "Certificate of Analysis" (CoA): this means that 1 week after the issuing the CoA, all canisters will be cleaned, all TD Tubes will be conditioned, all carbon tubes and Tedlar bags will be disposed, unless there is a pre-arrangement (please inform Envirolab if you need to hold the samples – fees apply as below).
For on hold samples, the sample holding fee will apply: $50 per week per canister sample; $25 per week per TD tube sample.

Please fax (02-99106299) /email signed receipt of sampling equipment
(enquires@envirolab.com.au)

Canisters

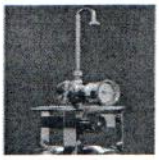
Canister size	Quantity	With ¼" connection	With male quick-fit connection	Cost (each/per week)	Total $
1 L		yes		$50	
3.2 L				$50	
6 L				$50	
Dual canister manifold		¼"	----	$20	



6L canister 3.2L canister 1L canister 1L canister ¼"connection Dual canister manifold

Flow Restrictors (flow restrictors will be modified if Quick-fit connections are required)

Quantity	Flow rate	Cost (each/per week)	Total $
4	350 ml/min	$50	200
		$50	
		$50	
*Please DO NOT LOSS the Frit and Spring Washer if you need to disconnect the sampling tube of the flow restrictor. Otherwise, there will be $30 charge to cover the cost for each pair of them.			



Thermal Desorption and charcoal Tubes, Tedlar bags

	Quantity	Cost	Total $
TD tube		$25each/week	
SKC Anasorb 226-09 (Charcoal tube)		$10 each	
Tedlar bags (1L)		$50 each	
Tedlar bags (3L)		$50 each	

Fittings and Miscellaneous

Item	Quantity	Size	Cost ($) (no charge if returned)	Total $	Images
Union Tee with two female Quick-fit connections		¼"	$300		
SS-400-3 Union Tee		¼"	$45		
SS-400-6 Union		¼"	$25		
SS-400-NFSET (nut and ferrule set)		¼"	$8		
SS-400-SET (ferrule set)		¼"	$5		
SS-43GS4 Ball valve		¼"	$180		
NAL8050-0250 Teflon tubing		¼"	$20/meter		
Isopropyl alcohol (40mL)		40 mL	$50		
Pressure gauge with ¼"female connection		¼"	no charge if returned	---	

Envirolab Services flow restrictors log book

Client name: __DP__ Date: 26/10/2015

Entry	Flow restrictor ID	Flow rate before delivery (mL/min)	Flow rate after sampling (mL/min)	Orifice size	Entry	Flow restrictor ID	Flow rate before delivery (mL/min)	Flow rate after sampling (mL/min	Orifice size
1	1541	351	354	90	26				
2	1549	351	352	90	27				
3	635	350	352	90	28				
4	1538	349	356	90	29				
5					30				
6					31				
7					32				
8					33				
9					34				
10					35				
11					36				
12					37				
13					38				
14					39				
15					40				
16					41				
17					42				
18					43				
19					44				
20					45				
21					46				
22					47				
23					48				
24					49				
25					50				

Tania Tan

From: Jacinta Hurst
Sent: Thursday, 22 October 2015 6:07 PM
To: AirTox Sydney
Subject: Fwd: Cannisters

Regards,

Jacinta Hurst | Sydney Laboratory Manager | Envirolab Services Pty Ltd

Great Chemistry, Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200 **F** 612 9910 6201 **M** 0407 003 037
jhurst@envirolab.com.au | www.envirolab.com.au

Our new 2016 Price List commences 1st November 2015 – please contact your local Envirolab office for a copy.

Follow this link to provide feedback on our service.

Latest Links Below:

Please note that all samples submitted to the Envirolab Group laboratories will be analysed under the Envirolab Group Terms and Conditions. The Terms and Conditions are accessible by clicking this link

Sent from my iPhone

Begin forwarded message:

> **From:** John Russell <John.Russell@douglaspartners.com.au>
> **Date:** 22 October 2015 17:57:12 AEDT
> **To:** Jacinta Hurst <JHurst@envirolab.com.au>
> **Subject: Cannisters**
>
> Jacinta
>
> I need four canisters for TO-15 method. They don't need to be time weighted. Please include a dual sampling manifold and all the necessary fittings to connect to some Teflon tubing. Can you please also include 2m of Teflon tubing?
>
> Are we able to get this delivery tomorrow or Monday to West Ryde office (proposed sampling is Tuesday)? Do you need a PO now or is it OK to send one with the samples?
>
> Thanks

CANISTER CHAIN OF CUSTODY RECORD

Page 1 of 1

Client Name	Douglas Partners	Project Contact	John Russell	Quote No	
Client Address	Moorebank	Contact Phone No		Date Results Required	1 day / 2 days / 3 days / Standard
Project Name		Contact Mobile No	0422 000 434	E-mail Report To	John Russell
Site Location	Moorebank	Results Required by	standard	PO No	123602
		Sampled by	RL		

	Client sample ID (Field location)	Canister #	Soil gas train / Mass flow controller #	Leak Test Passed	PID Reading (ppmv)	Date of Collection	Collection Time		Canister vacuum (Hg")		Analysis requested							
							Time on	Time off	Initial	Final	TO-15	TPH	5-Sulfides	Ozone precursors	RGA gases			
1)	JK101	2276	635			27/10/15	11:22	11:24	-28	-5	✓							
2)	JK107b	2275	1538			27/10/15	10:02	10:04	-28	-5	✓							
3)	BH/MW216	1879	1541			27/10/15	10:28	10:30	-28	-5	✓							
4)	BD1	2240	1549			27/10/15	—	—	-28	-5	✓							

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

Job No: 136637

Date Received: 29/10/15

Time Received: 17:00

Received by: PT

Temp: Cool/Ambient

Cooling: Ice/Icepack

Security: Intact/Broken/None

Relinquished by	JRR	Date & Time	29/10/15	Received by	Lab	Date & Time	29/10/15	Notes:	
Print Name		Signature		Print Name PT	ELS	Signature	17:00		

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd
Attention	John Russell

Sample Login Details	
Your Reference	Moorebank
Envirolab Reference	**136637**
Date Sample Received	29/10/2015
Date Instructions Received	29/10/2015
Date Results Expected to be Reported	**05/11/2015**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	4 suma canisters
Turnaround Time Requested	Standard
Temperature on receipt (°C)	na
Cooling Method	None
Sampling Date Provided	YES

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

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page

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

Sample Id	*TO15 in Canisters + ug/m3 calc*
JK101	✓
JK107B	✓
BH/MW216	✓
BD1	✓

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1532954**	Page	: 1 of 8
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR JOHN RUSSELL	Contact	: Jenny Bevan
Address	: PO BOX 472 96 HERMITAGE ROAD WEST RYDE NSW, AUSTRALIA 1685	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.russell@douglaspartners.com.au	E-mail	: jenny.bevan@alsglobal.com
Telephone	: +61 02 49609600	Telephone	: 07 3552 8657
Facsimile	: +61 02 49609601	Facsimile	: +61-2-8784 8500
Project	: 71459.03 MOOREBANK	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 123475	Date Samples Received	: 06-Oct-2015 16:30
C-O-C number	: ----	Date Analysis Commenced	: 07-Oct-2015
Sampler	: ----	Issue Date	: 13-Oct-2015 18:00
Site	: ----		
		No. of samples received	: 1
Quote number	: ----	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthakesone	Laboratory Manager - Organics	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been 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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- Poor spike recovery for (EP234) due to matrix interferences(confirmed by re-analysis).
- Total PAH reported as the sum of Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene and Benzo(g,h,i)perylene.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BD1/021015	----	----	----	----
				Client sampling date / time	[02-Oct-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1532954-001	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.003**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.046**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.245**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.985**	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**2.56**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
^ **Nitrate as N**	14797-55-8	0.01	mg/L		**0.03**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.03**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**3.58**	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1	µg/L		<1.0	----	----	----	----
2-Chlorophenol	95-57-8	1	µg/L		<1.0	----	----	----	----
2-Methylphenol	95-48-7	1	µg/L		<1.0	----	----	----	----
3- & 4-Methylphenol	1319-77-3	2	µg/L		<2.0	----	----	----	----
2-Nitrophenol	88-75-5	1	µg/L		<1.0	----	----	----	----
2.4-Dimethylphenol	105-67-9	1	µg/L		<1.0	----	----	----	----
2.4-Dichlorophenol	120-83-2	1	µg/L		<1.0	----	----	----	----
2.6-Dichlorophenol	87-65-0	1	µg/L		<1.0	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	1	µg/L		<1.0	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	1	µg/L		<1.0	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	1	µg/L		<1.0	----	----	----	----
Pentachlorophenol	87-86-5	2	µg/L		<2.0	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BD1/021015	----	----	----	----
				Client sampling date / time	[02-Oct-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1532954-001	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	>C10_C16	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.01	µg/L		<0.010	----	----	----	----
alpha-BHC	319-84-6	0.01	µg/L		<0.010	----	----	----	----
beta-BHC	319-85-7	0.01	µg/L		<0.010	----	----	----	----
delta-BHC	319-86-8	0.01	µg/L		<0.010	----	----	----	----
4.4`-DDD	72-54-8	0.01	µg/L		<0.010	----	----	----	----
4.4`-DDE	72-55-9	0.01	µg/L		<0.010	----	----	----	----
4.4`-DDT	50-29-3	0.01	µg/L		<0.010	----	----	----	----
^ Sum of DDD + DDE + DDT	----	0.01	µg/L		<0.010	----	----	----	----
Dieldrin	60-57-1	0.01	µg/L		<0.010	----	----	----	----
alpha-Endosulfan	959-98-8	0.01	µg/L		<0.010	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BD1/021015	----	----	----	----
				Client sampling date / time	[02-Oct-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1532954-001	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
beta-Endosulfan	33213-65-9	0.01	µg/L		<0.010	----	----	----	----
Endosulfan sulfate	1031-07-8	0.01	µg/L		<0.010	----	----	----	----
Endosulfan (sum)	115-29-7	0.01	µg/L		<0.010	----	----	----	----
Endrin	72-20-8	0.01	µg/L		<0.010	----	----	----	----
Endrin aldehyde	7421-93-4	0.01	µg/L		<0.010	----	----	----	----
Endrin ketone	53494-70-5	0.01	µg/L		<0.010	----	----	----	----
Heptachlor	76-44-8	0.005	µg/L		<0.005	----	----	----	----
Heptachlor epoxide	1024-57-3	0.01	µg/L		<0.010	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.01	µg/L		<0.010	----	----	----	----
gamma-BHC	58-89-9	0.01	µg/L		<0.010	----	----	----	----
Methoxychlor	72-43-5	0.01	µg/L		<0.010	----	----	----	----
cis-Chlordane	5103-71-9	0.01	µg/L		<0.010	----	----	----	----
trans-Chlordane	5103-74-2	0.01	µg/L		<0.010	----	----	----	----
^ Total Chlordane (sum)	----	0.01	µg/L		<0.010	----	----	----	----
Oxychlordane	27304-13-8	0.01	µg/L		<0.010	----	----	----	----
EP131B: Polychlorinated Biphenyls (as Aroclors)									
Total Polychlorinated biphenyls	----	0.1	µg/L		<0.10	----	----	----	----
Aroclor 1016	12674-11-2	0.1	µg/L		<0.10	----	----	----	----
Aroclor 1221	11104-28-2	0.1	µg/L		<0.10	----	----	----	----
Aroclor 1232	11141-16-5	0.1	µg/L		<0.10	----	----	----	----
Aroclor 1242	53469-21-9	0.1	µg/L		<0.10	----	----	----	----
Aroclor 1248	12672-29-6	0.1	µg/L		<0.10	----	----	----	----
Aroclor 1254	11097-69-1	0.1	µg/L		<0.10	----	----	----	----
Aroclor 1260	11096-82-5	0.1	µg/L		<0.10	----	----	----	----
EP132B: Polynuclear Aromatic Hydrocarbons									
3-Methylcholanthrene	56-49-5	0.1	µg/L		<0.1	----	----	----	----
2-Methylnaphthalene	91-57-6	0.1	µg/L		<0.1	----	----	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L		<0.1	----	----	----	----
Acenaphthene	83-32-9	0.1	µg/L		<0.1	----	----	----	----
Acenaphthylene	208-96-8	0.1	µg/L		<0.1	----	----	----	----
Anthracene	120-12-7	0.1	µg/L		<0.1	----	----	----	----
Benz(a)anthracene	56-55-3	0.1	µg/L		<0.1	----	----	----	----
Benzo(a)pyrene	50-32-8	0.05	µg/L		<0.05	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.1	µg/L		<0.1	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BD1/021015	----	----	----	----
				Client sampling date / time	[02-Oct-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1532954-001	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(e)pyrene	192-97-2	0.1	µg/L		<0.1	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.1	µg/L		<0.1	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.1	µg/L		<0.1	----	----	----	----
Chrysene	218-01-9	0.1	µg/L		<0.1	----	----	----	----
Coronene	191-07-1	0.1	µg/L		<0.1	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.1	µg/L		<0.1	----	----	----	----
Fluoranthene	206-44-0	0.1	µg/L		<0.1	----	----	----	----
Fluorene	86-73-7	0.1	µg/L		<0.1	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L		<0.1	----	----	----	----
Naphthalene	91-20-3	0.1	µg/L		<0.1	----	----	----	----
Perylene	198-55-0	0.1	µg/L		<0.1	----	----	----	----
Phenanthrene	85-01-8	0.1	µg/L		<0.1	----	----	----	----
Pyrene	129-00-0	0.1	µg/L		<0.1	----	----	----	----
Sum of PAHs	----	0.05	µg/L		<0.05	----	----	----	----
Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L		<0.05	----	----	----	----
EP234A: OP Pesticides									
Acephate	30560-19-1	0.5	µg/L		<0.5	----	----	----	----
Azinphos-methyl	86-50-0	0.02	µg/L		<0.02	----	----	----	----
Azinphos-ethyl	2642-71-9	0.02	µg/L		<0.02	----	----	----	----
Bensulide	741-58-2	0.1	µg/L		<0.1	----	----	----	----
Bromophos-ethyl	4824-78-6	0.1	µg/L		<0.10	----	----	----	----
Carbofenothion	786-19-6	0.02	µg/L		<0.02	----	----	----	----
^ Chlorfenvinphos	470-90-6	0.02	µg/L		<0.02	----	----	----	----
Chlorpyrifos	2921-88-2	0.02	µg/L		<0.02	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.2	µg/L		<0.2	----	----	----	----
Coumaphos	56-72-4	0.01	µg/L		<0.01	----	----	----	----
Demeton-O	298-03-0	0.02	µg/L		<0.02	----	----	----	----
^ Demeton-O & Demeton-S	298-03-3/126-75-0	0.02	µg/L		<0.02	----	----	----	----
Demeton-S	126-75-0	0.02	µg/L		<0.02	----	----	----	----
Demeton-S-methyl	919-86-8	0.02	µg/L		<0.02	----	----	----	----
Diazinon	333-41-5	0.01	µg/L		<0.01	----	----	----	----
Dichlorvos	62-73-7	0.2	µg/L		<0.20	----	----	----	----
Dimethoate	60-51-5	0.02	µg/L		<0.02	----	----	----	----
Disulfoton	298-04-4	0.05	µg/L		<0.05	----	----	----	----
EPN	2104-64-5	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BD1/021015	----	----	----	----
				Client sampling date / time	[02-Oct-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1532954-001	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP234A: OP Pesticides - Continued									
Ethion	563-12-2	0.02	µg/L		<0.02	----	----	----	----
Ethoprophos	13194-48-4	0.01	µg/L		<0.01	----	----	----	----
Fenamiphos	22224-92-6	0.01	µg/L		<0.01	----	----	----	----
Fenchlorphos (Ronnel)	299-84-3	10	µg/L		<10	----	----	----	----
Fenitrothion	122-14-5	2	µg/L		<2	----	----	----	----
Fensulfothion	115-90-2	0.01	µg/L		<0.01	----	----	----	----
Fenthion	55-38-9	0.05	µg/L		<0.05	----	----	----	----
Formothion	2540-82-1	20	µg/L		<20	----	----	----	----
Fosetyl Aluminium	39148-24-8	10	µg/L		<10	----	----	----	----
Malathion	121-75-5	0.02	µg/L		<0.02	----	----	----	----
Methidathion	950-37-8	0.1	µg/L		<0.1	----	----	----	----
^ **Mevinphos**	7786-34-7	0.02	µg/L		<0.02	----	----	----	----
Monocrotophos	6923-22-4	0.02	µg/L		<0.02	----	----	----	----
Naftalofos	1491-41-4	1	µg/L		<1.0	----	----	----	----
Omethoate	1113-02-6	0.01	µg/L		<0.01	----	----	----	----
Parathion	56-38-2	0.2	µg/L		<0.2	----	----	----	----
Parathion-methyl	298-00-0	0.5	µg/L		<0.5	----	----	----	----
Phorate	298-02-2	0.1	µg/L		<0.1	----	----	----	----
Pirimiphos-ethyl	23505-41-1	0.01	µg/L		<0.01	----	----	----	----
Pirimiphos-methyl	29232-93-7	0.01	µg/L		<0.01	----	----	----	----
Profenofos	41198-08-7	0.01	µg/L		<0.01	----	----	----	----
Prothiofos	34643-46-4	0.1	µg/L		<0.1	----	----	----	----
Pyrazophos	13457-18-6	0.1	µg/L		<0.1	----	----	----	----
Sulfotep	3689-24-5	0.005	µg/L		<0.005	----	----	----	----
Sulprofos	35400-43-2	0.05	µg/L		<0.05	----	----	----	----
Temephos	3383-96-8	0.02	µg/L		<0.02	----	----	----	----
Terbufos	13071-79-9	0.01	µg/L		<0.01	----	----	----	----
Tetrachlorvinphos	22248-79-9	0.01	µg/L		<0.01	----	----	----	----
Thiometon	640-15-3	0.5	µg/L		<0.5	----	----	----	----
Triazophos	24017-47-8	0.005	µg/L		<0.005	----	----	----	----
Trichlorfon	52-68-6	0.02	µg/L		<0.02	----	----	----	----
Trichloronate	327-98-0	0.5	µg/L		<0.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1	%		**25.6**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1	%		**52.9**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	BD1/021015	----	----	----	----
				Client sampling date / time	[02-Oct-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1532954-001	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2.4.6-Tribromophenol	118-79-6	1	%		42.3	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1	%		75.3	----	----	----	----
Anthracene-d10	1719-06-8	1	%		51.1	----	----	----	----
4-Terphenyl-d14	1718-51-0	1	%		73.0	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		105	----	----	----	----
Toluene-D8	2037-26-5	2	%		116	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		115	----	----	----	----
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.01	%		130	----	----	----	----
EP131T: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		115	----	----	----	----
EP132T: Base/Neutral Extractable Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		90.5	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%		106	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%		109	----	----	----	----

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1532954**	Page	: 1 of 12
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR JOHN RUSSELL	Contact	: Jenny Bevan
Address	: PO BOX 472 96 HERMITAGE ROAD WEST RYDE NSW, AUSTRALIA 1685	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: john.russell@douglaspartners.com.au	E-mail	: jenny.bevan@alsglobal.com
Telephone	: +61 02 49609600	Telephone	: 07 3552 8657
Facsimile	: +61 02 49609601	Facsimile	: +61-2-8784 8500
Project	: 71459.03 MOOREBANK	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 123475	Date Samples Received	: 06-Oct-2015
C-O-C number	: ----	Date Analysis Commenced	: 07-Oct-2015
Sampler	: ----	Issue Date	: 13-Oct-2015
Site	: ----	No. of samples received	: 1
Quote number	: ----	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

NATA WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out ir compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthakesone	Laboratory Manager - Organics	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been 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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 237483)									
EN1513381-010	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.006	0.007	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.006	18.4	No Limit
ES1532927-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.007	0.008	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.032	0.032	0.00	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.021	0.023	8.75	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 237484)									
ES1532846-050	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1533106-005	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 237814)									
ES1532954-001	BD1/021015	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	2.56	2.54	0.566	0% - 20%
ES1533043-007	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	193	195	1.01	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 235442)									
ES1532898-010	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
ES1532887-010	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 237813)									
ES1532954-001	BD1/021015	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.03	0.03	0.00	No Limit
ES1533043-007	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	2.23	1.83	19.7	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 237771)									
ES1533106-007	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.03	0.02	0.00	No Limit
ES1533014-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.06	0.05	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 237294)									
ES1532924-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 237294)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 237294) - continued									
ES1532924-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 237294)									
ES1532924-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	4	3	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EP234A: OP Pesticides (QC Lot: 237579)									
ES1532954-001	BD1/021015	EP234-1x: Bensulide	741-58-2	0.1	µg/L	<0.1	<0.1	0.00	No Limit
		EP234-1x: Methidathion	950-37-8	0.1	µg/L	<0.1	<0.1	0.00	No Limit
		EP234-1x: Pyrazophos	13457-18-6	0.1	µg/L	<0.1	<0.1	0.00	No Limit
		EP234-1x: Acephate	30560-19-1	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP234-1x: Thiometon	640-15-3	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP234-1x: Naftalofos	1491-41-4	1	µg/L	<1.0	<1.0	0.00	No Limit
		EP234-1x: Fosetyl Aluminium	39148-24-8	10	µg/L	<10	<10	0.00	No Limit
		EP234-1x: Formothion	2540-82-1	20	µg/L	<20	<20	0.00	No Limit
EP234A: OP Pesticides (QC Lot: 237580)									
ES1532954-001	BD1/021015	EP234-1: Sulfotep	3689-24-5	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP234-1: Triazophos	24017-47-8	0.005	µg/L	<0.005	<0.005	0.00	No Limit
		EP234-1: Coumaphos	56-72-4	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP234-1: Diazinon	333-41-5	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP234-1: Ethoprophos	13194-48-4	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP234-1: Fenamiphos	22224-92-6	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP234-1: Fensulfothion	115-90-2	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP234-1: Omethoate	1113-02-6	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP234-1: Pirimiphos-ethyl	23505-41-1	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP234-1: Pirimiphos-methyl	29232-93-7	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP234-1: Profenofos	41198-08-7	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP234-1: Terbufos	13071-79-9	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP234-1: Tetrachlorvinphos	22248-79-9	0.01	µg/L	<0.01	<0.01	0.00	No Limit
		EP234-1: Azinphos-ethyl	2642-71-9	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Azinphos-methyl	86-50-0	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Carbofenothion	786-19-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Chlorfenvinphos	470-90-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Chlorpyrifos	2921-88-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Demeton-O	298-03-0	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Demeton-O & Demeton-S	298-03-3/126-75-0	0.02	µg/L	<0.02	<0.02	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP234A: OP Pesticides (QC Lot: 237580) - continued									
ES1532954-001	BD1/021015	EP234-1: Demeton-S	126-75-0	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Demeton-S-methyl	919-86-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Dimethoate	60-51-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Ethion	563-12-2	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Malathion	121-75-5	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Mevinphos	7786-34-7	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Monocrotophos	6923-22-4	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Temephos	3383-96-8	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Trichlorfon	52-68-6	0.02	µg/L	<0.02	<0.02	0.00	No Limit
		EP234-1: Disulfoton	298-04-4	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP234-1: EPN	2104-64-5	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP234-1: Fenthion	55-38-9	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP234-1: Sulprofos	35400-43-2	0.05	µg/L	<0.05	<0.05	0.00	No Limit
		EP234-1: Bromophos-ethyl	4824-78-6	0.1	µg/L	<0.10	<0.10	0.00	No Limit
		EP234-1: Phorate	298-02-2	0.1	µg/L	<0.1	<0.1	0.00	No Limit
		EP234-1: Prothiofos	34643-46-4	0.1	µg/L	<0.1	<0.1	0.00	No Limit
		EP234-1: Chlorpyrifos-methyl	5598-13-0	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EP234-1: Dichlorvos	62-73-7	0.2	µg/L	<0.20	<0.20	0.00	No Limit
		EP234-1: Parathion	56-38-2	0.2	µg/L	<0.2	<0.2	0.00	No Limit
		EP234-1: Parathion-methyl	298-00-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP234-1: Trichloronate	327-98-0	0.5	µg/L	<0.5	<0.5	0.00	No Limit
		EP234-1: Fenchlorphos (Ronnel)	299-84-3	10	µg/L	<10	<10	0.00	No Limit
		EP234-1: Fenitrothion	122-14-5	2	µg/L	<2	<2	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 237483)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.2	85	115
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.4	85	115
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	90.6	85	115
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.6	85	115
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.5	85	115
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	92.3	85	115
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.1	85	115
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.0	85	115
EG035F: Dissolved Mercury by FIMS (QCLot: 237484)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	99.9	78	114
EK055G: Ammonia as N by Discrete Analyser (QCLot: 237814)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	99.5	90	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 235442)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	93.1	82	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 237813)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	110	91	113
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 237771)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	98.7	71	101
				<0.01	0.442 mg/L	102	72	108
				<0.01	1 mg/L	116	78	118
EP075(SIM)A: Phenolic Compounds (QCLot: 236429)								
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	71.4	50	108
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	70.7	59	118
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	72.1	59	122
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	67.8	60	112
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	73.9	64	118
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	69.2	64	110
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	71.6	56	112
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	88.7	63	117
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	69.4	43	114
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	66.3	63	119
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	51.1	10	95
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	52.2	25	62

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 236428)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	99.5	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	95.7	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	96.4	62	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 237294)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	125	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 236428)								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	96.4	59	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	98.6	74	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	100	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 237294)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	124	75	127
EP080: BTEXN (QCLot: 237294)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	102	70	124
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	111	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	113	69	121
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	100	70	124
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	72	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	114	65	129
EP131A: Organochlorine Pesticides (QCLot: 236992)								
EP131A: 4.4`-DDD	72-54-8	0.01	µg/L	<0.010	0.1 µg/L	96.4	36	156
EP131A: 4.4`-DDE	72-55-9	0.01	µg/L	<0.010	0.1 µg/L	104	30	124
EP131A: 4.4`-DDT	50-29-3	0.01	µg/L	<0.010	0.1 µg/L	138	30	165
EP131A: Aldrin	309-00-2	0.01	µg/L	<0.010	0.1 µg/L	107	34	150
EP131A: alpha-BHC	319-84-6	0.01	µg/L	<0.010	0.1 µg/L	119	27	161
EP131A: alpha-Endosulfan	959-98-8	0.01	µg/L	<0.010	0.1 µg/L	102	34	144
EP131A: beta-BHC	319-85-7	0.01	µg/L	<0.010	0.1 µg/L	97.4	29	149
EP131A: beta-Endosulfan	33213-65-9	0.01	µg/L	<0.010	0.1 µg/L	104	32	140
EP131A: cis-Chlordane	5103-71-9	0.01	µg/L	<0.010	0.1 µg/L	110	27	139
EP131A: delta-BHC	319-86-8	0.01	µg/L	<0.010	0.1 µg/L	118	36	150
EP131A: Dieldrin	60-57-1	0.01	µg/L	<0.010	0.1 µg/L	111	28	142
EP131A: Endosulfan (sum)	115-29-7	0.01	µg/L	<0.010	----	----	----	----
EP131A: Endosulfan sulfate	1031-07-8	0.01	µg/L	<0.010	0.1 µg/L	112	35	163
EP131A: Endrin	72-20-8	0.01	µg/L	<0.010	0.1 µg/L	94.4	22	165
EP131A: Endrin aldehyde	7421-93-4	0.01	µg/L	<0.010	0.1 µg/L	104	23	123
EP131A: Endrin ketone	53494-70-5	0.01	µg/L	<0.010	0.1 µg/L	118	16	146
EP131A: gamma-BHC	58-89-9	0.01	µg/L	<0.010	0.1 µg/L	103	29	153
EP131A: Heptachlor	76-44-8	0.005	µg/L	<0.005	0.1 µg/L	123	33	165

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP131A: Organochlorine Pesticides (QCLot: 236992) - continued								
EP131A: Heptachlor epoxide	1024-57-3	0.01	µg/L	<0.010	0.1 µg/L	122	33	149
EP131A: Hexachlorobenzene (HCB)	118-74-1	0.01	µg/L	<0.010	0.1 µg/L	111	24	150
EP131A: Methoxychlor	72-43-5	0.01	µg/L	<0.010	0.1 µg/L	108	30	166
EP131A: Sum of DDD + DDE + DDT	----	0.01	µg/L	<0.010	----	----	----	----
EP131A: Total Chlordane (sum)	----	0.01	µg/L	<0.010	----	----	----	----
EP131A: trans-Chlordane	5103-74-2	0.01	µg/L	<0.010	0.1 µg/L	87.3	31	135
EP131B: Polychlorinated Biphenyls (as Aroclors) (QCLot: 236993)								
EP131B: Aroclor 1254	11097-69-1	----	µg/L	----	1 µg/L	133	51	133
EP131B: Total Polychlorinated biphenyls	----	0.1	µg/L	<0.10	----	----	----	----
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 235752)								
EP132: 2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	2 µg/L	94.8	59	123
EP132: 3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	2 µg/L	75.2	60	120
EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	2 µg/L	81.2	12	156
EP132: Acenaphthene	83-32-9	0.1	µg/L	<0.1	2 µg/L	72.4	64	122
EP132: Acenaphthylene	208-96-8	0.1	µg/L	<0.1	2 µg/L	75.3	62	124
EP132: Anthracene	120-12-7	0.1	µg/L	<0.1	2 µg/L	76.6	66	124
EP132: Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	2 µg/L	81.3	64	130
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	81.1	64	126
EP132: Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.1	µg/L	<0.1	2 µg/L	81.4	62	126
EP132: Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	2 µg/L	83.9	62	126
EP132: Benzo(g.h.i)perylene	191-24-2	0.1	µg/L	<0.1	2 µg/L	78.7	56	126
EP132: Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	2 µg/L	81.8	63	127
EP132: Chrysene	218-01-9	0.1	µg/L	<0.1	2 µg/L	81.8	64	128
EP132: Coronene	191-07-1	0.1	µg/L	<0.1	2 µg/L	76.2	35	133
EP132: Dibenz(a.h)anthracene	53-70-3	0.1	µg/L	<0.1	2 µg/L	80.0	58	128
EP132: Fluoranthene	206-44-0	0.1	µg/L	<0.1	2 µg/L	79.6	65	127
EP132: Fluorene	86-73-7	0.1	µg/L	<0.1	2 µg/L	76.0	64	124
EP132: Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	2 µg/L	79.8	57	127
EP132: Naphthalene	91-20-3	0.1	µg/L	<0.1	2 µg/L	71.3	60	124
EP132: Perylene	198-55-0	0.1	µg/L	<0.1	2 µg/L	78.1	64	124
EP132: Phenanthrene	85-01-8	0.1	µg/L	<0.1	2 µg/L	77.5	65	125
EP132: Pyrene	129-00-0	0.1	µg/L	<0.1	2 µg/L	80.1	66	128
EP234A: OP Pesticides (QCLot: 237579)								
EP234-1x: Acephate	30560-19-1	0.5	µg/L	<0.5	5 µg/L	128	70	130
EP234-1x: Bensulide	741-58-2	0.1	µg/L	<0.1	5 µg/L	121	70	130
EP234-1x: Formothion	2540-82-1	20	µg/L	<20	5 µg/L	109	70	130
EP234-1x: Fosetyl Aluminium	39148-24-8	10	µg/L	<10	5 µg/L	128	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP234A: OP Pesticides (QCLot: 237579) - continued								
EP234-1x: Methidathion	950-37-8	0.1	µg/L	<0.1	5 µg/L	117	70	130
EP234-1x: Naftalofos	1491-41-4	1	µg/L	<1.0	5 µg/L	109	70	130
EP234-1x: Pyrazophos	13457-18-6	0.1	µg/L	<0.1	5 µg/L	104	70	130
EP234-1x: Thiometon	640-15-3	0.5	µg/L	<0.5	5 µg/L	120	70	130
EP234A: OP Pesticides (QCLot: 237580)								
EP234-1: Azinphos-ethyl	2642-71-9	0.02	µg/L	<0.02	0.2 µg/L	99.0	75	135
EP234-1: Azinphos-methyl	86-50-0	0.02	µg/L	<0.02	0.2 µg/L	96.0	77	129
EP234-1: Bromophos-ethyl	4824-78-6	0.1	µg/L	<0.10	1 µg/L	88.8	70	130
EP234-1: Carbofenothion	786-19-6	0.02	µg/L	<0.02	0.2 µg/L	99.5	70	130
EP234-1: Chlorfenvinphos	470-90-6	0.02	µg/L	<0.02	0.4 µg/L	87.5	73	139
EP234-1: Chlorpyrifos	2921-88-2	0.02	µg/L	<0.02	0.2 µg/L	91.0	70	130
EP234-1: Chlorpyrifos-methyl	5598-13-0	0.2	µg/L	<0.2	2 µg/L	94.3	70	130
EP234-1: Coumaphos	56-72-4	0.01	µg/L	<0.01	0.1 µg/L	92.0	70	130
EP234-1: Demeton-O	298-03-0	0.02	µg/L	<0.02	0.1 µg/L	95.0	64	134
EP234-1: Demeton-O & Demeton-S	298-03-3/126-75-0	0.02	µg/L	<0.02	0.2 µg/L	92.0	79	127
EP234-1: Demeton-S	126-75-0	0.02	µg/L	<0.02	0.1 µg/L	89.0	63	135
EP234-1: Demeton-S-methyl	919-86-8	0.02	µg/L	<0.02	0.2 µg/L	95.0	76	126
EP234-1: Diazinon	333-41-5	0.01	µg/L	<0.01	0.1 µg/L	87.0	68	138
EP234-1: Dichlorvos	62-73-7	0.2	µg/L	<0.20	2 µg/L	90.0	76	128
EP234-1: Dimethoate	60-51-5	0.02	µg/L	<0.02	0.2 µg/L	102	79	127
EP234-1: Disulfoton	298-04-4	0.05	µg/L	<0.05	0.5 µg/L	93.4	72	134
EP234-1: EPN	2104-64-5	0.05	µg/L	<0.05	0.5 µg/L	91.2	70	130
EP234-1: Ethion	563-12-2	0.02	µg/L	<0.02	0.2 µg/L	95.0	70	130
EP234-1: Ethoprophos	13194-48-4	0.01	µg/L	<0.01	0.1 µg/L	97.0	78	128
EP234-1: Fenamiphos	22224-92-6	0.01	µg/L	<0.01	0.1 µg/L	97.0	71	135
EP234-1: Fenchlorphos (Ronnel)	299-84-3	10	µg/L	<10	100 µg/L	89.5	70	130
EP234-1: Fenitrothion	122-14-5	2	µg/L	<2	20 µg/L	100	64	136
EP234-1: Fensulfothion	115-90-2	0.01	µg/L	<0.01	0.1 µg/L	100	79	125
EP234-1: Fenthion	55-38-9	0.05	µg/L	<0.05	0.5 µg/L	86.2	70	130
EP234-1: Malathion	121-75-5	0.02	µg/L	<0.02	0.2 µg/L	93.0	70	130
EP234-1: Mevinphos	7786-34-7	0.02	µg/L	<0.02	0.4 µg/L	100	78	126
EP234-1: Monocrotophos	6923-22-4	0.02	µg/L	<0.02	0.2 µg/L	102	82	124
EP234-1: Omethoate	1113-02-6	0.01	µg/L	<0.01	0.1 µg/L	101	74	130
EP234-1: Parathion	56-38-2	0.2	µg/L	<0.2	2 µg/L	100	69	139
EP234-1: Parathion-methyl	298-00-0	0.5	µg/L	<0.5	20 µg/L	118	66	140
EP234-1: Phorate	298-02-2	0.1	µg/L	<0.1	1 µg/L	90.0	68	136
EP234-1: Pirimiphos-ethyl	23505-41-1	0.01	µg/L	<0.01	0.1 µg/L	91.0	70	130
EP234-1: Pirimiphos-methyl	29232-93-7	0.01	µg/L	<0.01	0.1 µg/L	94.0	71	137

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP234A: OP Pesticides (QCLot: 237580) - continued								
EP234-1: Profenofos	41198-08-7	0.01	µg/L	<0.01	0.1 µg/L	95.0	70	130
EP234-1: Prothiofos	34643-46-4	0.1	µg/L	<0.1	1 µg/L	86.9	70	130
EP234-1: Sulfotep	3689-24-5	0.005	µg/L	<0.005	0.05 µg/L	92.0	71	137
EP234-1: Sulprofos	35400-43-2	0.05	µg/L	<0.05	0.5 µg/L	88.8	70	130
EP234-1: Temephos	3383-96-8	0.02	µg/L	<0.02	0.2 µg/L	104	70	130
EP234-1: Terbufos	13071-79-9	0.01	µg/L	<0.01	0.1 µg/L	93.0	70	130
EP234-1: Tetrachlorvinphos	22248-79-9	0.01	µg/L	<0.01	0.1 µg/L	87.0	74	128
EP234-1: Triazophos	24017-47-8	0.005	µg/L	<0.005	0.05 µg/L	96.0	77	131
EP234-1: Trichlorfon	52-68-6	0.02	µg/L	<0.02	0.2 µg/L	120	70	130
EP234-1: Trichloronate	327-98-0	0.5	µg/L	<0.5	5 µg/L	83.9	63	139

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 237483)							
EN1513381-011	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	118	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	125	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	107	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	113	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	109	70	130
		EG020A-F: Manganese	7439-96-5	0.2 mg/L	120	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	119	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	121	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 237484)							
ES1532846-046	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	79.4	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 237814)							
ES1532954-001	BD1/021015	EK055G: Ammonia as N	7664-41-7	1 mg/L	72.2	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 235442)							
ES1532887-010	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	103	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 237813)							
ES1532954-001	BD1/021015	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	105	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 237771)							
ES1533079-002	Anonymous						

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 237771) - continued							
ES1533079-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	# Not Determined	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 237294)							
ES1532924-003	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	111	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 237294)							
ES1532924-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	110	70	130
EP080: BTEXN (QCLot: 237294)							
ES1532924-003	Anonymous	EP080: Benzene	71-43-2	25 µg/L	103	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	104	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	103	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	84.4	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	70	130
		EP080: Toluene	108-88-3	25 µg/L	103	70	130
EP234A: OP Pesticides (QCLot: 237579)							
ES1532954-001	BD1/021015	EP234-1x: Acephate	30560-19-1	5 µg/L	88.4	70	130
		EP234-1x: Bensulide	741-58-2	5 µg/L	99.5	70	130
		EP234-1x: Formothion	2540-82-1	5 µg/L	87.7	70	130
		EP234-1x: Fosetyl Aluminium	39148-24-8	5 µg/L	91.3	70	130
		EP234-1x: Methidathion	950-37-8	5 µg/L	99.7	70	130
		EP234-1x: Naftalofos	1491-41-4	5 µg/L	102	70	130
		EP234-1x: Pyrazophos	13457-18-6	5 µg/L	117	70	130
		EP234-1x: Thiometon	640-15-3	5 µg/L	94.0	70	130
EP234A: OP Pesticides (QCLot: 237580)							
ES1532954-001	BD1/021015	EP234-1: Azinphos-ethyl	2642-71-9	0.2 µg/L	90.5	70	130
		EP234-1: Azinphos-methyl	86-50-0	0.2 µg/L	84.0	70	130
		EP234-1: Bromophos-ethyl	4824-78-6	1 µg/L	88.1	70	130
		EP234-1: Carbofenothion	786-19-6	0.2 µg/L	90.5	70	130
		EP234-1: Chlorfenvinphos	470-90-6	0.4 µg/L	90.0	70	130
		EP234-1: Chlorpyrifos	2921-88-2	0.2 µg/L	102	70	130
		EP234-1: Chlorpyrifos-methyl	5598-13-0	2 µg/L	95.6	58	136
		EP234-1: Coumaphos	56-72-4	0.1 µg/L	82.0	70	130
		EP234-1: Demeton-O	298-03-0	0.1 µg/L	83.0	70	130
		EP234-1: Demeton-O & Demeton-S	298-03-3/126 -75-0	0.2 µg/L	80.0	69	129
		EP234-1: Demeton-S	126-75-0	0.1 µg/L	77.0	70	130
		EP234-1: Demeton-S-methyl	919-86-8	0.2 µg/L	# 64.0	70	130
		EP234-1: Diazinon	333-41-5	0.1 µg/L	86.0	70	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP234A: OP Pesticides (QCLot: 237580) - continued							
ES1532954-001	BD1/021015	EP234-1: Dichlorvos	62-73-7	2 µg/L	# 58.2	70	130
		EP234-1: Dimethoate	60-51-5	0.2 µg/L	102	69	131
		EP234-1: Disulfoton	298-04-4	0.5 µg/L	81.8	70	130
		EP234-1: EPN	2104-64-5	0.5 µg/L	97.2	70	130
		EP234-1: Ethion	563-12-2	0.2 µg/L	100	70	130
		EP234-1: Ethoprophos	13194-48-4	0.1 µg/L	86.0	70	132
		EP234-1: Fenamiphos	22224-92-6	0.1 µg/L	79.0	70	130
		EP234-1: Fenchlorphos (Ronnel)	299-84-3	100 µg/L	104	71	133
		EP234-1: Fenitrothion	122-14-5	20 µg/L	91.8	64	136
		EP234-1: Fensulfothion	115-90-2	0.1 µg/L	86.0	83	123
		EP234-1: Fenthion	55-38-9	0.5 µg/L	85.6	70	130
		EP234-1: Malathion	121-75-5	0.2 µg/L	84.5	70	130
		EP234-1: Mevinphos	7786-34-7	0.4 µg/L	93.5	69	125
		EP234-1: Monocrotophos	6923-22-4	0.2 µg/L	101	70	128
		EP234-1: Omethoate	1113-02-6	0.1 µg/L	93.0	70	130
		EP234-1: Parathion	56-38-2	2 µg/L	84.6	70	130
		EP234-1: Parathion-methyl	298-00-0	20 µg/L	104	70	140
		EP234-1: Phorate	298-02-2	1 µg/L	100	70	130
		EP234-1: Pirimiphos-ethyl	23505-41-1	0.1 µg/L	98.0	70	130
		EP234-1: Pirimiphos-methyl	29232-93-7	0.1 µg/L	85.0	70	130
		EP234-1: Profenofos	41198-08-7	0.1 µg/L	96.0	70	130
		EP234-1: Prothiofos	34643-46-4	1 µg/L	88.2	70	130
		EP234-1: Sulfotep	3689-24-5	0.05 µg/L	92.0	63	135
		EP234-1: Sulprofos	35400-43-2	0.5 µg/L	103	70	130
		EP234-1: Temephos	3383-96-8	0.2 µg/L	114	70	130
		EP234-1: Terbufos	13071-79-9	0.1 µg/L	84.0	70	130
		EP234-1: Tetrachlorvinphos	22248-79-9	0.1 µg/L	89.0	77	125
		EP234-1: Triazophos	24017-47-8	0.05 µg/L	96.0	74	132
		EP234-1: Trichlorfon	52-68-6	0.2 µg/L	116	70	130
		EP234-1: Trichloronate	327-98-0	5 µg/L	84.8	63	139

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QA/QC Compliance Assessment for DQO Reporting

Work Order	: **ES1532954**	Page	: 1 of 8
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR JOHN RUSSELL	Telephone	: 07 3552 8657
Project	: 71459.03 MOOREBANK	Date Samples Received	: 06-Oct-2015
Site	: ----	Issue Date	: 13-Oct-2015
Sampler	: ----	No. of samples received	: 1
Order number	: 123475	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EK067G: Total Phosphorus as P by Discrete Analyser	ES1533079--002	Anonymous	**Total Phosphorus as P**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP234A: OP Pesticides	ES1532954--001	BD1/021015	**Demeton-S-methyl**	919-86-8	64.0 %	70-130%	**Recovery less than lower data quality objective**
EP234A: OP Pesticides	ES1532954--001	BD1/021015	**Dichlorvos**	62-73-7	58.2 %	70-130%	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EK057G: Nitrite as N by Discrete Analyser						
Clear Plastic Bottle - Natural						
BD1/021015	----	----	----	07-Oct-2015	04-Oct-2015	**3**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Organochlorine Pesticides (Ultra-trace)	0	2	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	0	8	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	0	1	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	0	9	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	0	16	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)					
Organochlorine Pesticides (Ultra-trace)	0	2	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	0	8	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	0	1	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	0	9	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	0	16	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
BD1/021015	**02-Oct-2015**	**----**	----	----	**09-Oct-2015**	30-Mar-2016	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
BD1/021015	**02-Oct-2015**	**----**	----	----	**12-Oct-2015**	30-Oct-2015	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
BD1/021015	**02-Oct-2015**	**----**	----	----	**09-Oct-2015**	30-Oct-2015	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
BD1/021015	**02-Oct-2015**	**----**	----	----	**07-Oct-2015**	04-Oct-2015	×
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
BD1/021015	**02-Oct-2015**	**----**	----	----	**09-Oct-2015**	30-Oct-2015	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
BD1/021015	**02-Oct-2015**	**09-Oct-2015**	30-Oct-2015	✓	**09-Oct-2015**	30-Oct-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
BD1/021015	**02-Oct-2015**	**07-Oct-2015**	09-Oct-2015	✓	**08-Oct-2015**	16-Nov-2015	✓
EP075(SIM)T: PAH Surrogates							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
BD1/021015	**02-Oct-2015**	**07-Oct-2015**	09-Oct-2015	✓	**09-Oct-2015**	16-Nov-2015	✓
EP080S: TPH(V)/BTEX Surrogates							
Amber VOC Vial - HCl (EP080)							
BD1/021015	**02-Oct-2015**	**12-Oct-2015**	16-Oct-2015	✓	**12-Oct-2015**	16-Oct-2015	✓
EP131A: Organochlorine Pesticides							
Amber Glass Bottle - Unpreserved (EP131A)							
BD1/021015	**02-Oct-2015**	**08-Oct-2015**	09-Oct-2015	✓	**08-Oct-2015**	17-Nov-2015	✓
EP131B: Polychlorinated Biphenyls (as Aroclors)							
Amber Glass Bottle - Unpreserved (EP131B)							
BD1/021015	**02-Oct-2015**	**08-Oct-2015**	09-Oct-2015	✓	**08-Oct-2015**	17-Nov-2015	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP132B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP132)							
BD1/021015	**02-Oct-2015**	**07-Oct-2015**	09-Oct-2015	✓	**09-Oct-2015**	16-Nov-2015	✓
EP234A: OP Pesticides							
Amber Glass Bottle - Unpreserved (EP234-1)							
BD1/021015	**02-Oct-2015**	**----**	----	----	**09-Oct-2015**	09-Oct-2015	✓
EP234A: OP Pesticides							
Amber Glass Bottle - Unpreserved (EP234-1x)							
BD1/021015	**02-Oct-2015**	**----**	----	----	**09-Oct-2015**	09-Oct-2015	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	2	18	**11.11**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	2	20	**10.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	0	2	**0.00**	**10.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	8	**0.00**	**10.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	0	1	**0.00**	**10.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by LCMSMS (Positive Ion Mode)	EP234-1	1	1	**100.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by LCMSMS (Positive Ion Mode) - extended	EP234-1x	1	1	**100.00**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	0	9	**0.00**	**10.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	2	14	**14.29**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	0	16	**0.00**	**10.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	1	2	**50.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	1	1	**100.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by LCMSMS (Positive Ion Mode)	EP234-1	1	1	**100.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by LCMSMS (Positive Ion Mode) - extended	EP234-1x	1	1	**100.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	3	14	**21.43**	**15.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	1	2	**50.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	1	1	**100.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by LCMSMS (Positive Ion Mode)	EP234-1	1	1	**100.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by LCMSMS (Positive Ion Mode) - extended	EP234-1x	1	1	**100.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	9	**11.11**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	14	**7.14**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	16	**6.25**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Mercury by FIMS	EG035F	1	18	**5.56**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Organochlorine Pesticides (Ultra-trace)	EP131A	0	2	**0.00**	**5.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	8	**0.00**	**5.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB's (Ultra-trace)	EP131B	0	1	**0.00**	**5.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by LCMSMS (Positive Ion Mode)	EP234-1	1	1	**100.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by LCMSMS (Positive Ion Mode) - extended	EP234-1x	1	1	**100.00**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	0	9	**0.00**	**5.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	14	**7.14**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	0	16	**0.00**	**5.00**	×	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	7	**14.29**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
Organochlorine Pesticides (Ultra-trace)	EP131A	WATER	USEPA Method 3640 (GPC cleanup),3620 (Florisil), 8081/8082 (GC/uECD/uECD). This method is compliant with NEPM (2013) Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
PCB's (Ultra-trace)	EP131B	WATER	USEPA Method 3640 (GPC cleanup),3620 (Florisil), 8081/8082 (GC/uECD/uECD). This method is compliant with NEPM (2013) Schedule B(3)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	WATER	USEPA 3640 (GPC Cleanup), 8270 GCMS Capiliary column, SIM mode. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by LCMSMS (Positive Ion Mode)	EP234-1	WATER	In-House, LC-MSMS, direct injection. A sample is filtered and injected directly onto the LC-MSMS. Analysis is by LC/MSMS, ESI Positive Mode.
Pesticides by LCMSMS (Positive Ion Mode) - extended	EP234-1x	WATER	In-House, LC-MSMS, direct injection. A sample is filtered and injected directly onto the LC-MSMS. Analysis is by LC/MSMS, ESI Positive Mode.

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3)

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1532954**

Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR JOHN RUSSELL	Contact	: Jenny Bevan
Address	: PO BOX 472 96 HERMITAGE ROAD WEST RYDE NSW, AUSTRALIA 1685	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
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Project	: 71459.03 MOOREBANK	Page	: 1 of 3
Order number	: 123475	Quote number	: EB2014DOUPAR0262 (EN/020/14)
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 06-Oct-2015 4:30 PM	Issue Date	: 07-Oct-2015
Client Requested Due Date	: 13-Oct-2015	Scheduled Reporting Date	: **13-Oct-2015**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 16.7 - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exist.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020F Dissolved Metals by ICPMS	WATER - EK055G Ammonia as N By Discrete Analyser	WATER - EP075 SIM Phenols only SIM - Phenols only	WATER - EP132(PAH) Ultra Trace Polynuclear Aromatic Compounds	WATER - NT-04 Nitrite and Nitrate	WATER - UTO-3W Ultratrace OP / OC / PCB Pesticides	WATER - W-05 TRH/BTEXN/8 Metals
ES1532954-001	[02-Oct-2015]	BD1/021015	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EK067G Total Phosphorus as P By Discrete Analyser
ES1532954-001	[02-Oct-2015]	BD1/021015	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **WATER** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EK057G: Nitrite as N by Discrete Analyser							
BD1/021015	Clear Plastic Bottle - Natural	----	04-Oct-2015	06-Oct-2015	×	----	----

Requested Deliverables

JOHN RUSSELL

- *AU Certificate of Analysis - NATA (COA)	Email	john.russell@douglaspartners.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	john.russell@douglaspartners.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	john.russell@douglaspartners.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	john.russell@douglaspartners.com.au
- A4 - AU Tax Invoice (INV)	Email	john.russell@douglaspartners.com.au
- Chain of Custody (CoC) (COC)	Email	john.russell@douglaspartners.com.au
- EDI Format - ENMRG (ENMRG)	Email	john.russell@douglaspartners.com.au
- EDI Format - ESDAT (ESDAT)	Email	john.russell@douglaspartners.com.au
- EDI Format - XTab (XTAB)	Email	john.russell@douglaspartners.com.au

CHAIN OF CUSTODY

Douglas Partners
Geotechnics / Environment / Groundwater

Client: Douglas Partners	**Project Number** 71459.03	**To:**	Envirolab Services
Contact Person: John Russell	**Project Name:** Moorebank	**Contact Person:**	Aileen Hie
Project Mgr: John Russell	**PO No.:** 123475	**Address:**	12 Ashley Street
	lab Quote No. :		Chatswood NSW 2068
Address: 96 Hermitage Road	**Date results required:** standard	**Phone:**	02 9910 6200
West Ryde NSW 2114	**Or choose:** standard	**Fax:**	02 9910 6201
	Note: Inform lab in advance if urgent turnaround is required - surcharges apply	**Email:**	ahie@envirolab.com.au
Phone: 9809 0666 **Mob:** 0422 000 434	**Report format:** esdat / PDF / Excel	**Laboratory Report No:**	
Email: john.russell@douglaspartners.com.au	**Comments:**	**Lab Comments:**	

Lab Sample ID	Field Sample ID	Depth	Date sampled	Container Type	Type of sample	As, Cd, Cr, Cu, Pb, Hg, Ni, Zn, Mn	TRH/BTEX	PAH (low)	OCP/OPP/ PCB (trace)	Phenols	nitrate/nitrite/ ammonia	Phosphorous	sulphate/ chloride	VOC		Combo	Comments: Provide as much information about the sample as you can
						Tests Required											
1	BH/MW216		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	Hydrocarbon odour
2	BH/MW218		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	
3	JKBH/MW1	(JK lost Date)	2/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	
4	JKBH/MW16		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	
5	JKBH/MW107A		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	
6	SW1		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	
7	SW2		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	Possibly quite saline
8	SW3		2/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	Possibly quite saline
9	BD2/011015		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	Possibly quite saline
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
11	R1/021015		2/10/2015	p/g	w	X	X	X	X	X						3L	
12	Spike						X										
13	Blank						X										
14	Spike						X										
15	Blank						X										
extra → 16	BD/011015																

(1)

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

Job No: 135368

Date Received: 2-10-15
Time Received: 1545
Received by: CB
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Environmental Division
Sydney
Work Order Reference
ES1532954

Telephone : +61-2-8784 8555

Relinquished by: Douglas Partners	EL	**Sample Receipt**	Ravi ALS
Courier (by whom) HUNTER EXPRESS		**Received by (Company):** ELS.	
Condition of Sample at dispatch Cool or Ambient (circle)		**Print Name:** CALUM BONSER.	6/10/15 1230
Temperature (if Applicable):		**Date & Time:** 2.10.15 1545	
Print Name: John Russell	PT	**Signature:** CB	
Date & Time 2/10/15; 2pm	6/10/15		
Signature:	12:00		

Lab use only:
Samples Received: Cool or Ambient (circle one)
Temperature Received at: 17.8 **(if applicable)**
Transported by: Hand delivered / courier

12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200

email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 135368

Client:
Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: John Russell

Sample log in details:

Your Reference:	**71459.03, Moorebank**
No. of samples:	16 Waters
Date samples received / completed instructions received	02/10/2015 / 02/10/2015

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:	12/10/15 / 15/10/15
Date of Preliminary Report:	Not Issued

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

ACCREDITED FOR TECHNICAL COMPETENCE

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	135368-1 BH/MW216 1/10/2015 Water	135368-2 BH/MW218 1/10/2015 Water	135368-3 JKBH/MW1 2/10/2015 Water	135368-4 JKBH/MW16 1/10/2015 Water	135368-5 JKBH/MW107 A 1/10/2015 Water
Date extracted	-	08/10/2015	08/10/2015	08/10/2015	08/10/2015	08/10/2015
Date analysed	-	08/10/2015	08/10/2015	08/10/2015	08/10/2015	08/10/2015
Dichlorodifluoromethane	µg/L	<10	<100	<10	<10	<10
Chloromethane	µg/L	<10	<100	<10	<10	<10
Vinyl Chloride	µg/L	<10	<100	<10	<10	<10
Bromomethane	µg/L	<10	<100	<10	<10	<10
Chloroethane	µg/L	<10	<100	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<100	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<10	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<10	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<10	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<10	<1	<1	<1
Bromochloromethane	µg/L	<1	<10	<1	<1	<1
Chloroform	µg/L	<1	<10	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<10	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<10	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<10	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<10	<1	<1	<1
Cyclohexane	µg/L	<1	<10	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<10	<1	<1	<1
Benzene	µg/L	<1	<10	<1	<1	<1
Dibromomethane	µg/L	<1	<10	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<10	<1	<1	<1
Trichloroethene	µg/L	<1	<10	<1	<1	<1
Bromodichloromethane	µg/L	<1	<10	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<10	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<10	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<10	<1	<1	<1
Toluene	µg/L	<1	<10	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<10	<1	<1	<1
Dibromochloromethane	µg/L	<1	<10	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<10	<1	<1	<1
Tetrachloroethene	µg/L	<1	<10	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<10	<1	<1	<1
Chlorobenzene	µg/L	<1	<10	<1	<1	<1
Ethylbenzene	µg/L	<1	<10	<1	<1	<1
Bromoform	µg/L	<1	<10	<1	<1	<1
m+p-xylene	µg/L	<2	<20	<2	<2	<2
Styrene	µg/L	<1	<10	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<10	<1	<1	<1
o-xylene	µg/L	<1	<10	<1	<1	<1

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	135368-1 BH/MW216 1/10/2015 Water	135368-2 BH/MW218 1/10/2015 Water	135368-3 JKBH/MW1 2/10/2015 Water	135368-4 JKBH/MW16 1/10/2015 Water	135368-5 JKBH/MW107 A 1/10/2015 Water
1,2,3-trichloropropane	µg/L	<1	<10	<1	<1	<1
Isopropylbenzene	µg/L	<1	<10	<1	<1	<1
Bromobenzene	µg/L	<1	<10	<1	<1	<1
n-propyl benzene	µg/L	<1	<10	<1	<1	<1
2-chlorotoluene	µg/L	<1	<10	<1	<1	<1
4-chlorotoluene	µg/L	<1	<10	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<10	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<10	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<10	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<10	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<10	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<10	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<10	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<10	<1	<1	<1
n-butyl benzene	µg/L	<1	<10	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<10	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<10	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<10	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<10	<1	<1	<1
Surrogate Dibromofluoromethane	%	84	73	78	82	78
Surrogate toluene-d8	%	76	76	75	76	75
Surrogate 4-BFB	%	84	73	78	82	78

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	135368-6 SW1 1/10/2015 Water	135368-7 SW2 1/10/2015 Water	135368-8 SW3 2/10/2015 Water	135368-9 BD2/011015 1/10/2015 Water
Date extracted	-	06/10/2015	08/10/2015	06/10/2015	08/10/2015
Date analysed	-	08/10/2015	08/10/2015	08/10/2015	08/10/2015
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
Isopropylbenzene	µg/L	<1	<1	<1	<1

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	135368-6 SW1 1/10/2015 Water	135368-7 SW2 1/10/2015 Water	135368-8 SW3 2/10/2015 Water	135368-9 BD2/011015 1/10/2015 Water
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	%	87	86	88	84
Surrogate toluene-d8	%	89	77	90	77
Surrogate 4-BFB	%	87	86	88	84

vTRH(C6-C10)/BTEXN in Water						
Our Reference:	UNITS	135368-1	135368-2	135368-3	135368-4	135368-5
Your Reference	----------	BH/MW216	BH/MW218	JKBH/MW1	JKBH/MW16	JKBH/MW107 A
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015	1/10/2015
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	08/10/2015	08/10/2015	08/10/2015	08/10/2015	08/10/2015
Date analysed	-	08/10/2015	08/10/2015	08/10/2015	08/10/2015	08/10/2015
$TRHC_6$ - C_9	µg/L	<10	<100	<10	<10	<10
$TRHC_6$ - C_{10}	µg/L	<10	<100	<10	<10	<10
$TRHC_6$ - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<10	<1	<1	<1
Toluene	µg/L	<1	<10	<1	<1	<1
Ethylbenzene	µg/L	<1	<10	<1	<1	<1
m+p-xylene	µg/L	<2	<20	<2	<2	<2
o-xylene	µg/L	<1	<10	<1	<1	<1
Naphthalene	µg/L	<1	<10	<1	<1	<1
Surrogate Dibromofluoromethane	%	104	106	105	104	103
Surrogate toluene-d8	%	76	76	75	76	75
Surrogate 4-BFB	%	84	73	78	82	78

vTRH(C6-C10)/BTEXN in Water						
Our Reference:	UNITS	135368-6	135368-7	135368-8	135368-9	135368-11
Your Reference	----------	SW1	SW2	SW3	BD2/011015	R1/021015
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015	2/10/2015
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	06/10/2015	08/10/2015	06/10/2015	08/10/2015	06/10/2015
Date analysed	-	08/10/2015	08/10/2015	08/10/2015	08/10/2015	07/10/2015
$TRHC_6$ - C_9	µg/L	<10	<10	<10	<10	<10
$TRHC_6$ - C_{10}	µg/L	<10	<10	<10	<10	<10
$TRHC_6$ - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
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	%	102	102	102	104	104
Surrogate toluene-d8	%	89	77	90	77	93
Surrogate 4-BFB	%	87	86	88	84	96

vTRH(C6-C10)/BTEXN in Water					
Our Reference:	UNITS	135368-12	135368-13	135368-14	135368-15
Your Reference	----------	Spike	Blank	Spike	Blank
Date Sampled	----------	1/10/2015	1/10/2015	1/10/2015	1/10/2015
Type of sample		Water	Water	Water	Water
Date extracted	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	07/10/2015	07/10/2015	07/10/2015	07/10/2015
TRHC$_6$ - C$_9$	µg/L	[NA]	<10	[NA]	<10
TRHC$_6$ - C$_{10}$	µg/L	[NA]	<10	[NA]	<10
Benzene	µg/L	105%	<1	104%	<1
Toluene	µg/L	95%	<1	94%	<1
Ethylbenzene	µg/L	100%	<1	100%	<1
m+p-xylene	µg/L	100%	<2	101%	<2
o-xylene	µg/L	101%	<1	102%	<1
Surrogate Dibromofluoromethane	%	103	103	102	101
Surrogate toluene-d8	%	96	93	97	94
Surrogate 4-BFB	%	100	96	101	97

svTRH (C10-C40) in Water						
Our Reference:	UNITS	135368-1	135368-2	135368-3	135368-4	135368-5
Your Reference	----------	BH/MW216	BH/MW218	JKBH/MW1	JKBH/MW16	JKBH/MW107 A
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015	1/10/2015
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	09/10/2015	08/10/2015	09/10/2015	07/10/2015	07/10/2015
TRHC$_{10}$ - C$_{14}$	µg/L	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	µg/L	<100	<100	<100	<100	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	<100	<100	<100	<100	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	97	104	103	97	130

svTRH (C10-C40) in Water						
Our Reference:	UNITS	135368-6	135368-7	135368-8	135368-9	135368-11
Your Reference	----------	SW1	SW2	SW3	BD2/011015	R1/021015
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015	2/10/2015
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	07/10/2015	07/10/2015	07/10/2015	07/10/2015	07/10/2015
TRHC$_{10}$ - C$_{14}$	µg/L	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	µg/L	<100	<100	<100	<100	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	<100	<100	<100	<100	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	122	106	98	107	105

PAHs in Water - Low Level Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	135368-1 BH/MW216 1/10/2015 Water	135368-2 BH/MW218 1/10/2015 Water	135368-3 JKBH/MW1 2/10/2015 Water	135368-4 JKBH/MW16 1/10/2015 Water	135368-5 JKBH/MW107 A 1/10/2015 Water
Date extracted	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.15
Surrogate p-Terphenyl-d14	%	70	99	80	78	76

PAHs in Water - Low Level Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	135368-6 SW1 1/10/2015 Water	135368-7 SW2 1/10/2015 Water	135368-8 SW3 2/10/2015 Water	135368-9 BD2/011015 1/10/2015 Water	135368-11 R1/021015 2/10/2015 Water
Date extracted	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	74	74	77	77	76

OCP in water - trace level Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	135368-1 BH/MW216 1/10/2015 Water	135368-2 BH/MW218 1/10/2015 Water	135368-3 JKBH/MW1 2/10/2015 Water	135368-4 JKBH/MW16 1/10/2015 Water	135368-5 JKBH/MW107 A 1/10/2015 Water
Date extracted	-	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015
Date analysed	-	14/10/2015	14/10/2015	14/10/2015	14/10/2015	14/10/2015
HCB	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
gamma-BHC (Lindane)	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
alpha-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
trans-Chlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
cis-Chlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Oxychlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Dieldrin	µg/L	0.008	0.076	0.001	0.003	0.003
p,p-DDE	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
p,p-DDD	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
p,p-DDT	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin Ketone	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
alpha-Endosulfan	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
beta-Endosulfan	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endosulfan Sulfate	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Surrogate OC Recovery	%	82	53	87	92	73

OCP in water - trace level Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	135368-6 SW1 1/10/2015 Water	135368-7 SW2 1/10/2015 Water	135368-8 SW3 2/10/2015 Water	135368-9 BD2/011015 1/10/2015 Water	135368-11 R1/021015 2/10/2015 Water
Date extracted	-	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015
Date analysed	-	14/10/2015	14/10/2015	14/10/2015	14/10/2015	14/10/2015
HCB	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
gamma-BHC (Lindane)	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
alpha-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
trans-Chlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
cis-Chlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Oxychlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Dieldrin	µg/L	0.001	0.004	<0.001	0.004	<0.001
p,p-DDE	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
p,p-DDD	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
p,p-DDT	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin Ketone	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
alpha-Endosulfan	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
beta-Endosulfan	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endosulfan Sulfate	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Surrogate OC Recovery	%	94	79	83	72	97

OP Pesticides -Trace Level Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	135368-1 BH/MW216 1/10/2015 Water	135368-2 BH/MW218 1/10/2015 Water	135368-3 JKBH/MW1 2/10/2015 Water	135368-4 JKBH/MW16 1/10/2015 Water	135368-5 JKBH/MW107 A 1/10/2015 Water
Date prepared	-	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015
Date analysed	-	14/10/2015	14/10/2015	14/10/2015	14/10/2015	14/10/2015
Demeton-S-methyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Dichlorvos	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Diazinon	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Dimethoate	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyrifos	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyrifos methyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Malathion	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Fenthion	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Azinphos Ethyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Azinphos Methyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorfenvinphos (E)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorfenvinphos (Z)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Ethion	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Fenitrothion	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Parathion (Ethyl)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Parathion (Methyl)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Primiphos Ethyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Primiphos Methyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Surrogate OP Recovery - TPP	%	94	48	85	91	85

OP Pesticides -Trace Level Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	135368-6 SW1 1/10/2015 Water	135368-7 SW2 1/10/2015 Water	135368-8 SW3 2/10/2015 Water	135368-9 BD2/011015 1/10/2015 Water	135368-11 R1/021015 2/10/2015 Water
Date prepared	-	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015
Date analysed	-	14/10/2015	14/10/2015	14/10/2015	14/10/2015	14/10/2015
Demeton-S-methyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Dichlorvos	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Diazinon	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Dimethoate	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyrifos	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorpyrifos methyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Malathion	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Fenthion	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Azinphos Ethyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Azinphos Methyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorfenvinphos (E)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorfenvinphos (Z)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Ethion	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Fenitrothion	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Parathion (Ethyl)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Parathion (Methyl)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Primiphos Ethyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Primiphos Methyl	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Surrogate OP Recovery - TPP	%	86	91	87	83	92

PCB in water - trace level						
Our Reference:	UNITS	135368-1	135368-2	135368-3	135368-4	135368-5
Your Reference	----------	BH/MW216	BH/MW218	JKBH/MW1	JKBH/MW16	JKBH/MW107 A
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015	1/10/2015
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015
Date analysed	-	14/10/2015	14/10/2015	14/10/2015	14/10/2015	14/10/2015
Aroclor 1016	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Total PCB's (as above)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01

PCB in water - trace level						
Our Reference:	UNITS	135368-6	135368-7	135368-8	135368-9	135368-11
Your Reference	----------	SW1	SW2	SW3	BD2/011015	R1/021015
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015	2/10/2015
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	12/10/2015	12/10/2015	12/10/2015	12/10/2015	12/10/2015
Date analysed	-	14/10/2015	14/10/2015	14/10/2015	14/10/2015	14/10/2015
Aroclor 1016	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Total PCB's (as above)	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01

Total Phenolics in Water						
Our Reference:	UNITS	135368-1	135368-2	135368-3	135368-4	135368-5
Your Reference	----------	BH/MW216	BH/MW218	JKBH/MW1	JKBH/MW16	JKBH/MW107 A
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015	1/10/2015
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05

Total Phenolics in Water						
Our Reference:	UNITS	135368-6	135368-7	135368-8	135368-9	135368-11
Your Reference	----------	SW1	SW2	SW3	BD2/011015	R1/021015
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015	2/10/2015
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05

HM in water - dissolved						
Our Reference:	UNITS	135368-1	135368-2	135368-3	135368-4	135368-5
Your Reference	----------	BH/MW216	BH/MW218	JKBH/MW1	JKBH/MW16	JKBH/MW107 A
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015	1/10/2015
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Arsenic-Dissolved	µg/L	2	11	1	<1	3
Cadmium-Dissolved	µg/L	<0.1	<0.1	0.1	0.1	<0.1
Chromium-Dissolved	µg/L	1	190	<1	<1	<1
Copper-Dissolved	µg/L	1	17	5	4	7
Lead-Dissolved	µg/L	1	7	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	9	160	30	20	12
Zinc-Dissolved	µg/L	60	84	97	820	79
Manganese-Dissolved	µg/L	1,400	650	950	4,400	420

HM in water - dissolved						
Our Reference:	UNITS	135368-6	135368-7	135368-8	135368-9	135368-11
Your Reference	----------	SW1	SW2	SW3	BD2/011015	R1/021015
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015	2/10/2015
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Arsenic-Dissolved	µg/L	<1	2	<1	2	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	2	<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	5	2	5	<1
Zinc-Dissolved	µg/L	6	5	18	5	<1
Manganese-Dissolved	µg/L	12	420	100	400	<5

Metals in Waters - Acid extractable						
Our Reference:	UNITS	135368-1	135368-2	135368-3	135368-4	135368-5
Your Reference	----------	BH/MW216	BH/MW218	JKBH/MW1	JKBH/MW16	JKBH/MW107 A
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015	1/10/2015
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Phosphorus - Total	mg/L	0.7	0.3	<0.05	<0.05	<0.05

Metals in Waters - Acid extractable					
Our Reference:	UNITS	135368-6	135368-7	135368-8	135368-9
Your Reference	----------	SW1	SW2	SW3	BD2/011015
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015
Type of sample		Water	Water	Water	Water
Date prepared	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Phosphorus - Total	mg/L	<0.05	<0.05	<0.05	<0.05

Miscellaneous Inorganics						
Our Reference:	UNITS	135368-1	135368-2	135368-3	135368-4	135368-5
Your Reference	----------	BH/MW216	BH/MW218	JKBH/MW1	JKBH/MW16	JKBH/MW107 A
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015	1/10/2015
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Nitrate as N in water	mg/L	<0.005	<0.25	0.01	0.02	0.006
Nitrite as N in water	mg/L	<0.005	<0.25	<0.005	<0.005	<0.005
Ammonia as N in water	mg/L	20	30	3.2	4.9	10
Chloride, Cl	mg/L	2,200	2,300	750	3,400	700
Sulphate, SO4	mg/L	91	410	1,100	1,700	75

Miscellaneous Inorganics					
Our Reference:	UNITS	135368-6	135368-7	135368-8	135368-9
Your Reference	----------	SW1	SW2	SW3	BD2/011015
Date Sampled	----------	1/10/2015	1/10/2015	2/10/2015	1/10/2015
Type of sample		Water	Water	Water	Water
Date prepared	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Date analysed	-	06/10/2015	06/10/2015	06/10/2015	06/10/2015
Nitrate as N in water	mg/L	0.29	0.11	0.02	0.16
Nitrite as N in water	mg/L	0.006	0.080	<0.005	0.083
Ammonia as N in water	mg/L	0.025	8.4	0.017	8.2
Chloride, Cl	mg/L	6,900	2,700	91	[NA]
Sulphate, SO4	mg/L	890	590	12	[NA]

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.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Inorg-055	Nitrate - determined colourimetrically. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Soils are analysed following a water extraction.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Soils are analysed following a KCl extraction.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B.

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			08/10/2015	[NT]	[NT]	LCS-W3	08/10/2015
Date analysed	-			08/10/2015	[NT]	[NT]	LCS-W3	08/10/2015
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W3	114%
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W3	112%
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W3	104%
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W3	109%
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W3	119%
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W3	105%
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W3	103%
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W3	96%
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NR]	[NR]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-013	82	[NT]	[NT]	LCS-W3	107%
Surrogate toluene-d8	%		Org-013	80	[NT]	[NT]	LCS-W3	96%
Surrogate 4-BFB	%		Org-013	82	[NT]	[NT]	LCS-W3	107%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			08/10/2015	[NT]	[NT]	LCS-W3	08/10/2015
Date analysed	-			08/10/2015	[NT]	[NT]	LCS-W3	08/10/2015
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W3	111%
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W3	111%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W3	108%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W3	103%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W3	112%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W3	116%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W3	120%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	105	[NT]	[NT]	LCS-W3	106%
Surrogate toluene-d8	%		Org-016	80	[NT]	[NT]	LCS-W3	96%
Surrogate 4-BFB	%		Org-016	82	[NT]	[NT]	LCS-W3	107%
QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			06/10/2015	[NT]	[NT]	LCS-W1	06/10/2015
Date analysed	-			07/10/2015	[NT]	[NT]	LCS-W1	07/10/2015
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	123%
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	109%
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	84%
TRH>C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	123%
TRH>C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	109%
TRH>C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	84%
Surrogate o-Terphenyl	%		Org-003	78	[NT]	[NT]	LCS-W1	79%
QUALITY CONTROL PAHs in Water - Low Level	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			06/10/2015	[NT]	[NT]	LCS-W2	06/10/2015
Date analysed	-			06/10/2015	[NT]	[NT]	LCS-W2	06/10/2015
Naphthalene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	LCS-W2	74%
Acenaphthylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	LCS-W2	76%
Phenanthrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	LCS-W2	76%
Anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	LCS-W2	75%
Pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	LCS-W2	77%

QUALITY CONTROL PAHs in Water - Low Level	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	LCS-W2	70%
Benzo(b,j+k) fluoranthene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	LCS-W2	88%
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	76	[NT]	[NT]	LCS-W2	72%
QUALITY CONTROL OCP in water - trace level	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/10/2015	[NT]	[NT]	LCS-W1	12/10/2015
Date analysed	-			14/10/2015	[NT]	[NT]	LCS-W1	14/10/2015
HCB	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Heptachlor	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	LCS-W1	67%
Heptachlor Epoxide	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	LCS-W1	69%
gamma-BHC (Lindane)	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	LCS-W1	65%
alpha-BHC	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
delta-BHC	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
trans-Chlordane	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
cis-Chlordane	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Oxychlordane	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Dieldrin	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	LCS-W1	89%
p,p-DDE	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
p,p-DDD	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
p,p-DDT	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	LCS-W1	89%
Endrin	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	LCS-W1	86%
Endrin Aldehyde	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Endrin Ketone	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
alpha-Endosulfan	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
beta-Endosulfan	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulfate	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Methoxychlor	µg/L	0.001	Ext-020	<0.001	[NT]	[NT]	[NR]	[NR]
Surrogate OC Recovery	%		Ext-020	[NT]	[NT]	[NT]	LCS-W1	66%

QUALITY CONTROL OP Pesticides - Trace Level	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			12/10/2015	[NT]	[NT]	LCS-W1	12/10/2015
Date analysed	-			14/10/2015	[NT]	[NT]	LCS-W1	14/10/2015
Demeton-S-methyl	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Dichlorvos	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Diazinon	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	LCS-W1	82%
Dimethoate	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Chlorpyrifos	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	LCS-W1	91%
Chlorpyrifos methyl	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Malathion	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Fenthion	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Azinphos Ethyl	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Azinphos Methyl	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Chlorfenvinphos (E)	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Chlorfenvinphos (Z)	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Ethion	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	LCS-W1	100%
Fenitrothion	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Parathion (Ethyl)	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	LCS-W1	111%
Parathion (Methyl)	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Primiphos Ethyl	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Primiphos Methyl	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Surrogate OP Recovery - TPP	%		Ext-020	[NT]	[NT]	[NT]	LCS-W1	87%

QUALITY CONTROL PCB in water - trace level	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			12/10/2015	[NT]	[NT]	LCS-W1	12/10/2015
Date analysed	-			14/10/2015	[NT]	[NT]	LCS-W1	14/10/2015
Aroclor 1016	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Aroclor 1260	µg/L	0.01	Ext-020	<0.01	[NT]	[NT]	[NR]	[NR]
Total PCB's (as above)	µg/L	0.010	Ext-020	<0.01	[NT]	[NT]	LCS-W1	96%
QUALITY CONTROL Total Phenolics in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			06/10/2015	135368-1	06/10/2015 || 06/10/2015	LCS-W1	06/10/2015
Date analysed	-			06/10/2015	135368-1	06/10/2015 || 06/10/2015	LCS-W1	06/10/2015
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	135368-1	<0.05 || <0.05	LCS-W1	92%
QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			06/10/2015	135368-1	06/10/2015 || 06/10/2015	LCS-W2	06/10/2015
Date analysed	-			06/10/2015	135368-1	06/10/2015 || 06/10/2015	LCS-W2	06/10/2015
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	135368-1	2 || 2 || RPD: 0	LCS-W2	94%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	135368-1	<0.1 || <0.1	LCS-W2	97%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	135368-1	1 || <1	LCS-W2	91%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	135368-1	1 || 1 || RPD: 0	LCS-W2	90%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	135368-1	1 || <1	LCS-W2	96%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	135368-1	<0.05 || <0.05	LCS-W2	103%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	135368-1	9 || 9 || RPD: 0	LCS-W2	92%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	135368-1	60 || 59 || RPD: 2	LCS-W2	93%
Manganese-Dissolved	µg/L	5	Metals-022 ICP-MS	<5	135368-1	1400 || 1400 || RPD: 0	LCS-W2	94%

QUALITY CONTROL Metals in Waters - Acid extractable	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			06/10/2015	135368-1	06/10/2015 || 06/10/2015	LCS-2	06/10/2015
Date analysed	-			06/10/2015	135368-1	06/10/2015 || 06/10/2015	LCS-2	06/10/2015
Phosphorus - Total	mg/L	0.05	Metals-020 ICP-AES	<0.05	135368-1	0.7 || 0.7 || RPD: 0	LCS-2	108%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			06/10/2015	135368-1	06/10/2015 || 06/10/2015	LCS-W1	06/10/2015
Date analysed	-			06/10/2015	135368-1	06/10/2015 || 06/10/2015	LCS-W1	06/10/2015
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	135368-1	<0.005 || <0.005	LCS-W1	109%
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	135368-1	<0.005 || <0.005	LCS-W1	115%
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	135368-1	20 || 21 || RPD: 5	LCS-W1	107%
Chloride, Cl	mg/L	1	Inorg-081	<1	135368-1	2200 || 2200 || RPD: 0	LCS-W1	100%
Sulphate, SO4	mg/L	1	Inorg-081	<1	135368-1	91 || 110 || RPD: 19	LCS-W1	103%

QUALITY CONTROL Total Phenolics in Water	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	135368-2	06/10/2015
Date analysed	-	[NT]	[NT]	135368-2	06/10/2015
Total Phenolics (as Phenol)	mg/L	[NT]	[NT]	135368-2	103%

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	135368-2	06/10/2015
Date analysed	-	[NT]	[NT]	135368-2	06/10/2015
Arsenic-Dissolved	µg/L	[NT]	[NT]	135368-2	98%
Cadmium-Dissolved	µg/L	[NT]	[NT]	135368-2	96%
Chromium-Dissolved	µg/L	[NT]	[NT]	135368-2	90%
Copper-Dissolved	µg/L	[NT]	[NT]	135368-2	83%
Lead-Dissolved	µg/L	[NT]	[NT]	135368-2	114%
Mercury-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Nickel-Dissolved	µg/L	[NT]	[NT]	135368-2	85%
Zinc-Dissolved	µg/L	[NT]	[NT]	135368-2	91%
Manganese-Dissolved	µg/L	[NT]	[NT]	135368-2	91%

QUALITY CONTROL Metals in Waters - Acid extractable	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	135368-2	06/10/2015
Date analysed	-	[NT]	[NT]	135368-2	06/10/2015
Phosphorus - Total	mg/L	[NT]	[NT]	135368-2	111%
QUALITY CONTROL Miscellaneous Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	135368-2	06/10/2015
Date analysed	-	[NT]	[NT]	135368-2	06/10/2015
Nitrate as N in water	mg/L	[NT]	[NT]	[NR]	[NR]
Nitrite as N in water	mg/L	[NT]	[NT]	[NR]	[NR]
Ammonia as N in water	mg/L	[NT]	[NT]	[NR]	[NR]
Chloride, Cl	mg/L	[NT]	[NT]	135368-2	#
Sulphate, SO4	mg/L	[NT]	[NT]	135368-2	#

Report Comments:

MISC_INORG: PQL for Nitrate and Nitrite has been raised due to possible colorimetric interference. Due to strong background colour.
MISC_INORG:# 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.

VOC_W: PQL has been raised as the sample/s were foamy and required dilution.

TRH_BTEX_W_V: PQL has been raised as the sample/s were foamy and required dilution.

OC/OP/PCB's in water analysed by NMI. Report No.RN1086753.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in 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.

CHAIN OF CUSTODY

Douglas Partners
Geotechnics / Environment / Groundwater

Client: Douglas Partners	**Project Number** 71459.03	**To:**	Envirolab Services
Contact Person: John Russell	**Project Name:** Moorebank	**Contact Person:**	Aileen Hie
Project Mgr: John Russell	**PO No.:** 133475	**Address:**	12 Ashley Street
	lab Quote No. :		Chatswood NSW 2068
Address: 96 Hermitage Road West Ryde NSW 2114	**Date results required:** standard **Or choose:** standard *Note: Inform lab in advance if urgent turnaround is required - surcharges apply*	**Phone:**	02 9910 6200
		Fax:	02 9910 6201
		Email:	ahie@envirolab.com.au
Phone: 9809 0666 **Mob:** 0422 000 434	**Report format:** esdat / PDF / Excel	**Laboratory Report No:**	
Email: john.russell@douglaspartners.com.au	**Comments:**	**Lab Comments:**	

limited sample PT

Sample information						Tests Required											Comments
Lab Sample ID	Field Sample ID	Depth	Date sampled	Container Type	Type of sample	As, Cd, Cr, Cu, Pb, Hg, Ni, Zn, Mn	TRH/BTEX	PAH (low)	OCP/OPP/ PCB (trace)	Phenols	nitrate/nitrite/ ammonia	Phosphorous	sulphate/ chloride	VOC		Combo	Provide as much information about the sample as you can
1	BH/MW216		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	Hydrocarbon odour
2	BH/MW218		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	
3	JKBH/MW1	CJK 1 on the Date	2/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	
4	JKBH/MW16		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	
5	JKBH/MW107A		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	
6	SW1		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	Possibly quite saline
7	SW2		1/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	Possibly quite saline
8	SW3		2/10/2015	p/g	w	X	X	X	X	X	X	X	X	X		3L	Possibly quite saline
9	BD2/011015		1/10/2015	p/g	w	X	X	X	X	X	X	X		X		3L	Possibly quite saline
10	BD1/021015		2/10/2015	p/g	w	X	X	X	X	X	X	X				3L	Please send to ALS
11	R1/021015		2/10/2015	p/g	w	X	X	X	X	X						3L	
12	Spike						X										
13	Blank						X										
14	Spike						X										
15	Blank						X										
extra → 16	BD1/011015		HOLD sa														

ENVIROLAB GROUP

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

Job No: 135366

Date Received: 2-10-15
Time Received: 1545
Received by: CB
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Relinquished by: Douglas Partners	**Sample Receipt**	***Lab use only:***
Courier (by whom) HUNTER EXPRESS	**Received by (Company):** ELS.	**Samples Received:** Cool or Ambient (circle one)
Condition of Sample at dispatch Cool or Ambient (circle)	**Print Name:** CALUM BONSER.	**Temperature Received at:** 17.8 (if applicable)
Temperature (if Applicable):	**Date & Time:** 2·10·15 1545	**Transported by:** Hand delivered / courier
Print Name: John Russell	**Signature:** CB	
Date & Time 2/10/15; 2pm		
Signature:		

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

SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd
Attention	John Russell

Sample Login Details	
Your Reference	71459.03, Moorebank
Envirolab Reference	135368
Date Sample Received	02/10/2015
Date Instructions Received	02/10/2015
Date Results Expected to be Reported	12/10/2015

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	16 Waters
Turnaround Time Requested	Standard
Temperature on receipt (°C)	17.8
Cooling Method	Ice Pack
Sampling Date Provided	YES

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

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page

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

Sample Id	*VOCs in water*	*vTRH(C6-C10)/BTEXN in Water*	*svTRH (C10-C40) in Water*	*PAHs in Water - Low Level*	*OCP in water - trace level*	*OP Pesticides -Trace Level*	*PCB in water - trace level*	*Total Phenolics in Water*	*HM in water - dissolved*	*Metals in Waters - Acid extractable*	*Ammonia as N in water*	*Chloride, Cl*	*Nitrate as N in water*	*Nitrite as N in water*	*Sulphate, SO4*	*On Hold*
BH/MW216	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
BH/MW218	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
JKBH/MW1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
JKBH/MW16	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
JKBH/MW107A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
SW1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
SW2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
SW3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
BD2/011015	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		
-																✓
R1/021015		✓	✓	✓	✓	✓	✓	✓	✓							
Spike		✓														
Blank		✓														
Spike		✓														
Blank		✓														
BD1/011015																✓

Appendix I

Data Quality Assurance and Quality Control

Procedures and Results

Appendix I
Data Quality Assurance and Quality Control Procedures and Results

Q1. Data Quality Indicators

Field and laboratory procedures were assessed against the following data quality indicators (DQIs):

- Precision – a measure of variability or reproducibility of data;
- Accuracy – a measure of closeness of the data to the 'true' value;
- Representativeness – the confidence (qualitative) of data representativeness of media present on-site;
- Completeness – a measure of the amount of usable data from a data collection activity; and
- Comparability – the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event.

The DQIs were assessed as outlined in the following table.

Table 1: Data Quality Indicators

DQI	Performance Indicator	Acceptable Range
Precision		
Field considerations	SOPs appropriate and complied with	Field staff follow SOPs in the DP *Field Procedures Manual*
	field replicates	Precision average relative percent difference (RPD) result <5 times practical quantitation limit (PQL), no limit; results >5 times PQL, 0% - 30%
Laboratory considerations	laboratory duplicates	Precision average RPD result <5 times PQL, no limit; results >5 times PQL, 0% - 50%
	laboratory-prepared volatile trip spikes	Recovery of 60-140%

DQI	Performance Indicator	Acceptable Range
Accuracy (bias)		
Field considerations	SOPs appropriate and complied with	Field staff to follow SOPs in the DP *Field Procedures Manual*
Laboratory considerations	Analysis of:	
	laboratory-prepared volatile trip spikes	Recovery of 60-140%
	laboratory-prepared trip blanks (field blanks)	<PQL
	rinsate samples	<PQL
	method blanks (laboratory blanks)	Recovery of 60-140%
	matrix spikes	Recovery of 70-130% (inorganics); 60-140% (organics)
	matrix spike duplicates	Recovery of 70-130% (inorganics); 60-140% (organics); Recovery 70 "low" to 130% "high" indicates interference
	surrogate spikes	Recovery of 70-130% (inorganics); 60-140% (organics)
	laboratory control samples	Recovery of 70-130% (inorganics); 60-140% (organics)
Completeness		
Field considerations	All critical locations sampled	All critical locations sampled in accordance with the SAQP
	SOPs appropriate and complied with	Field staff to follow SOPs in the DP *Field Procedures Manual*
	Experienced sampler	Experienced DP Environmental Scientist/Engineer to conduct field work and sampling
	Documentation correct	Maintain COC documentation at all times
	Sample holding times complied with	Sample holding times complied with
Laboratory considerations	All critical samples analysed according to SAQP	All critical locations analysed in accordance with the SAQP
	Appropriate methods and PQLs	Appropriate methods and PQLs have been used by the contract laboratory
	Sample documentation complete	Maintain COC documentation at all times

DQI	Performance Indicator	Acceptable Range
Comparability		
Field considerations	Same SOPs used on each occasion	Field staff to follow SOPs in the DP *Field Procedures Manual*
	Experienced sampler	Experienced DP Environmental Scientist/Engineer to conduct field work and sampling
	Same types of samples collected (filtered)	Field filtering for metals
Laboratory considerations	Sample analytical methods used (including clean-up)	Methods to be NATA accredited
	Sample PQLs (justify/quantify if different)	Consistent PQLs to be used
	Same laboratories (justify/quantify if different)	Same analytical laboratory for primary samples to be used
Representativeness		
Field considerations	Appropriate media sampled according to SAQP	Appropriate media sampled according to SAQP
	All media identified in SAQP sampled	All media identified in SAQP sampled
Laboratory considerations	All samples analysed according to SAQP	All samples analysed according to SAQP

Notes to Table 1:

SOP – Standard Operating Procedure

SAQP – Sampling and Analysis Quality Plan

Q2. Field Quality Assurance and Quality Control

The field QC procedures for sampling as prescribed in standard operating procedures (SOPs) in the Douglas Partners *Field Procedures Manual* were followed at all times during the assessment. All sample locations and media were with reference to the proposed scope in DP's fee proposal.

Q2.1 Sampling Team

Sampling was by an experienced DP Environmental Scientist/Engineer.

Q2.2 Sample Collection and Weather Conditions

Sample collection procedures and dispatch are reported in body of the report. Sampling was undertaken during variable weather conditions noting the number of separate days that sampling of the various media occurred.

Q2.3 Logs

Logs for each soil sampling location were recorded in the field. The individual samples were recorded on the field logs along with the sample identity, location, depth, initials of sampler, duplicate locations, duplicate type and site observations. Logs are included in Appendix E.

Q2.4 Chain of Custody

Chain of custody information was recorded on the Chain of Custody (COC) sheets and accompanied samples to the analytical laboratory. Signed copies of COCs are presented in Appendix H, following the laboratory reports.

Q2.5 Sample Splitting Techniques

Replicate or duplicate soil, soil gas, groundwater / surface water samples were collected in the field as a measure of precision of the results. Field replicates samples for soil were collected from the same location and an identical depth to the primary sample. Equal portions of the primary sample were placed into the sampling jars and sealed. The sample was not homogenised in a bowl to prevent the loss of volatiles from the soil. Replicate samples were labelled with a DP identification number, recorded on DP bore logs, so as to conceal their relationship to their primary sample from the analysing laboratory.

The soil gas (trace non-methane organic compounds (NMOC)) duplicate was collected using a manifold between the primary and duplicate canister.

The groundwater duplicate was taken by filling sample bottles whilst pumping from the one well. The surface water duplicate was collected by filling two sets of sample bottles at the one surface water sampling point.

Q2.6 Replicate and Duplicate Frequency

Field sampling comprised intra-laboratory duplicate sampling, at a rate of approximately one duplicate sample for every ten primary samples.

Q2.7 Trip Spikes

Laboratory prepared trip spikes are to be taken into the field, subjected to the same preservation methods as the field samples, then analysed for volatile contaminants (BTEX in this case), for the purposes of assessing data ‘precision’ and ‘accuracy’ (i.e. potential losses in volatile organics incurred prior to reaching the laboratory). A trip spike was taken into the field on three soil sampling days and the two groundwater / surface water sampling days and were dispatched with the batch sampling run. The result of the laboratory analysis for the trip spikes is shown in the table below.

Table 2: Trip Spike Results (% Recovery)

	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene
Trip Spike 1 (soil)	101%	100%	98%	101%	100%
Trip Spike 2 (soil)	100%	100%	102%	103%	101%
Trip Spike 3 (soil)	108%	107%	106%	105%	106%
Trip Spike 1 (water)	105%	95%	100%	100%	101%
Trip Spike 2 (water)	104%	94%	100%	101%	102%

Results indicate that the percentage loss for BTEX during the trip was within the acceptable range and therefore loss of volatiles during sample handing and transport of samples is unlikely to have occurred and acceptable data 'precision' and 'accuracy' was achieved.

Q2.8 Trip Blanks

Laboratory prepared soil trip blanks were taken out to the field unopened, subjected to the same preservation methods as the field samples, then analysed for the purposes of assessing data 'accuracy' (i.e. the potential transfer of contaminants into the blank sample incurred prior to reaching the laboratory). The result of the laboratory analysis for the trip blanks is shown in the table below.

Table 3: Trip Blank Results

	TRH C_6-C_{10}	Benzene	Toluene	Ethylbenz.	m+p-xylene	o-Xylene	Naphth.
Trip Blank 1 (soil – mg/kg)	<25	<0.2	<0.5	<1	<2	<1	<1
Trip Blank 2 (soil – mg/kg)	<25	<0.2	<0.5	<1	<2	<1	<1
Trip Blank 3 (soil – mg/kg)	<25	<0.2	<0.5	<1	<2	<1	<1
Trip Blank 1 (groundwater – µg/L)	<10	<1	<1	<1	<2	<1	-
Trip Blank 1 (groundwater – µg/L)	<10	<1	<1	<1	<2	<1	-

Levels of analytes were all below detection limits (i.e. within the acceptable range) and indicate transfer of BTEX contaminants into the trip blanks has not occurred. On this basis, the cross-contamination of samples during handing and transport of samples is considered unlikely to have occurred and acceptable data 'accuracy' was achieved.

Q2.9 Relative Percentage Difference

A measure of the consistency of results for field samples is derived by the calculation of relative percentage differences (RPDs) for duplicate samples. RPDs have only been considered where a concentration is greater than 5 times the PQL.

Q2.9.1 Intra-Laboratory and Inter-Laboratory Replicate Analysis

Replicates were tested to assess data 'precision' and the reproducibility within the primary laboratory (Envirolab Services Pty Ltd - Envirolab) and with a secondary laboratory (ALS) as a measure of consistency of sampling techniques. Replicate samples were analysed at a rate of approximately 10% of primary samples. For soil samples, four intra-laboratory and three inter-laboratory replicates were analysed. For groundwater and surface water, one intra-laboratory and one inter-laboratory duplicates were analysed. The Relative Percent Difference (RPD) between replicate results is used as a measure of laboratory reproducibility and is given by the following:

$$RPD = \frac{ABS\,(Replicate\ result\ 1 - Replicate\ result\ 2)}{(Replicate\ result\ 1 + Replicate\ result\ 2)/2} \times 100$$

The RPD can have a value between 0% and 200%. An RPD data quality objective of up to 30% is considered to be within the acceptable range.

The comparative results of analysis between primary and duplicate samples are summarised in the table below. Where one or both results were below the PQL, an RPD was not calculated,

Table 4a: RPD Results for Soil (mg/kg)

Test Location ID	BD1/070815	JK107a	RPD (%)	BD2/080915	BH213	RPD (%)
Depth (m)	-	1.9-2.35		-	2.9-3.35	
As	8	10	22	5	5	0
Cd	0.6	<0.4	N/A	<0.4	<0.4	N/A
Cr	13	17	27	9	13	36
Cu	49	29	51	42	4	165
Pb	35	98	95	90	18	133
Hg	<0.1	<0.1	N/A	0.1	<0.1	N/A
Ni	43	10	125	6	3	67
Zn	160	110	37	75	27	94
Mn	340	89	117	79	27	98
Test Location ID	BD3/090915	BH212	RPD (%)	BD5/100915	BH207	RPD (%)
Depth (m)	-	2.9-3.35		-	0.9-1.35	
As	4	6	40	6	5	18
Cd	0.5	0.6	18	<0.4	<0.4	N/A
Cr	12	16	29	16	15	6
Cu	27	41	41	56	18	103
Pb	140	130	7	93	21	126
Hg	0.1	0.1	0	<0.1	<0.1	N/A
Ni	8	9	12	10	6	50
Zn	170	240	34	250	55	128
Mn	100	120	18	85	73	15
Test Location ID	*BD4/100915*	BH201	RPD (%)	*BD6/100915*	BH206	RPD (%)

Depth (m)	-	0.9-1.35		-	0.9-1.35	
As	9	4	77	6	8	29
Cd	<1	1	N/A	<1	<0.4	N/A
Cr	18	15	18	8	15	61
Cu	23	79	110	15	22	38
Pb	25	110	126	14	16	13
Hg	<0.1	0.1	N/A	<0.1	<0.1	N/A
Ni	6	9	40	7	11	44
Zn	35	170	132	15	30	67
Mn	254	160	45	152	450	99
Test Location ID	*BD7/100915*	BH208	RPD (%)			
Depth (m)	-	3.9-4.35				
As	10	7	35			
Cd	<1	<0.4	N/A			
Cr	30	30	0			
Cu	13	13	0			
Pb	27	26	4			
Hg	<0.1	<0.1	N/A			
Ni	2	5	86			
Zn	11	16	37			
Mn	<5	6	N/A			

Notes to Table 4a:

Results expressed in mg/kg on dry weight basis

Italics - replicate sample shown in italics is inter-laboratory replicate

Table 4b: RPD Results for Soil (mg/kg)

Test Location ID		BD1/070815	JK107a	RPD (%)	BD2/080915	BH213	RPD (%)
Depth (m)		-	1.9-2.35		-	2.9-3.35	
TRH	C_6 - C_9	<25	<25	N/A	<25	<25	N/A
	C_{10} - C_{14}	<50	<50	N/A	<50	<50	N/A
	C_{15} - C_{28}	<100	<100	N/A	<100	<100	N/A
	C_{29} - C_{36}	<100	<100	N/A	<100	<100	N/A
TRH (NEPC, 2013)	F1 (C_6-C_{10}- BTEX)	<25	<25	N/A	<25	<25	N/A
	F2 (>C_{10}-C_{16} - Naphthalene)	<50	<50	N/A	<50	<50	N/A
	C_6-C_{10}	<25	<25	N/A	<25	<25	N/A
	>C_{10}-C_{16}	<50	<50	N/A	<50	<50	N/A
	>C_{16}-C_{34}	<100	<100	N/A	<100	<100	N/A
	>C_{34}-C_{40}	<100	<100	N/A	<100	<100	N/A
BTEX	Benzene	<0.5	<0.5	N/A	<0.5	<0.5	N/A
	Toluene	<1	<1	N/A	<1	<1	N/A
	Ethyl Benzene	<2	<2	N/A	<2	<2	N/A
	Xylenes	<1	<1	N/A	<1	<1	N/A
PAHs	Naphthalene	<1	<1	N/A	<1	<1	N/A
Test Location ID		BD3/090915	BH212	RPD (%)	*BD4/100915*	BH201	RPD (%)
Depth (m)		-	2.9-3.35		-	0.9-1.35	
TRH	C_6 - C_9	<25	<25	N/A	<25	<25	N/A
	C_{10} - C_{14}	<50	<50	N/A	<50	<50	N/A
	C_{15} - C_{28}	<100	100	N/A	<100	<100	N/A
	C_{29} - C_{36}	<100	250	N/A	<100	110	N/A
TRH (NEPC, 2013)	F1 (C_6-C_{10}- BTEX)	<25	<25	N/A	<25	<25	N/A
	F2 (>C_{10}-C_{16} - Naphthalene)	<50	<50	N/A	<50	<50	N/A
	C_6-C_{10}	<25	<25	N/A	<25	<25	N/A
	>C_{10}-C_{16}	<50	<50	N/A	<50	<50	N/A
	>C_{16}-C_{34}	110	280	87	110	110	0
	>C_{34}-C_{40}	<100	160	N/A	<100	130	N/A
BTEX	Benzene	<0.5	<0.5	N/A	<0.5	<0.5	N/A
	Toluene	<1	<1	N/A	<1	<1	N/A
	Ethyl Benzene	<2	<2	N/A	<2	<2	N/A
	Xylenes	<1	<1	N/A	<1	<1	N/A
PAHs	Naphthalene	<1	<1	N/A	<1	<1	N/A

Notes to Table 4b:

Results expressed in mg/kg on dry weight basis

Italics - replicate sample shown in italics is inter-laboratory replicate

Table 4c: RPD Results for Soil (mg/kg)

Test Location ID	BD1/070815	JK107a	RPD (%)	BD2/080915	BH213	RPD (%)
Depth (m)	-	1.9-2.35		-	2.9-3.35	
Total PAH	<1.45	0.33	N/A	7.5	<1.45	N/A
Naphthalene	<0.1	<0.1	N/A	<0.1	<0.1	N/A
B(a)P	<0.05	0.07	N/A	0.77	<0.05	N/A
B(a)P TEQ	<0.5	<0.5	N/A	1.2	<0.5	N/A
Total OCP	<2.0	<2.0	N/A	<2.0	<2.0	N/A
Aldrin + Dieldrin	<0.2	<0.2	N/A	<0.2	<0.2	N/A
Chlordane	<0.2	<0.2	N/A	<0.2	<0.2	N/A
DDT+DDE+DDD	<0.3	<0.3	N/A	<0.3	<0.3	N/A
Endosulfan	<0.3	<0.3	N/A	<0.3	<0.3	N/A
Endrin	<0.1	<0.1	N/A	<0.1	<0.1	N/A
Heptachlor	<0.2	<0.2	N/A	<0.2	<0.2	N/A
HCB	<0.1	<0.1	N/A	<0.1	<0.1	N/A
Methoxychlor	<0.1	<0.1	N/A	<0.1	<0.1	N/A
Total OPP	<0.8	<0.8	N/A	<0.8	<0.8	N/A
Chlorpyrifos	<0.1	<0.1	N/A	<0.1	<0.1	N/A
PCB	<0.7	<0.7	N/A	<0.7	<0.7	N/A
Total Phenols	<5	<5	N/A	<5	<5	N/A
Total Cyanide	<0.5	<0.5	N/A	<0.5	<0.5	N/A
Test Location ID	BD3/090915	BH212	RPD (%)	*BD4/100915*	BH201	RPD (%)
Depth (m)	-	2.9-3.35		-	0.9-1.35	
Total PAH	3.3	3.9	17	<0.5	0.28	N/A
Naphthalene	<0.1	<0.1	N/A	<0.1	<0.1	N/A
B(a)P	0.4	0.4	0	<0.05	0.05	N/A
B(a)P TEQ	0.6	0.7	15	1.2	<0.5	N/A
Total OCP	<2.0	<2.0	N/A	<2.0	<2.0	N/A
Aldrin + Dieldrin	<0.2	<0.2	N/A	<0.2	<0.2	N/A
Chlordane	<0.2	<0.2	N/A	<0.2	<0.2	N/A
DDT+DDE+DDD	<0.3	<0.3	N/A	<0.3	<0.3	N/A
Endosulfan	<0.3	<0.3	N/A	<0.3	<0.3	N/A
Endrin	<0.1	<0.1	N/A	<0.1	<0.1	N/A
Heptachlor	<0.2	<0.2	N/A	<0.2	<0.2	N/A
HCB	<0.1	<0.1	N/A	<0.1	<0.1	N/A
Methoxychlor	<0.1	<0.1	N/A	<0.1	<0.1	N/A
Total OPP	<0.8	<0.8	N/A	<0.8	<0.8	N/A
Chlorpyrifos	<0.1	<0.1	N/A	<0.1	<0.1	N/A
PCB	<0.7	<0.7	N/A	<0.1	<0.7	N/A
Total Phenols	<5	<5	N/A	<5	<5	N/A
Total Cyanide	<0.5	0.5	N/A	<0.5	<0.5	N/A

Notes to Table 4c:
Results expressed in mg/kg on dry weight basis
Italics - replicate sample shown in italics is inter-laboratory replicate

The calculated RPD values for soil were within the acceptable range of 30% with the exception of those cells shaded grey. However, this is not considered to be significant because:

- The typically low actual differences in the concentrations of the replicate pairs where some RPD exceedances occurred;
- Replicate pairs being generally collected from fill soils within a construction and demolition waste landfill which, by its nature, is considerably heterogeneous;
- Replicates, rather than homogenised replicates were used to avoid volatile loss, hence greater variability can be expected;
- Some of the recorded concentrations being close to the PQL; and
- All other QA/QC parameters generally met the DQIs.

Table 5: RPD Results for Soil Gas (µg/m^3)

Test Location ID	BH/MW216	BD1	RPD
Freon 113	<3.8	<3.8	N/A
2-Propanol	<1.0	<1.0	N/A
Propene	<0.9	<0.9	N/A
Benzene	5	6	18
Toluene	9	8	12
Xylene (m & p)	10	9	11
Xylene (o)	4	3	29
1,2,4-trimethylbenzene	5	5	0
1,3,5-trimethylbenzene	<2.5	<2.5	N/A
Styrene	10	10	0
1,1,1-trichloroethane	<2.7	<2.7	N/A
1,1,2,2-tetrachloroethane	<3.0	<3.0	N/A
1,1,2-trichloroethane	<2.7	<2.7	N/A
1,1-dichloroethene	<2.0	<2.0	N/A
1,2-dichloroethane	<2.0	<2.0	N/A
1,2-dichloropropane	<2.0	<2.0	N/A
Benzyl chloride	<2.6	<2.6	N/A
Bromodichloromethane	<3.0	<3.0	N/A

Test Location ID	BH/MW216	BD1	RPD
Bromoform	<5.0	<5.0	N/A
Carbon tetrachloride	<3.0	<3.0	N/A
Chlorodibromomethane	<1.6	<1.6	N/A
Chloroethane	3	4	29
Chloroform	<2.0	<2.0	N/A
Chloromethane	<1.0	<1.0	N/A
cis-1,2-dichloroethene	6	7	15
cis-1,3-dichloropropene	<2.0	<2.0	N/A
Hexachlorobutadiene	<5.0	<5.0	N/A
Trichloroethene	5	<2.7	N/A
Tetrachloroethene	<3.0	<3.0	N/A
trans-1,2-dichloroethene	<2.0	<2.0	N/A
trans-1,3-dichloropropene	<2.0	<2.0	N/A
Vinyl chloride	<1.0	<1.0	N/A
1,2-dibromoethane	<3.8	<3.8	N/A
Bromomethane	<1.9	<1.9	N/A
Dichlorodifluoromethane	210	230	9
Trichlorofluoromethane	<2.8	<2.8	N/A
1,2,4-trichlorobenzene	<3.7	<3.7	N/A
1,2-dichlorobenzene	<3.0	<3.0	N/A
1,3-dichlorobenzene	<3.0	<3.0	N/A
1,4-dichlorobenzene	<3.0	<3.0	N/A
Chlorobenzene	<2.0	<2.0	N/A
1,3-Butadiene	<1.0	<1.0	N/A
Acrolein	<1.0	<1.0	N/A
Methyl Methacrylate	<2.0	<2.0	N/A
1,4-Dioxane	<1.8	<1.8	N/A
Methyl Ethyl Ketone	<1.5	<1.5	N/A
2-hexanone (MBK)	<2.0	<2.0	N/A
4-Methyl-2-pentanone	<2.0	<2.0	N/A
Carbon disulfide	<1.6	<1.6	N/A

Test Location ID	BH/MW216	BD1	RPD
Cyclohexane	88	98	11
Ethanol	18	19	5
Ethyl acetate	<1.8	<1.8	N/A
Heptane	4	5	22
Hexane	47	53	12
MTBE	<1.8	<1.8	N/A
Tetrahydrofuran	<1.5	<1.5	N/A
Vinyl acetate	<1.8	<1.8	N/A
Naphthalene	7	4	55

Notes to Table 5:
Results expressed in mg/L
Italics - duplicate sample shown in italics is inter-laboratory duplicate

The calculated RPD values for soil gas were within the acceptable range of 30% with the exception of the cell shaded grey (naphthalene). However, this is not considered to be significant because of

- The low actual differences in the concentrations of the replicate pair;
- The recorded concentrations being close to the PQL;
- The majority of the RPD values were within the acceptable range; and
- All other QA/QC parameters generally met the DQIs.

Table 6: RPD Results for Groundwater and Surface Water (mg/L)

Sample ID	JKBH/MW1	*BD1/021015*	RPD (%)	SW2	BD2/011015	RPD (%)
Ammonia (as N)	3.2	2.56	22	8.4	8.2	2
Nitrate (as N)	0.01	0.03	100	0.11	0.16	37
Nitrite (as N)	<0.005	<0.01	N/A	0.08	0.083	4
Arsenic (Filtered)	0.001	0.003	100	0.002	0.002	0
Cadmium (Filtered)	0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Chromium (III+VI) (Filtered)	<0.001	<0.001	N/A	<0.001	<0.001	N/A
Copper (Filtered)	0.005	<0.001	N/A	<0.001	<0.001	N/A
Lead (Filtered)	<0.001	<0.001	N/A	<0.001	<0.001	N/A
Manganese (Filtered)	0.95	0.985	4	0.42	0.4	5
Mercury (Filtered)	<0.00005	<0.0001	N/A	<0.00005	<0.00005	N/A
Nickel (Filtered)	0.03	0.046	42	0.005	0.005	0

Sample ID	JKBH/MW1	*BD1/021015*	RPD (%)	SW2	BD2/011015	RPD (%)
Phosphorus	<0.05	3.58	N/A	<0.05	<0.05	N/A
Zinc (Filtered)	0.097	0.245	87	0.005	0.005	0
C10-C16	<0.05	<0.1	N/A	<0.05	<0.05	N/A
C16-C34	<0.1	<0.1	N/A	<0.1	<0.1	N/A
C34-C40	<0.1	<0.1	N/A	<0.1	<0.1	N/A
F2-NAPHTHALENE	<0.05	<0.1	N/A	<0.05	<0.05	N/A
C6 - C9	<0.01	<0.02	N/A	<0.01	<0.01	N/A
C10 - C14	<0.05	<0.05	N/A	<0.05	<0.05	N/A
C15 - C28	<0.1	<0.1	N/A	<0.1	<0.1	N/A
C29-C36	<0.1	<0.05	N/A	<0.1	<0.1	N/A
C6-C10 less BTEX (F1)	<0.01	<0.02	N/A	<0.01	<0.01	N/A
C6-C10	<0.01	<0.02	N/A	<0.01	<0.01	N/A
Benzene	<0.001	<0.001	N/A	<0.001	<0.001	N/A
Ethylbenzene	<0.001	<0.002	N/A	<0.001	<0.001	N/A
Toluene	<0.001	<0.002	N/A	<0.001	<0.001	N/A
Xylene (m & p)	<0.002	<0.002	N/A	<0.002	<0.002	N/A
Xylene (o)	<0.001	<0.002	N/A	<0.001	<0.001	N/A
1,2,4-trimethylbenzene	<0.001	-		<0.001	<0.001	N/A
1,3,5-trimethylbenzene	<0.001	-		<0.001	<0.001	N/A
Isopropylbenzene	<0.001	-		<0.001	<0.001	N/A
n-butylbenzene	<0.001	-		<0.001	<0.001	N/A
n-propylbenzene	<0.001	-		<0.001	<0.001	N/A
p-isopropyltoluene	<0.001	-		<0.001	<0.001	N/A
sec-butylbenzene	<0.001	-		<0.001	<0.001	N/A
Styrene	<0.001	-		<0.001	<0.001	N/A
tert-butylbenzene	<0.001	-		<0.001	<0.001	N/A
1,1,1,2-tetrachloroethane	<0.001	-		<0.001	<0.001	N/A
1,1,1-trichloroethane	<0.001	-		<0.001	<0.001	N/A
1,1,2,2-tetrachloroethane	<0.001	-		<0.001	<0.001	N/A
1,1,2-trichloroethane	<0.001	-		<0.001	<0.001	N/A
1,1-dichloroethane	<0.001	-		<0.001	<0.001	N/A

Sample ID	JKBH/MW1	*BD1/021015*	RPD (%)	SW2	BD2/011015	RPD (%)
1,1-dichloroethene	<0.001	-		<0.001	<0.001	N/A
1,1-dichloropropene	<0.001	-		<0.001	<0.001	N/A
1,2,3-trichloropropane	<0.001	-		<0.001	<0.001	N/A
1,2-dibromo-3-chloropropane	<0.001	-		<0.001	<0.001	N/A
1,2-dichloroethane	<0.001	-		<0.001	<0.001	N/A
1,2-dichloropropane	<0.001	-		<0.001	<0.001	N/A
1,3-dichloropropane	<0.001	-		<0.001	<0.001	N/A
2,2-dichloropropane	<0.001	-		<0.001	<0.001	N/A
Bromochloromethane	<0.001	-		<0.001	<0.001	N/A
Bromodichloromethane	<0.001	-		<0.001	<0.001	N/A
Bromoform	<0.001	-		<0.001	<0.001	N/A
Carbon tetrachloride	<0.001	-		<0.001	<0.001	N/A
Chlorodibromomethane	<0.001	-		<0.001	<0.001	N/A
Chloroethane	<0.01	-		<0.01	<0.01	N/A
Chloroform	<0.001	-		<0.001	<0.001	N/A
Chloromethane	<0.01	-		<0.01	<0.01	N/A
cis-1,2-dichloroethene	<0.001	-		<0.001	<0.001	N/A
cis-1,3-dichloropropene	<0.001	-		<0.001	<0.001	N/A
Dibromomethane	<0.001	-		<0.001	<0.001	N/A
Hexachlorobutadiene	<0.001	-		<0.001	<0.001	N/A
Trichloroethene	<0.001	-		<0.001	<0.001	N/A
Tetrachloroethene	<0.001	-		<0.001	<0.001	N/A
trans-1,2-dichloroethene	<0.001	-		<0.001	<0.001	N/A
trans-1,3-dichloropropene	<0.001	-		<0.001	<0.001	N/A
Vinyl chloride	<0.01	-		<0.01	<0.01	N/A
1,2-dibromoethane	<0.001	-		<0.001	<0.001	N/A
Bromomethane	<0.01	-		<0.01	<0.01	N/A
Dichlorodifluoromethane	<0.01	-		<0.01	<0.01	N/A
Trichlorofluoromethane	<0.01	-		<0.01	<0.01	N/A
1,2,3-trichlorobenzene	<0.001	-		<0.001	<0.001	N/A
1,2,4-trichlorobenzene	<0.001	-		<0.001	<0.001	N/A

Sample ID	JKBH/MW1	*BD1/021015*	RPD (%)	SW2	BD2/011015	RPD (%)
1,2-dichlorobenzene	<0.001	-		<0.001	<0.001	N/A
1,3-dichlorobenzene	<0.001	-		<0.001	<0.001	N/A
1,4-dichlorobenzene	<0.001	-		<0.001	<0.001	N/A
2-chlorotoluene	<0.001	-		<0.001	<0.001	N/A
4-chlorotoluene	<0.001	-		<0.001	<0.001	N/A
Bromobenzene	<0.001	-		<0.001	<0.001	N/A
Chlorobenzene	<0.001	-		<0.001	<0.001	N/A
Hexachlorobenzene	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Cyclohexane	<0.001	-		<0.001	<0.001	N/A
Acenaphthene	<0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Acenaphthylene	<0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Anthracene	<0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Benz(a)anthracene	<0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Benzo(a) pyrene	<0.0001	<0.00005	N/A	<0.0001	<0.0001	N/A
Benzo(b)&(k)fluoranthene	<0.0002	-		<0.0002	<0.0002	N/A
Benzo(g,h,i)perylene	<0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Chrysene	<0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Dibenz(a,h)anthracene	<0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Fluoranthene	<0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Fluorene	<0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Indeno(1,2,3-c,d)pyrene	<0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Naphthalene	<0.0002	<0.0001	N/A	<0.0002	<0.0002	N/A
Phenanthrene	<0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Phenolics Total	<0.05	-		<0.05	<0.05	N/A
Pyrene	<0.0001	<0.0001	N/A	<0.0001	<0.0001	N/A
Arochlor 1016	<0.00001	<0.0001	N/A	<0.00001	<0.00001	N/A
Arochlor 1221	<0.00001	<0.0001	N/A	<0.00001	<0.00001	N/A
Arochlor 1232	<0.00001	<0.0001	N/A	<0.00001	<0.00001	N/A
Arochlor 1242	<0.00001	<0.0001	N/A	<0.00001	<0.00001	N/A
Arochlor 1248	<0.00001	<0.0001	N/A	<0.00001	<0.00001	N/A
Arochlor 1254	<0.00001	<0.0001	N/A	<0.00001	<0.00001	N/A

Sample ID	JKBH/MW1	*BD1/021015*	RPD (%)	SW2	BD2/011015	RPD (%)
Arochlor 1260	<0.00001	<0.0001	N/A	<0.00001	<0.00001	N/A
PCBs (Sum of total)	<0.00001	<0.0001	N/A	<0.00001	<0.00001	N/A
4,4-DDE	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
a-BHC	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Aldrin	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
b-BHC	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Chlordane (cis)	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Chlordane (trans)	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
d-BHC	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
DDD	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
DDT	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Dieldrin	0.000001	<0.00001	N/A	0.000004	0.000004	0
Endosulfan I	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Endosulfan II	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Endosulfan sulphate	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Endrin	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Endrin aldehyde	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Endrin ketone	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
g-BHC (Lindane)	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Heptachlor	<0.000001	<0.000005	N/A	<0.000001	<0.000001	N/A
Heptachlor epoxide	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Methoxychlor	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Oxychlordane	<0.000001	<0.00001	N/A	<0.000001	<0.000001	N/A
Azinophos methyl	<0.00001	<0.00002	N/A	<0.00001	<0.00001	N/A
Azinphos Ethyl	<0.00001	<0.00002	N/A	<0.00001	<0.00001	N/A
Chlorfenvinphos E	<0.00001	-		<0.00001	<0.00001	N/A
Chlorfenvinphos Z	<0.00001	-		<0.00001	<0.00001	N/A
Chlorpyrifos	<0.00001	<0.00002	N/A	<0.00001	<0.00001	N/A
Chlorpyrifos-methyl	<0.00001	<0.0002	N/A	<0.00001	<0.00001	N/A
Diazinon	<0.00001	<0.00001	N/A	<0.00001	<0.00001	N/A
Dichlorvos	<0.00001	<0.0002	N/A	<0.00001	<0.00001	N/A

Sample ID	JKBH/MW1	*BD1/021015*	RPD (%)	SW2	BD2/011015	RPD (%)
Dimethoate	<0.00001	<0.00002	N/A	<0.00001	<0.00001	N/A
Ethion	<0.00001	<0.00002	N/A	<0.00001	<0.00001	N/A
Fenitrothion	<0.00001	<0.002	N/A	<0.00001	<0.00001	N/A
Fenthion	<0.00001	<0.00005	N/A	<0.00001	<0.00001	N/A
Malathion	<0.00001	<0.00002	N/A	<0.00001	<0.00001	N/A
Methyl parathion	<0.00001	<0.0005	N/A	<0.00001	<0.00001	N/A
Demeton-S-methyl	<0.00001	<0.00002	N/A	<0.00001	<0.00001	N/A
Parathion	<0.00001	<0.0002	N/A	<0.00001	<0.00001	N/A
Pirimiphos-methyl	<0.00001	<0.00001	N/A	<0.00001	<0.00001	N/A
Pirimphos-ethyl	<0.00001	<0.00001	N/A	<0.00001	<0.00001	N/A

Notes to Table 6:
Results expressed in mg/L
Italics - duplicate sample shown in italics is inter-laboratory duplicate

The calculated RPD values for groundwater / surface water were within the acceptable range of 30% with the exception of those cells shaded grey. However, this is not considered to be significant because:

- The typically low actual differences in the concentrations of the replicate pairs where RPD exceedances occurred;
- The recorded concentrations being close to the PQL;
- The majority of the RPD values were within the acceptable range; and
- All other QA/QC parameters generally met the DQIs.

Q2.9.2 Summary of Field Replicate Results

Whilst some RPDs were outside the acceptable range, the majority were within and the reasons for those being outside are not considered to be significant. Therefore the overall intra-laboratory and inter-laboratory comparisons indicate that the sampling technique was consistent and repeatable and therefore the results are considered useable and representative of the conditions encountered and acceptable 'precision' was achieved.

Q2.10 Rinsate Sample

One equipment rinsate sample was collected by passing de-ionised water over the decontaminated sampling apparatus (groundwater pump) into laboratory supplied sample bottles. The rinsate sample was submitted for laboratory analysis of the target contaminants to assess potential cross

contamination and data 'accuracy'. The results for the rinsate samples are presented in the following table.

Table 7: Rinsate Results (mg/L)

Sample ID	R1/021015
Arsenic (Filtered)	<0.001
Cadmium (Filtered)	<0.0001
Chromium (III+VI) (Filtered)	<0.001
Copper (Filtered)	<0.001
Lead (Filtered)	<0.001
Manganese (Filtered)	<0.005
Mercury (Filtered)	<0.00005
Nickel (Filtered)	<0.001
Zinc (Filtered)	<0.001
C10-C16	<0.05
C16-C34	<0.1
C34-C40	<0.1
F2-NAPHTHALENE	<0.05
C6 - C9	<0.01
C10 - C14	<0.05
C15 - C28	<0.1
C29-C36	<0.1
C6-C10 less BTEX (F1)	<0.01
C6-C10	<0.01
Benzene	<0.001
Ethylbenzene	<0.001
Toluene	<0.001
Xylene (m & p)	<0.002
Xylene (o)	<0.001
Hexachlorobenzene	<0.000001
Acenaphthene	<0.0001
Acenaphthylene	<0.0001
Anthracene	<0.0001

Sample ID	R1/021015
Benz(a)anthracene	<0.0001
Benzo(a) pyrene	<0.0001
Benzo(b)&(k)fluoranthene	<0.0002
Benzo(g,h,i)perylene	<0.0001
Chrysene	<0.0001
Dibenz(a,h)anthracene	<0.0001
Fluoranthene	<0.0001
Fluorene	<0.0001
Indeno(1,2,3-c,d)pyrene	<0.0001
Naphthalene	<0.0002
Phenanthrene	<0.0001
Phenolics Total	<0.05
Pyrene	<0.0001
Arochlor 1016	<0.00001
Arochlor 1221	<0.00001
Arochlor 1232	<0.00001
Arochlor 1242	<0.00001
Arochlor 1248	<0.00001
Arochlor 1254	<0.00001
Arochlor 1260	<0.00001
PCBs (Sum of total)	<0.00001
4,4-DDE	<0.000001
a-BHC	<0.000001
Aldrin	<0.000001
b-BHC	<0.000001
Chlordane (cis)	<0.000001
Chlordane (trans)	<0.000001
d-BHC	<0.000001
DDD	<0.000001
DDT	<0.000001
Dieldrin	<0.000001

Sample ID	R1/021015
Endosulfan I	<0.000001
Endosulfan II	<0.000001
Endosulfan sulphate	<0.000001
Endrin	<0.000001
Endrin aldehyde	<0.000001
Endrin ketone	<0.000001
g-BHC (Lindane)	<0.000001
Heptachlor	<0.000001
Heptachlor epoxide	<0.000001
Methoxychlor	<0.000001
Oxychlordane	<0.000001
Azinophos methyl	<0.00001
Azinphos Ethyl	<0.00001
Chlorfenvinphos E	<0.00001
Chlorfenvinphos Z	<0.00001
Chlorpyrifos	<0.00001
Chlorpyrifos-methyl	<0.00001
Diazinon	<0.00001
Dichlorvos	<0.00001
Dimethoate	<0.00001
Ethion	<0.00001
Fenitrothion	<0.00001
Fenthion	<0.00001
Malathion	<0.00001
Methyl parathion	<0.00001
Demeton-S-methyl	<0.00001
Parathion	<0.00001
Pirimiphos-methyl	<0.00001
Pirimphos-ethyl	<0.00001

Concentrations of analytes in the rinsate sample were below the PQL indicating that cross contamination of the groundwater samples due to insufficient decontamination procedures is unlikely to have occurred and that acceptable data 'accuracy' was achieved.

Q3. Laboratory Quality Assurance and Quality Control

Envirolab was used as the primary laboratory and ALS was the secondary laboratory. Appropriate methods and PQLs were used by the laboratory. Sample methods were NATA accredited.

Q3.1 Surrogate Spike

This sample is prepared by adding a known amount of surrogate, which behaves similarly to the analyte, prior to analysis to each sample. The recovery result indicates the proportion of the known concentration of the surrogate that is detected during analysis and is used to assess data 'accuracy'. Results within acceptance limits indicate that the extraction technique was effective.

Q3.2 Reference and Daily Check Sample Results – Laboratory Control Sample (LCS)

This sample comprises spiking either a standard reference material or a control matrix (such as a blank of sand or water) with a known concentration of specific analytes. The LCS is then analysed and results compared against each other to determine how the laboratory has performed with regard to sample preparation and analytical procedure and is used to assess data 'accuracy'. LCSs are analysed at a frequency of 1 in 20, with a minimum of one analysed per batch.

Q3.3 Laboratory Duplicate Results

These are additional portions of a sample which are analysed in exactly the same manner as all other samples and is used to assess data 'precision'. The laboratory acceptance criteria for duplicate samples is: in cases where the level is <5xPQL – any RPD is acceptable; and in cases where the level is >5xPQL – 0-50% RPD is acceptable.

Q3.4 Laboratory Blank Results

The laboratory blank, sometimes referred to as the method blank or reagent blank is the sample prepared and analysed at the beginning of every analytical run, following calibration of the analytical apparatus and is used to assess data 'accuracy'. This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, it can be determined by processing solvents and reagents in exactly the same manner as for samples. Laboratory blanks are analysed at a frequency of 1 in 20, with a minimum of one per batch.

Q3.5 Matrix Spike

This is a sample duplicate prepared by adding a known amount of analyte prior to analysis, and then treated exactly the same as all other samples. The recovery result indicates the proportion of the known concentration of the analyte that is detected during analysis and is used to assess data

'accuracy'. The laboratory acceptance criteria for matrix spike samples is generally 70-130% for inorganic/metals; and 60-140% for organics; and 10-140% for SVOC and speciated phenols.

Q3.6 Results of Laboratory QC

The laboratory QC for surrogate spikes, LCS, laboratory duplicate results, method blanks and matrix spikes were generally within the acceptance standards. There were, however a few comments made in some of the laboratory reports which are summarised in the table below.

Table 7: Laboratory QA Comments for Results Above QA/QC Criteria

Report No.	Laboratory	Laboratory Comment
134222	Envirolab	Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 134222-11 for Mn. Therefore a triplicate result has been issued as laboratory sample number 134222-78. Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 134222-41 for Cr and Mn. Therefore a triplicate result has been issued as laboratory sample number 134222-75. Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 134222-51 for Cu. Therefore a triplicate result has been issued as laboratory sample number 134222-76. Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 134222-61 for Zn. Therefore a triplicate result has been issued as laboratory sample number 134222-77. METALS_S: ## Percent recovery is not possible to report due to the in-homogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS. METALS_S: # 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. PAH in soil: The RPD for duplicate results is accepted due to the non-homogenous nature of the sample/s. sTRH in soil: The RPD for duplicate results is accepted due to the non-homogenous nature of the sample/s. # Percent recovery is not possible to report as the high concentration of analytes in the sample/s have caused interference. OP/PCB in soil: PQL has been raised due to interference from analytes(other than those being tested) in the sample/s.
134222B	Envirolab	Samples requested and analysed out of holding time for TCLP PAH.
135368	Envirolab	MISC_INORG: PQL for Nitrate and Nitrite has been raised due to possible colorimetric interference. Due to strong background colour. MISC_INORG:# 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. VOC_W: PQL has been raised as the sample/s were foamy and required dilution. TRH_BTEX_W_V: PQL has been raised as the sample/s were foamy and required dilution. OC/OP/PCB's subcontracted to NMI.

Report No.	Laboratory	Laboratory Comment
ES1532954	ALS	BD1/021015 Nitrite as N holding time breach. For some analytes, the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed was insufficient.

The majority of the laboratory quality control samples were within the laboratory acceptance criteria, with the exception of those identified in the above table. The QC non-conformances, where they occurred, are not considered to have significantly impacted the quality of the results overall as the number of non-conformances were minor compared to the overall QC data. It is considered that an acceptable level of laboratory precision and accuracy was achieved and that surrogate spikes, LCS, laboratory duplicate results, method blanks and matrix spike results were of an acceptable level overall. On the basis of this assessment, the laboratory data set is considered to have complied or partially complied with the DQIs.

Q3.7 Overall Assessment of QA/QC

Specific limits associated with sample handling and laboratory Quality Assurance and Quality Control were assessed against the DQIs and a summary is presented in the following table.

Table 8: Data Quality Indicators

DQI	Performance Indicator	Acceptable Range	Compliance
Precision			
Field considerations	SOPs appropriate and complied with	Field staff follow SOPs in the DP *Field Procedures Manual*	C
	field replicates	Precision average relative percent difference (RPD) result <5 times PQL, no limit; results >5 times PQL, 0% - 30%	PC
Laboratory considerations	laboratory duplicates	Precision average RPD result <5 times PQL, no limit; results >5 times PQL, 0% - 50%	PC
	laboratory-prepared volatile trip spikes	Recovery of 60-140%	C

DQI	Performance Indicator	Acceptable Range	Compliance
Accuracy (bias)			
Field considerations	SOPs appropriate and complied with	Field staff to follow SOPs in the DP *Field Procedures Manual*	C
Laboratory considerations	Analysis of:		
	laboratory-prepared volatile trip spikes	Recovery of 60-140%	C
	Laboratory-prepared trip blanks (field blanks)	<PQL	C
	Rinsate samples	<PQL	C
	method blanks (laboratory blanks)	Recovery of 60-140%	C
	matrix spikes	Recovery of 70-130% (inorganics); 60-140% (organics)	C
	matrix spike duplicates	Recovery of 70-130% (inorganics); 60-140% (organics); Recovery 70 “low” to 130% “high” indicates interference	C
	surrogate spikes	Recovery of 70-130% (inorganics); 60-140% (organics)	C
	laboratory control samples	Recovery of 70-130% (inorganics); 60-140% (organics)	PC
Completeness			
Field considerations	All critical locations sampled	All critical locations sampled in accordance with the SAQP	C
	SOPs appropriate and complied with	Field staff to follow SOPs in the DP *Field Procedures Manual*	C
	Experienced sampler	Experienced DP Environmental Scientist/Engineer to conduct field work and sampling	C
	Documentation correct	Maintain COC documentation at all times	C
	Sample holding times complied with	Sample holding times complied with	PC
Laboratory considerations	All critical samples analysed according to SAQP	All critical locations analysed in accordance with the SAQP	C
	Appropriate methods and PQLs	Appropriate methods and PQLs have been used by the contract laboratory	C
	Sample documentation complete	Maintain COC documentation at all times	C

DQI	Performance Indicator	Acceptable Range	Compliance
Comparability			
Field considerations	Same SOPs used on each occasion	Field staff to follow SOPs in the DP *Field Procedures Manual*	C
	Experienced sampler	Experienced DP Environmental Scientist/Engineer to conduct field work and sampling	C
	Same types of samples collected (filtered)	Field filtering for metals	C
Laboratory considerations	Sample analytical methods used (including clean-up)	Methods to be NATA accredited	C
	Sample PQLs (justify/quantify if different)	Consistent PQLs to be used	C
	Same laboratories (justify/quantify if different)	Same analytical laboratory for primary samples to be used	C
Representativeness			
Field considerations	Appropriate media sampled according to SAQP	Appropriate media sampled according to SAQP	C
	All media identified in SAQP sampled	All media identified in SAQP sampled	C
Laboratory considerations	All samples analysed according to SAQP	All samples analysed according to SAQP	C

Notes to Table 8:

C – Compliance

PC – Partial Compliance

NC – Non-Compliance

NA – Not Applicable

SOP – Standard Operating Procedure

SAQP – Sampling and Analysis Quality Plan

A review of the adopted QA/QC procedures and results indicates that the DQIs have generally been met with only minor non-conformances / partial compliance. On this basis, the sampling and laboratory methods used during the investigation were found to meet DQOs for this project.

Appendix J

Geotechnical Methodology for Remediating

Benedict's Moorebank Site (J&K, 2016)

GEOTECHNICAL METHODOLOGY FOR REMEDIATING BENEDICTS' MOOREBANK SITE

The following methodology is proposed, from a geotechnical point of view, to remediate the site for the proposed residential subdivision.

1 Complete the current excavations which are being carried out to remove sources of methane so as to satisfy the environmental requirements.

2 The lateral extent and depth of the excavations to be accurately surveyed and plotted on a site plan. Levels are to be established relative to AHD.

3 Backfill the above excavations to final terrace level –3m. The backfill is to comprise select approved material which must be free of deleterious substances and have a maximum particle size of ⅔ the proposed layer thickness. After removal of all loose material, the backfill must be compacted in layers not greater than 200mm loose thickness to a minimum density of 95% Standard Maximum Dry Density. Thicker compaction layers may be acceptable provided it can be demonstrated that the required density can be achieved over the full depth of the layer. The backfill will need to be keyed into the adjacent existing fill. The selection, placement and compaction of backfill to be carried out under Level 1 testing by a NATA registered laboratory in accordance with AS3798.

4 The entire site is to be excavated, as appropriate, to final terrace level –3m.

5 The exposed subgrade over the entire site to be subjected to High Energy Impact Compaction (HEIC). Recent trials (refer Landpac report October 2015) indicated that 40 passes with an Impact Drum module weight of 14 tonne with a minimum kinetic energy rating of 160kJ was appropriate. The number of passes required to be confirmed on site using appropriate settlement and ground response monitoring systems as well as geotechnical EFCP testing, all under the direction of the geotechnical engineer.

6 Fill the entire site to achieve the final terrace levels (ie. at least 3m of fill as described in Item 5 above). The fill is to be selected, placed and compacted as in Item 3 above. However, a minimum density of 98% SMDD is required.