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Project 73942
5 February 2015
PMO

**Ecove Group Pty Ltd**
**Locked Bay 1451**
**MEADOWBANK NSW 2114**

Attention: Mr Michael Azar

Dear Sirs

**Report on Additional Testing**
**Site 68 – Corner of Bennelong Parkway and Australia Avenue**
**Sydney Olympic Park**

## 1. Introduction

This report describes the results of additional testing undertaken for the proposed residential development on Site 68 at the corner of Bennelong Parkway and Australia Avenue, Sydney Olympic Park. The work was undertaken for Ecove Group Pty Ltd, developer of the site.

Douglas Partners has previous undertaken geotechnical and contamination investigations on the above site. The current revisions of the previous reports are as follows:

- *Report on Supplementary Geotechnical Investigation Rev 0* for Project 73942 dated 19 September 2014; and
- *Report on Preliminary Site Investigation (Contamination) Rev 0* for Project 73942 dated 19 September 2014.

These reports recommended some additional investigations following development approval and before the commencement of construction. The recommended additional investigations included:

- Further assessment of contaminant levels in any existing filling and soil that will remain on site;
- Assessment of groundwater quality on the site to determine appropriate groundwater control and disposal options that will need to be incorporated into the building; and
- Waste classification of all materials requiring removal from the site to allow them to be disposed of in an appropriate manner.

The additional testing recently undertaken on the site included an assessment of groundwater quality in two existing monitoring wells located in the footpath area of Bennelong Parkway, and permeability testing of the wells to estimate the permeability of the rock adjacent to the proposed basement excavation. It is noted that access to the remainder of the site for the recommended contamination assessment and waste classification is not currently available due to SOPA environmental restrictions and this work should be undertaken at a later stage following DA approval.

## 2. Groundwater Quality Assessment

Two of the existing monitoring wells (BH105 and BH106 in attached drawing) were sampled in January 2015. The sampling procedure was as follows:

- Re-development of the wells on 27 January 2015 by pumping the wells dry to ensure fresh groundwater was available for sampling on 29 January 2015;
- Measurement of field parameters (pH, electrical conductivity, temperature and dissolved oxygen) and ensuring the parameters had stabilised prior to sampling;
- Sampling of the wells using a low-flow pump with disposable tubing;
- Placement of the samples in appropriately preserved vials/bottles, storage of the samples in an insulated container and transport of the samples to a NATA accredited analytical laboratory;
- Analysis of QA/QC samples; and
- Maintaining chain of custody documentation.

The groundwater samples were analysed for a range of properties and potential contaminants in accordance with our previous recommendations. Selected results are provided in Tables 1 to 3.

**Table 1: Summary of Results for Hydrocarbons[1]**

| Sample | B | T | E | X | $C_6$ to $C_9$ | $C_{10}$ to $C_{36}$ | +ve PAH | Naphth. |
|---|---|---|---|---|---|---|---|---|
| BH105 | <1 | <1 | <1 | <3 | <10 | <250 | NIL +ve | <1 |
| BH106 | <1 | <1 | <1 | <3 | <10 | <250 | NIL +ve | <1 |
| Groundwater Investigation Levels for Marine Waters[2] | | | | | | | | |
| | 500 | - | - | 550 | - | - | - | 50 |

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; $C_6$ to $C_{36}$ = Total recoverable hydrocarbons; PAH = Polycyclic aromatic hydrocarbons; Napth. = Naphthalene
[1] All results in µg/L unless otherwise noted
[2] NEPM Schedule B1

**Table 2: Summary of Results for Pesticides, PCBs, Phenol and Ammonia[1]**

| Sample | Organochlorine Pesticides | Polychlorinated Biphenyls | Phenol | Ammonia as N |
|---|---|---|---|---|
| BH105 | 0.01 (a-Chlordane) | NIL +ve | <50 | 280 |
| BH106 | NIL +ve | NIL +ve | <50 | 43 |
| Groundwater Investigation Levels for Marine Waters[2] | | | | |
| | Various | Various | 400 | 910 |

Notes: [1] All results in µg/L unless otherwise noted
[2] NEPM Schedule B1

**Table 3: Summary of Results for Metals[1] and Hardness[1]**

| Sample | As | Cd | Cr | Cu | Pb | Hg | Ni | Zn | Hardness |
|---|---|---|---|---|---|---|---|---|---|
| BH105 | <1 | 0.4 | <1 | 2 | <1 | <0.05 | 42 | 140 | 500 |
| BH106 | <1 | <0.1 | <1 | 2 | <1 | <0.05 | 3 | 25 | 31 |
| Groundwater Investigation Levels for Marine Waters Depending on Water Hardness[2] | | | | | | | | | |
| Soft | 24 | 0.7 | 4.4 | 1.3 | 4.4 | 0.1 | 7 | 15 | - |
| Ext. hard | 24 | 9 | 44 | 14 | 157 | 0.1 | 77 | 164 | - |

Notes: As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu =- Copper; Pb = Lead, Hg = Mercury; Ni = Nickel; Zn = Zinc;
[1] Metal results in µg/L and Hardness results in $mgCaCO_3/L$
[2] NEPM Schedule B1

The detailed laboratory results and chain of custody documentation are attached to this report.

## 3. Permeability Testing

Slug testing was carried out in the two existing wells to assess the permeability of the surrounding rock. Both drawdown and inflow slug tests were undertaken following groundwater sampling. A drawdown slug test involves pumping water from the monitoring well and measuring the rate of recovery of the water level. An inflow slug test involves adding water to the monitoring well and measuring the rate of dissipation of the slug of water. Both these methods are commonly used to estimate soil permeability rates at depth.

The rates of recovery and dissipation were measured using LevelTROLL 500 data loggers which were vented to allow atmospheric pressures to be taken into account in the water pressure readings. The loggers measured water levels at one second intervals during the testing programme.

The results of the drawdown and inflow slug tests for each well are shown in Figures 1 and 2. In each case, the data from the LevelTROLL loggers is plotted as water level against time. The water levels have been converted from pressure readings.

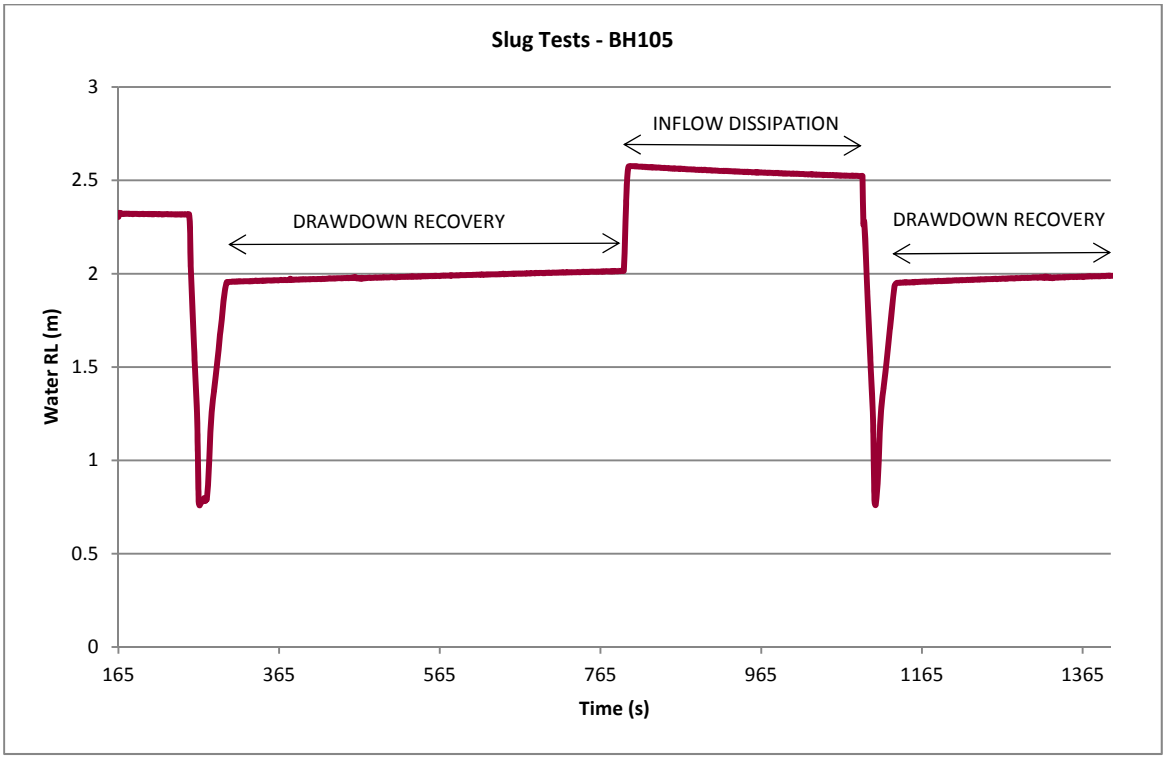



**Figure 1: Results of Slug Tests in BH105**

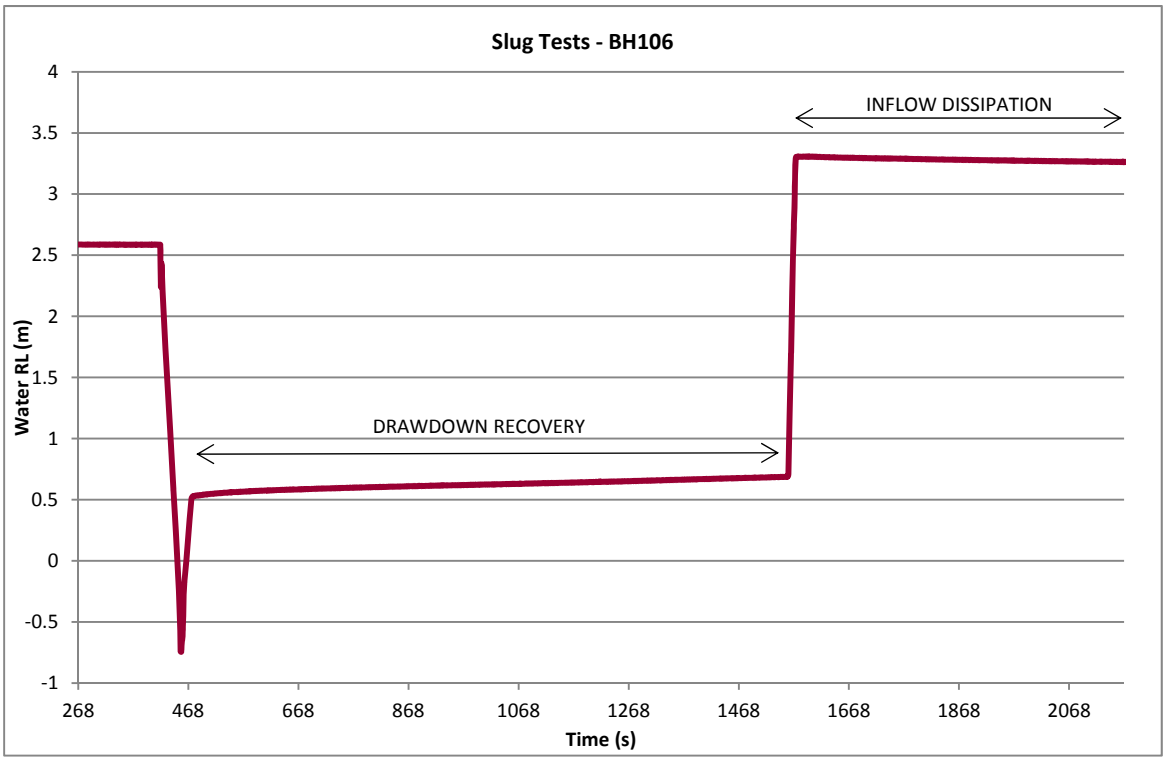



**Figure 2: Results of Slug Tests in BH106**

The rock permeability adjacent to each monitoring well was assessed using the slug test results. The data plotted on Figures 1 and 2 was selectively analysed to determine representative values of permeability. The results of the analyses are shown in Table 4.

**Table 4: Results of Permeability Analyses (m/s)**

| Well Location | Drawdown Permeability (m/s) | Injection Permeability (m/s) | Average Permeability (m/s) |
|---|---|---|---|
| BH105 | $1.7 \times 10^{-7}$ | $3.2 \times 10^{-7}$ | $2.5 \times 10^{-7}$ |
| BH106 | $2.6 \times 10^{-8}$ | $4.8 \times 10^{-8}$ | $3.7 \times 10^{-8}$ |

## 5. Comments

### 5.1 Groundwater Quality

The laboratory test results for the current range of testing indicate low levels of contaminants that are below the NEPM/ANZECC criteria for marine waters. This suggests that groundwater is likely to flow from the north-west towards Bicentennial Park, rather than flow from the landfill cells within Bicentennial Park back towards the development site. The water quality would be poor if leachate was present within the groundwater.

Provided that the two samples tested are representative of the groundwater quality on and adjacent to the site, water seepage into the basement should be able to be disposed of to stormwater.

### 5.2 Rock Permeability

The permeability results are relatively consistent between the two wells and within one order of magnitude. The testing indicates that the rock is relatively impermeable and seepage inflows should be able to be handled using an appropriately designed drainage system.

It is noted that rock mass permeability is dependent on the jointing within the rock mass and some areas of the excavation may experience higher seepage inflows than others. This is often dealt with during construction by grouting open joints if inflows are significant. It is noted that in Douglas Partners' experience, groundwater inflows into basements within the Ashfield Shale in Sydney Olympic Park are usually minor.

## 6. Conclusions

The additional testing was aimed at providing information on groundwater quality and rock permeability. The quality of the groundwater was within the adopted guideline levels and the rock permeability measured was very low.

The other additional testing previously recommended (i.e. contamination testing and waste classification of the soils in the areas that could not previously be tested) cannot be undertaken until access to the full site area (i.e. inside the stormwater dam) is available. Environmental restrictions in this area remain in place and it therefore follows that testing would be best undertaken at a later stage rather than at the current pre-DA approval stage. The results of the additional soil testing will not affect the proposed use of the land; any soils that are not suitable for the proposed land use can be disposed of or remediated as appropriate.

## 7. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for a project at Site 68, Sydney Olympic Park in accordance with instructions received from Ecove Group Pty Ltd. The report is provided for the use of Ecove Group Pty Ltd for this project only and for the purpose(s) described in the report. It should not be used for other projects or by a third party.

The results provided in the report are indicative of the sub-surface conditions only at the specific sampling or testing locations, and then only to the depths investigated and at the time the work was carried out. Subsurface conditions can change abruptly due to variable geological processes and also as a result of anthropogenic 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 limited by undetected variations in ground conditions between sampling locations. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

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.

We trust the above information meets your present requirements.

Yours faithfully
**Douglas Partners Pty Ltd**

**Peter Oitmaa**
Senior Associate

Reviewed by

**Michael J Thom**
Principal

Attachments: Notes Relating to This Report
Drawing
Field Sheets
Laboratory Test Results

## Notes About This Report

# 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.

## Copyright



## 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.

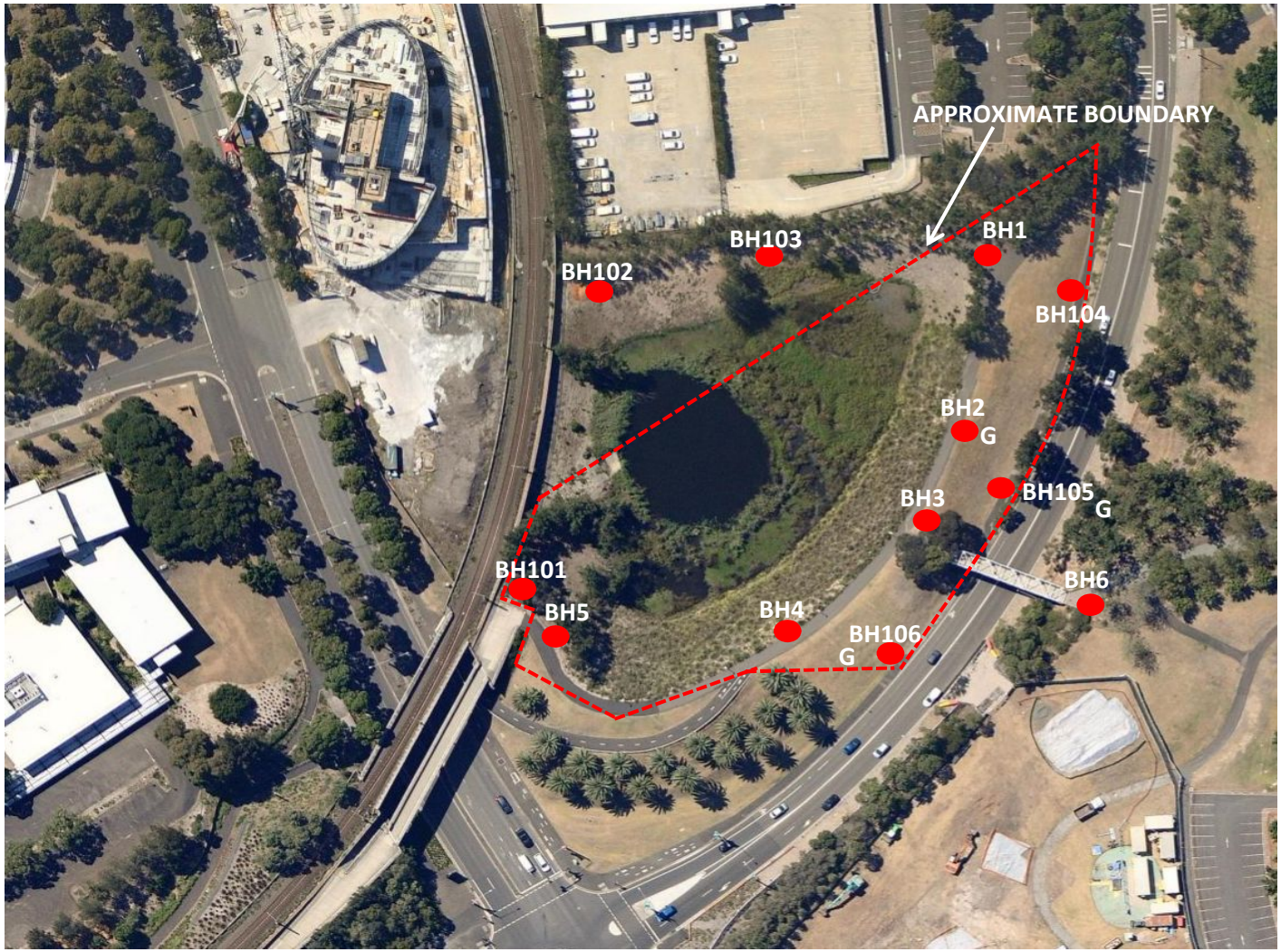
## Information for Contractual Purposes

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.

# Drawing




● Location of Borehole  **G** Groundwater monitoring well

| | | | |
|---|---|---|---|
| Douglas Partners<br>Geotechnics / Environment / Groundwater | CLIENT: Ecove Group Pty Ltd | **Locations of Boreholes** | PROJECT No: 73942 |
| | OFFICE: Sydney | **Site 68 Geotechnical Investigation** | DWG No: C1 |
| | DATE: 4 Feb 2015 | **Sydney Olympic Park** | REVISION: 1 |

# Field Sheets

Douglas Partners
Geotechnics / Environment / Groundwater

# Groundwater Field Sheet

| | | | | | |
|---|---|---|---|---|---|
| **Project and Bore Installation Details** | | | | | |
| Bore / Standpipe ID: | **BH105** | | | | |
| Project Name: | Site 68 Geotechnical Investigation | | | | |
| Project Number: | 73942 | | | | |
| Site Location: | Sydney Olympic Park | | | | |
| Bore Easting: | | Northing: | | | |
| Installation Date: | 3/09/2014 | | | | |
| GW Level (during drilling): | 1.5 m bgl | | | | |
| Well Depth: | 6 m bgl | | | | |
| Screened Interval: | 3 m bgl | | | | |
| Contaminants/Comments: | | | | | |
| **Bore Development Details** | | | | | |
| Date/Time: | 27/01/2015 | | | | |
| Purged By: | JE | | | | |
| GW Level (pre-purge): | 1.2 m bgl | | | | |
| GW Level (post-purge): | 5.5 m bgl | | | | |
| PSH observed: | Yes / **No** (interface/visual). | | | | |
| Observed Well Depth: | 6 m bgl | | | | |
| Estimated Bore Volume: | 9.4 L | | | | |
| Total Volume Purged: | 8.4 L | | | | |
| Equipment: | | | | | |
| **Micropurge and Sampling Details** | | | | | |
| Date/Time: | 29/1/15 9.00am | | | | |
| Sampled By: | JE, KM | | | | |
| Weather Conditions: | Fine | | | | |
| GW Level (pre-purge): | 1.26 m bgl | | | | |
| GW Level (post sample): | 3.6 m bgl | | | | |
| PSH observed: | Yes / **No** (interface/visual). | | | | |
| Observed Well Depth: | 6 m bgl | | | | |
| Estimated Bore Volume: | 9.3 L | | | | |
| Total Volume Purged: | 4.6 L | | | | |
| Equipment: | Water quality meter TPS-WP 80D, Peristaltic groundwater pump | | | | |
| **Water Quality Parameters** | | | | | |
| Time / Volume | Temp ($^{o}$C) | DO (mg/L) | EC (µS or mS/cm) | pH | Redox (mV) |
| **Stabilisation Criteria (3 readings)** | ***0.1$^{o}$C*** | **+/- 0.3 mg/L** | **+/- 3%** | **+/- 0.1** | **+/- 10 mV** |
| 8.54 | 21.5 | 0.66 | 7509 | 6.02 | 124.4 |
| 8.55 | 21.6 | 0.91 | 7419 | 6 | 123.2 |
| 8.56 | 21.7 | 1 | 7374 | 5.98 | 122.4 |
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| Additional Readings Following stabilisation: | DO % Sat | SPC | TDS | | |
| | | | | | |
| **Sample Details** | | | | | |
| Sampling Depth (rationale): | 3.6 m bgl, | | | | |
| Sample Appearance (e.g. colour, siltiness, odour): | Slightly murky | | | | |
| Sample ID: | BH105 | | | | |
| QA/QC Samples: | BD1 | | | | |
| Sampling Containers and filtration: | 2x500mL glass, 2x500mL plastic, 2x40mL glass (HCl), 1x200mL plastic (H2SO4), 1x200mL plastic | | | | |
| Comments / Observations: | | | | | |

Douglas Partners
Geotechnics / Environment / Groundwater

# Groundwater Field Sheet

| | | | | | |
|---|---|---|---|---|---|
| **Project and Bore Installation Details** | | | | | |
| Bore / Standpipe ID: | **BH106** | | | | |
| Project Name: | Site 68 Geotechnical Investigation | | | | |
| Project Number: | 73942 | | | | |
| Site Location: | Sydney Olympic Park | | | | |
| Bore Easting: | | Northing: | | | |
| Installation Date: | 3/09/2014 | | | | |
| GW Level (during drilling): | - m bgl | | | | |
| Well Depth: | 6 m bgl | | | | |
| Screened Interval: | 3 m bgl | | | | |
| Contaminants/Comments: | | | | | |
| **Bore Development Details** | | | | | |
| Date/Time: | 27/01/2015 | | | | |
| Purged By: | JE | | | | |
| GW Level (pre-purge): | 0.7 m bgl | | | | |
| GW Level (post-purge): | 5.8 m bgl | | | | |
| PSH observed: | Yes / **No** (interface/visual). | | | | |
| Observed Well Depth: | 6 m bgl | | | | |
| Estimated Bore Volume: | 10.4 L | | | | |
| Total Volume Purged: | L | | | | |
| Equipment: | | | | | |
| **Micropurge and Sampling Details** | | | | | |
| Date/Time: | 29/1/15 8.30am | | | | |
| Sampled By: | JE, KM | | | | |
| Weather Conditions: | Fine | | | | |
| GW Level (pre-purge): | 0.89 m bgl | | | | |
| GW Level (post sample): | 3.52 m bgl | | | | |
| PSH observed: | Yes / **No** (interface/visual). | | | | |
| Observed Well Depth: | 6 m bgl | | | | |
| Estimated Bore Volume: | 10.0 L | | | | |
| Total Volume Purged: | 5.2 L | | | | |
| Equipment: | Water quality meter TPS-WP 80D, Peristaltic groundwater pump | | | | |
| **Water Quality Parameters** | | | | | |
| Time / Volume | Temp ($^{o}$C) | DO (mg/L) | EC (µS or mS/cm) | pH | Redox (mV) |
| **Stabilisation Criteria (3 readings)** | ***0.1$^{o}$C*** | **+/- 0.3 mg/L** | **+/- 3%** | **+/- 0.1** | **+/- 10 mV** |
| 8.3 | 22.6 | 4.26 | 2455 | 5.64 | 131 |
| 8.32 | 22.6 | 4.27 | 2384 | 5.63 | 123.1 |
| 8.33 | 22.7 | 4.8 | 2476 | 5.7 | 116 |
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| Additional Readings Following stabilisation: | DO % Sat | SPC | TDS | | |
| | | | | | |
| **Sample Details** | | | | | |
| Sampling Depth (rationale): | 3.5 m bgl, | | | | |
| Sample Appearance (e.g. colour, siltiness, odour): | Slightly murky | | | | |
| Sample ID: | BH106 | | | | |
| QA/QC Samples: | - | | | | |
| Sampling Containers and filtration: | 2x500mL glass, 2x500mL plastic, 2x40mL glass (HCl), 1x200mL plastic (H2SO4), 1x200mL plastic | | | | |
| Comments / Observations: | | | | | |

# Laboratory Test Results

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

# CERTIFICATE OF ANALYSIS 122693

**Client:**
**Douglas Partners Pty Ltd**
96 Hermitage Rd
West Ryde
NSW 2114

**Attention:** Peter Oitmaa

**Sample log in details:**

| | |
|---|---|
| Your Reference: | **73942.00, Sydney Olympic Park** |
| No. of samples: | 6 Waters |
| Date samples received / completed instructions received | 29/1/2015 / 29/1/2015 |

**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: | 2/02/15 / 2/02/15 |
| 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

| VOCs in water<br>Our Reference:<br>Your Reference<br>Date Sampled<br>Type of sample | UNITS<br>----------<br>---------- | 122693-1<br>BH105<br>29/01/2015<br>Water | 122693-2<br>BH106<br>29/01/2015<br>Water | 122693-3<br>BD1<br>29/01/2015<br>Water | 122693-4<br>Rins1<br>29/01/2015<br>Water | 122693-6<br>TB<br>27/01/2015<br>Water |
|---|---|---|---|---|---|---|
| Date extracted | - | 30/01/2015 | 30/01/2015 | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Date analysed | - | 31/01/2015 | 31/01/2015 | 31/01/2015 | 31/01/2015 | 31/01/2015 |
| Dichlorodifluoromethane | µg/L | <10 | <10 | <10 | <10 | <10 |
| Chloromethane | µg/L | <10 | <10 | <10 | <10 | <10 |
| Vinyl Chloride | µg/L | <10 | <10 | <10 | <10 | <10 |
| Bromomethane | µg/L | <10 | <10 | <10 | <10 | <10 |
| Chloroethane | µg/L | <10 | <10 | <10 | <10 | <10 |
| Trichlorofluoromethane | µg/L | <10 | <10 | <10 | <10 | <10 |
| 1,1-Dichloroethene | µg/L | <1 | <1 | <1 | <1 | <1 |
| Trans-1,2-dichloroethene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,1-dichloroethane | µg/L | <1 | <1 | <1 | <1 | <1 |
| Cis-1,2-dichloroethene | µg/L | <1 | <1 | <1 | <1 | <1 |
| Bromochloromethane | µg/L | <1 | <1 | <1 | <1 | <1 |
| Chloroform | µg/L | <1 | <1 | <1 | 43 | <1 |
| 2,2-dichloropropane | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,2-dichloroethane | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,1,1-trichloroethane | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,1-dichloropropene | µg/L | <1 | <1 | <1 | <1 | <1 |
| Cyclohexane | µg/L | <1 | <1 | <1 | <1 | <1 |
| Carbon tetrachloride | µg/L | <1 | <1 | <1 | <1 | <1 |
| Benzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| Dibromomethane | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,2-dichloropropane | µg/L | <1 | <1 | <1 | <1 | <1 |
| Trichloroethene | µg/L | <1 | <1 | <1 | <1 | <1 |
| Bromodichloromethane | µg/L | <1 | <1 | <1 | 17 | <1 |
| trans-1,3-dichloropropene | µg/L | <1 | <1 | <1 | <1 | <1 |
| cis-1,3-dichloropropene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,1,2-trichloroethane | µg/L | <1 | <1 | <1 | <1 | <1 |
| Toluene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,3-dichloropropane | µg/L | <1 | <1 | <1 | <1 | <1 |
| Dibromochloromethane | µg/L | <1 | <1 | <1 | 4 | <1 |
| 1,2-dibromoethane | µg/L | <1 | <1 | <1 | <1 | <1 |
| Tetrachloroethene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,1,1,2-tetrachloroethane | µg/L | <1 | <1 | <1 | <1 | <1 |
| Chlorobenzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| Ethylbenzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| Bromoform | µg/L | <1 | <1 | <1 | <1 | <1 |
| m+p-xylene | µg/L | <2 | <2 | <2 | <2 | <2 |
| Styrene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,1,2,2-tetrachloroethane | µg/L | <1 | <1 | <1 | <1 | <1 |
| o-xylene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,2,3-trichloropropane | µg/L | <1 | <1 | <1 | <1 | <1 |

| VOCs in water<br>Our Reference:<br>Your Reference<br>Date Sampled<br>Type of sample | UNITS<br>----------<br>---------- | 122693-1<br>BH105<br>29/01/2015<br>Water | 122693-2<br>BH106<br>29/01/2015<br>Water | 122693-3<br>BD1<br>29/01/2015<br>Water | 122693-4<br>Rins1<br>29/01/2015<br>Water | 122693-6<br>TB<br>27/01/2015<br>Water |
|---|---|---|---|---|---|---|
| Isopropylbenzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| Bromobenzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| n-propyl benzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 2-chlorotoluene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 4-chlorotoluene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,3,5-trimethyl benzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| Tert-butyl benzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,2,4-trimethyl benzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,3-dichlorobenzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| Sec-butyl benzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,4-dichlorobenzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 4-isopropyl toluene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,2-dichlorobenzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| n-butyl benzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,2-dibromo-3-chloropropane | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,2,4-trichlorobenzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| Hexachlorobutadiene | µg/L | <1 | <1 | <1 | <1 | <1 |
| 1,2,3-trichlorobenzene | µg/L | <1 | <1 | <1 | <1 | <1 |
| *Surrogate* Dibromofluoromethane | % | 99 | 101 | 100 | 103 | 100 |
| *Surrogate* toluene-d8 | % | 99 | 99 | 98 | 98 | 98 |
| *Surrogate* 4-BFB | % | 106 | 105 | 106 | 103 | 104 |

| vTRH(C6-C10)/BTEXN in Water | | | | | | |
|---|---|---|---|---|---|---|
| Our Reference: | UNITS | 122693-1 | 122693-2 | 122693-3 | 122693-4 | 122693-5 |
| Your Reference | ---------- | BH105 | BH106 | BD1 | Rins1 | TS |
| Date Sampled | ---------- | 29/01/2015 | 29/01/2015 | 29/01/2015 | 29/01/2015 | 27/01/2015 |
| Type of sample | | Water | Water | Water | Water | Water |
| Date extracted | - | 30/01/2015 | 30/01/2015 | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Date analysed | - | 31/01/2015 | 31/01/2015 | 31/01/2015 | 31/01/2015 | 31/01/2015 |
| TRHC$_6$ - C$_9$ | µg/L | <10 | <10 | <10 | 43 | [NA] |
| TRHC$_6$ - C$_{10}$ | µg/L | <10 | <10 | <10 | 43 | [NA] |
| TRHC$_6$ - C$_{10}$ less BTEX (F1) | µg/L | <10 | <10 | <10 | 43 | [NA] |
| Benzene | µg/L | <1 | <1 | <1 | <1 | 98% |
| Toluene | µg/L | <1 | <1 | <1 | <1 | 99% |
| Ethylbenzene | µg/L | <1 | <1 | <1 | <1 | 100% |
| m+p-xylene | µg/L | <2 | <2 | <2 | <2 | 100% |
| o-xylene | µg/L | <1 | <1 | <1 | <1 | 102% |
| Naphthalene | µg/L | <1 | <1 | <1 | <1 | [NA] |
| *Surrogate* Dibromofluoromethane | % | 99 | 101 | 100 | 103 | 102 |
| *Surrogate* toluene-d8 | % | 99 | 99 | 98 | 98 | 99 |
| *Surrogate* 4-BFB | % | 106 | 105 | 106 | 103 | 97 |

| svTRH (C10-C40) in Water | | | | | |
|---|---|---|---|---|---|
| Our Reference: | UNITS | 122693-1 | 122693-2 | 122693-3 | 122693-4 |
| Your Reference | ---------- | BH105 | BH106 | BD1 | Rins1 |
| Date Sampled | ---------- | 29/01/2015 | 29/01/2015 | 29/01/2015 | 29/01/2015 |
| Type of sample | | Water | Water | Water | Water |
| Date extracted | - | 30/01/2015 | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Date analysed | - | 30/01/2015 | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| TRHC$_{10}$ - C$_{14}$ | µg/L | <50 | <50 | <50 | <50 |
| TRHC$_{15}$ - C$_{28}$ | µg/L | <100 | 110 | <100 | <100 |
| TRHC$_{29}$ - C$_{36}$ | µg/L | <100 | <100 | <100 | <100 |
| TRH>C$_{10}$ - C$_{16}$ | µg/L | <50 | <50 | <50 | <50 |
| TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2) | µg/L | <50 | <50 | <50 | <50 |
| TRH>C$_{16}$ - C$_{34}$ | µg/L | <100 | 120 | <100 | <100 |
| TRH>C$_{34}$ - C$_{40}$ | µg/L | <100 | <100 | <100 | <100 |
| *Surrogate* o-Terphenyl | % | 123 | 117 | 122 | 75 |

| PAHs in Water<br>Our Reference:<br>Your Reference<br>Date Sampled<br>Type of sample | UNITS<br>----------<br>---------- | 122693-1<br>BH105<br>29/01/2015<br>Water | 122693-2<br>BH106<br>29/01/2015<br>Water | 122693-3<br>BD1<br>29/01/2015<br>Water | 122693-4<br>Rins1<br>29/01/2015<br>Water |
|---|---|---|---|---|---|
| Date extracted | - | 30/01/2015 | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Date analysed | - | 31/01/2015 | 31/01/2015 | 31/01/2015 | 31/01/2015 |
| Naphthalene | µg/L | <1 | <1 | <1 | <1 |
| Acenaphthylene | µg/L | <1 | <1 | <1 | <1 |
| Acenaphthene | µg/L | <1 | <1 | <1 | <1 |
| Fluorene | µg/L | <1 | <1 | <1 | <1 |
| Phenanthrene | µg/L | <1 | <1 | <1 | <1 |
| Anthracene | µg/L | <1 | <1 | <1 | <1 |
| Fluoranthene | µg/L | <1 | <1 | <1 | <1 |
| Pyrene | µg/L | <1 | <1 | <1 | <1 |
| Benzo(a)anthracene | µg/L | <1 | <1 | <1 | <1 |
| Chrysene | µg/L | <1 | <1 | <1 | <1 |
| Benzo(b,j+k)fluoranthene | µg/L | <2 | <2 | <2 | <2 |
| Benzo(a)pyrene | µg/L | <1 | <1 | <1 | <1 |
| Indeno(1,2,3-c,d)pyrene | µg/L | <1 | <1 | <1 | <1 |
| Dibenzo(a,h)anthracene | µg/L | <1 | <1 | <1 | <1 |
| Benzo(g,h,i)perylene | µg/L | <1 | <1 | <1 | <1 |
| Benzo(a)pyrene TEQ | µg/L | <5 | <5 | <5 | <5 |
| Total +ve PAH's | µg/L | NIL (+)VE | NIL (+)VE | NIL (+)VE | NIL (+)VE |
| *Surrogate p*-Terphenyl-d14 | % | 83 | 71 | 79 | 77 |

| OCP in water - low level<br>Our Reference:<br>Your Reference<br>Date Sampled<br>Type of sample | UNITS<br>----------<br>---------- | 122693-1<br>BH105<br>29/01/2015<br>Water | 122693-2<br>BH106<br>29/01/2015<br>Water | 122693-3<br>BD1<br>29/01/2015<br>Water |
|---|---|---|---|---|
| Date extracted | - | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Date analysed | - | 31/01/2015 | 31/01/2015 | 31/01/2015 |
| HCB | µg/L | <0.01 | <0.01 | <0.01 |
| alpha-BHC | µg/L | <0.01 | <0.01 | <0.01 |
| gamma-BHC | µg/L | <0.01 | <0.01 | <0.01 |
| beta-BHC | µg/L | <0.01 | <0.01 | <0.01 |
| Heptachlor | µg/L | <0.01 | <0.01 | <0.01 |
| delta-BHC | µg/L | <0.01 | <0.01 | <0.01 |
| Aldrin | µg/L | <0.01 | <0.01 | <0.01 |
| Heptachlor Epoxide | µg/L | <0.01 | <0.01 | <0.01 |
| gamma-Chlordane | µg/L | <0.01 | <0.01 | <0.01 |
| alpha-Chlordane | µg/L | 0.01 | <0.01 | 0.02 |
| Endosulfan I | µg/L | <0.01 | <0.01 | <0.01 |
| pp-DDE | µg/L | <0.01 | <0.01 | <0.01 |
| Dieldrin | µg/L | <0.01 | <0.01 | <0.01 |
| Endrin | µg/L | <0.01 | <0.01 | <0.01 |
| pp-DDD | µg/L | <0.01 | <0.01 | <0.01 |
| Endosulfan II | µg/L | <0.01 | <0.01 | <0.01 |
| DDT | µg/L | <0.006 | <0.006 | <0.006 |
| Endrin Aldehyde | µg/L | <0.01 | <0.01 | <0.01 |
| Endosulfan Sulphate | µg/L | <0.01 | <0.01 | <0.01 |
| Methoxychlor | µg/L | <0.01 | <0.01 | <0.01 |
| *Surrogate* TCMX | % | 67 | 80 | 75 |

| OP in water LL ANZECCF/ADWG<br>Our Reference:<br>Your Reference<br>Date Sampled<br>Type of sample | UNITS<br>----------<br>---------- | 122693-1<br>BH105<br>29/01/2015<br>Water | 122693-2<br>BH106<br>29/01/2015<br>Water | 122693-3<br>BD1<br>29/01/2015<br>Water |
|---|---|---|---|---|
| Date extracted | - | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Date analysed | - | 31/01/2015 | 31/01/2015 | 31/01/2015 |
| Azinphos-methyl (Guthion) | µg/L | <0.020 | <0.020 | <0.020 |
| Bromophos ethyl | µg/L | <0.01 | <0.01 | <0.01 |
| Chlorpyriphos | µg/L | <0.01 | <0.01 | <0.01 |
| Chlorpyriphos-methyl | µg/L | <0.01 | <0.01 | <0.01 |
| Diazinon | µg/L | <0.01 | <0.01 | <0.01 |
| Dichlorovos | µg/L | <0.01 | <0.01 | <0.01 |
| Dimethoate | µg/L | <0.01 | <0.01 | <0.01 |
| Ethion | µg/L | <0.01 | <0.01 | <0.01 |
| Fenitrothion | µg/L | <0.01 | <0.01 | <0.01 |
| Malathion | µg/L | <0.05 | <0.05 | <0.05 |
| Ronnel | µg/L | <0.01 | <0.01 | <0.01 |
| *Surrogate* TCMX | % | 67 | 80 | 75 |

| PCBs in Water - Low Level | | | | |
|---|---|---|---|---|
| Our Reference: | UNITS | 122693-1 | 122693-2 | 122693-3 |
| Your Reference | ---------- | BH105 | BH106 | BD1 |
| Date Sampled | ---------- | 29/01/2015 | 29/01/2015 | 29/01/2015 |
| Type of sample | | Water | Water | Water |
| Date extracted | - | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Date analysed | - | 31/01/2015 | 31/01/2015 | 31/01/2015 |
| Arochlor 1016 | µg/L | <0.1 | <0.1 | <0.1 |
| Arochlor 1221 | µg/L | <0.1 | <0.1 | <0.1 |
| Arochlor 1232 | µg/L | <0.1 | <0.1 | <0.1 |
| Arochlor 1242 | µg/L | <0.1 | <0.1 | <0.1 |
| Arochlor 1248 | µg/L | <0.1 | <0.1 | <0.1 |
| Arochlor 1254 | µg/L | <0.1 | <0.1 | <0.1 |
| Arochlor 1260 | µg/L | <0.1 | <0.1 | <0.1 |
| *Surrogate* TCLMX | % | 67 | 80 | 75 |

| Total Phenolics in Water | | | | |
|---|---|---|---|---|
| Our Reference: | UNITS | 122693-1 | 122693-2 | 122693-3 |
| Your Reference | ---------- | BH105 | BH106 | BD1 |
| Date Sampled | ---------- | 29/01/2015 | 29/01/2015 | 29/01/2015 |
| Type of sample | | Water | Water | Water |
| Date extracted | - | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Date analysed | - | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Total Phenolics (as Phenol) | mg/L | <0.05 | <0.05 | <0.05 |

| HM in water - dissolved | | | | |
|---|---|---|---|---|
| Our Reference: | UNITS | 122693-1 | 122693-2 | 122693-3 |
| Your Reference | ---------- | BH105 | BH106 | BD1 |
| Date Sampled | ---------- | 29/01/2015 | 29/01/2015 | 29/01/2015 |
| Type of sample | | Water | Water | Water |
| Date prepared | - | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Date analysed | - | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Arsenic-Dissolved | µg/L | <1 | <1 | <1 |
| Cadmium-Dissolved | µg/L | 0.4 | <0.1 | 0.3 |
| Chromium-Dissolved | µg/L | <1 | <1 | <1 |
| Copper-Dissolved | µg/L | 2 | 2 | 2 |
| Lead-Dissolved | µg/L | <1 | <1 | <1 |
| Mercury-Dissolved | µg/L | <0.05 | <0.05 | <0.05 |
| Nickel-Dissolved | µg/L | 42 | 3 | 42 |
| Zinc-Dissolved | µg/L | 140 | 25 | 140 |

| Miscellaneous Inorganics | | | | |
|---|---|---|---|---|
| Our Reference: | UNITS | 122693-1 | 122693-2 | 122693-3 |
| Your Reference | ---------- | BH105 | BH106 | BD1 |
| Date Sampled | ---------- | 29/01/2015 | 29/01/2015 | 29/01/2015 |
| Type of sample | | Water | Water | Water |
| Date prepared | - | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Date analysed | - | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Ammonia as N in water | mg/L | 0.28 | 0.043 | 0.32 |

| Cations in water Dissolved | | | | |
|---|---|---|---|---|
| Our Reference: | UNITS | 122693-1 | 122693-2 | 122693-3 |
| Your Reference | ---------- | BH105 | BH106 | BD1 |
| Date Sampled | ---------- | 29/01/2015 | 29/01/2015 | 29/01/2015 |
| Type of sample | | Water | Water | Water |
| Date digested | - | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Date analysed | - | 30/01/2015 | 30/01/2015 | 30/01/2015 |
| Calcium - Dissolved | mg/L | 22 | 5.0 | 21 |
| Magnesium - Dissolved | mg/L | 110 | 4.4 | 110 |
| Hardness | mgCaCO3 /L | 500 | 31 | 490 |

| 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.<br>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 subset | Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. |
| Org-005 | Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. |
| Org-008 | Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. |
| Org-006 | Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. |
| Inorg-031 | Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish).<br>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. |
| Inorg-057 | Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Soils are analysed following a KCl extraction. |
| Metals-020 ICP-AES | Determination of various metals by ICP-AES. |

| QUALITY CONTROL<br>VOCs in water | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br>Base ll Duplicate ll %RPD | Spike Sm# | Spike % Recovery |
|---|---|---|---|---|---|---|---|---|
| Date extracted | - | | | 30/01/2015 | 122693-1 | 30/01/2015 \|\| 02/02/2015 | LCS-W1 | 30/01/2015 |
| Date analysed | - | | | 31/01/2015 | 122693-1 | 31/01/2015 \|\| 02/02/2015 | LCS-W1 | 31/01/2015 |
| Dichlorodifluoromethane | µg/L | 10 | Org-013 | <10 | 122693-1 | <10 \|\| <10 | [NR] | [NR] |
| Chloromethane | µg/L | 10 | Org-013 | <10 | 122693-1 | <10 \|\| <10 | [NR] | [NR] |
| Vinyl Chloride | µg/L | 10 | Org-013 | <10 | 122693-1 | <10 \|\| <10 | [NR] | [NR] |
| Bromomethane | µg/L | 10 | Org-013 | <10 | 122693-1 | <10 \|\| <10 | [NR] | [NR] |
| Chloroethane | µg/L | 10 | Org-013 | <10 | 122693-1 | <10 \|\| <10 | [NR] | [NR] |
| Trichlorofluoromethane | µg/L | 10 | Org-013 | <10 | 122693-1 | <10 \|\| <10 | [NR] | [NR] |
| 1,1-Dichloroethene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Trans-1,2-dichloroethene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,1-dichloroethane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | LCS-W1 | 102% |
| Cis-1,2-dichloroethene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Bromochloromethane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Chloroform | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | LCS-W1 | 103% |
| 2,2-dichloropropane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,2-dichloroethane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | LCS-W1 | 103% |
| 1,1,1-trichloroethane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | LCS-W1 | 106% |
| 1,1-dichloropropene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Cyclohexane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Carbon tetrachloride | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Benzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Dibromomethane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,2-dichloropropane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Trichloroethene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | LCS-W1 | 104% |
| Bromodichloromethane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | LCS-W1 | 104% |
| trans-1,3-dichloropropene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| cis-1,3-dichloropropene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,1,2-trichloroethane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Toluene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,3-dichloropropane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Dibromochloromethane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | LCS-W1 | 102% |
| 1,2-dibromoethane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Tetrachloroethene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | LCS-W1 | 103% |
| 1,1,1,2-tetrachloroethane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Chlorobenzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Ethylbenzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Bromoform | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| m+p-xylene | µg/L | 2 | Org-013 | <2 | 122693-1 | <2 \|\| <2 | [NR] | [NR] |
| Styrene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,1,2,2-tetrachloroethane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| o-xylene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |

| QUALITY CONTROL<br><br>VOCs in water | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br><br>Base ll Duplicate ll %RPD | Spike Sm# | Spike % Recovery |
|---|---|---|---|---|---|---|---|---|
| 1,2,3-trichloropropane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Isopropylbenzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Bromobenzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| n-propyl benzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 2-chlorotoluene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 4-chlorotoluene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,3,5-trimethyl benzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Tert-butyl benzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,2,4-trimethyl benzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,3-dichlorobenzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Sec-butyl benzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,4-dichlorobenzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 4-isopropyl toluene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,2-dichlorobenzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| n-butyl benzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,2-dibromo-3-chloropropane | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,2,4-trichlorobenzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| Hexachlorobutadiene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| 1,2,3-trichlorobenzene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| *Surrogate* Dibromofluoromethane | % | | Org-013 | 100 | 122693-1 | 99 \|\| 99 \|\| RPD: 0 | LCS-W1 | 97% |
| *Surrogate* toluene-d8 | % | | Org-013 | 99 | 122693-1 | 99 \|\| 98 \|\| RPD: 1 | LCS-W1 | 99% |
| *Surrogate* 4-BFB | % | | Org-013 | 105 | 122693-1 | 106 \|\| 103 \|\| RPD: 3 | LCS-W1 | 92% |

| QUALITY CONTROL<br>vTRH(C6-C10)/BTEXN in Water | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br>Base \|\| Duplicate \|\| %RPD | Spike Sm# | Spike % Recovery |
|---|---|---|---|---|---|---|---|---|
| Date extracted | - | | | 30/01/2015 | 122693-1 | 30/01/2015 \|\| 02/02/2015 | LCS-W1 | 30/01/2015 |
| Date analysed | - | | | 31/01/2015 | 122693-1 | 31/01/2015 \|\| 02/02/2015 | LCS-W1 | 31/01/2015 |
| TRHC$_6$ - C$_9$ | µg/L | 10 | Org-016 | <10 | 122693-1 | <10 \|\| <10 | LCS-W1 | 101% |
| TRHC$_6$ - C$_{10}$ | µg/L | 10 | Org-016 | <10 | 122693-1 | <10 \|\| <10 | LCS-W1 | 101% |
| Benzene | µg/L | 1 | Org-016 | <1 | 122693-1 | <1 \|\| <1 | LCS-W1 | 104% |
| Toluene | µg/L | 1 | Org-016 | <1 | 122693-1 | <1 \|\| <1 | LCS-W1 | 104% |
| Ethylbenzene | µg/L | 1 | Org-016 | <1 | 122693-1 | <1 \|\| <1 | LCS-W1 | 97% |
| m+p-xylene | µg/L | 2 | Org-016 | <2 | 122693-1 | <2 \|\| <2 | LCS-W1 | 99% |
| o-xylene | µg/L | 1 | Org-016 | <1 | 122693-1 | <1 \|\| <1 | LCS-W1 | 99% |
| Naphthalene | µg/L | 1 | Org-013 | <1 | 122693-1 | <1 \|\| <1 | [NR] | [NR] |
| *Surrogate* Dibromofluoromethane | % | | Org-016 | 103 | 122693-1 | 99 \|\| 99 \|\| RPD: 0 | LCS-W1 | 97% |
| *Surrogate* toluene-d8 | % | | Org-016 | 97 | 122693-1 | 99 \|\| 98 \|\| RPD: 1 | LCS-W1 | 99% |
| *Surrogate* 4-BFB | % | | Org-016 | 98 | 122693-1 | 106 \|\| 103 \|\| RPD: 3 | LCS-W1 | 92% |

| QUALITY CONTROL<br>svTRH (C10-C40) in Water | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br>Base \|\| Duplicate \|\| %RPD | Spike Sm# | Spike % Recovery |
|---|---|---|---|---|---|---|---|---|
| Date extracted | - | | | 30/01/2015 | [NT] | [NT] | LCS-W3 | 30/01/2015 |
| Date analysed | - | | | 30/01/2015 | [NT] | [NT] | LCS-W3 | 30/01/2015 |
| TRHC$_{10}$ - C$_{14}$ | µg/L | 50 | Org-003 | <50 | [NT] | [NT] | LCS-W3 | 121% |
| TRHC$_{15}$ - C$_{28}$ | µg/L | 100 | Org-003 | <100 | [NT] | [NT] | LCS-W3 | 119% |
| TRHC$_{29}$ - C$_{36}$ | µg/L | 100 | Org-003 | <100 | [NT] | [NT] | LCS-W3 | 106% |
| TRH>C$_{10}$ - C$_{16}$ | µg/L | 50 | Org-003 | <50 | [NT] | [NT] | LCS-W3 | 121% |
| TRH>C$_{16}$ - C$_{34}$ | µg/L | 100 | Org-003 | <100 | [NT] | [NT] | LCS-W3 | 119% |
| TRH>C$_{34}$ - C$_{40}$ | µg/L | 100 | Org-003 | <100 | [NT] | [NT] | LCS-W3 | 106% |
| *Surrogate* o-Terphenyl | % | | Org-003 | 77 | [NT] | [NT] | LCS-W3 | 78% |

| QUALITY CONTROL<br>PAHs in Water | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br>Base \|\| Duplicate \|\| %RPD | Spike Sm# | Spike % Recovery |
|---|---|---|---|---|---|---|---|---|
| Date extracted | - | | | 30/01/2015 | [NT] | [NT] | LCS-W1 | 30/01/2015 |
| Date analysed | - | | | 31/01/2015 | [NT] | [NT] | LCS-W1 | 31/01/2015 |
| Naphthalene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | LCS-W1 | 76% |
| Acenaphthylene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | [NR] | [NR] |
| Acenaphthene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | [NR] | [NR] |
| Fluorene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | LCS-W1 | 91% |
| Phenanthrene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | LCS-W1 | 85% |

| QUALITY CONTROL<br>PAHs in Water | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br>Base II Duplicate II %RPD | Spike Sm# | Spike % Recovery |
|---|---|---|---|---|---|---|---|---|
| Anthracene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | [NR] | [NR] |
| Fluoranthene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | LCS-W1 | 84% |
| Pyrene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | LCS-W1 | 98% |
| Benzo(a)anthracene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | [NR] | [NR] |
| Chrysene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | LCS-W1 | 79% |
| Benzo(b,j+k) fluoranthene | µg/L | 2 | Org-012 subset | <2 | [NT] | [NT] | [NR] | [NR] |
| Benzo(a)pyrene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | LCS-W1 | 87% |
| Indeno(1,2,3-c,d)pyrene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | [NR] | [NR] |
| Dibenzo(a,h)anthracene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | [NR] | [NR] |
| Benzo(g,h,i)perylene | µg/L | 1 | Org-012 subset | <1 | [NT] | [NT] | [NR] | [NR] |
| *Surrogate p*-Terphenyl-d14 | % | | Org-012 subset | 86 | [NT] | [NT] | LCS-W1 | 85% |

| QUALITY CONTROL<br>OCP in water - low level | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br>Base II Duplicate II %RPD | Spike Sm# | Spike % Recovery |
|---|---|---|---|---|---|---|---|---|
| Date extracted | - | | | 30/01/2015 | [NT] | [NT] | LCS-W1 | 30/01/2015 |
| Date analysed | - | | | 31/01/2015 | [NT] | [NT] | LCS-W1 | 31/01/2015 |
| HCB | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| alpha-BHC | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | LCS-W1 | 100% |
| gamma-BHC | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| beta-BHC | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | LCS-W1 | 82% |
| Heptachlor | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | LCS-W1 | 92% |
| delta-BHC | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| Aldrin | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | LCS-W1 | 82% |
| Heptachlor Epoxide | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | LCS-W1 | 97% |
| gamma-Chlordane | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| alpha-Chlordane | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| Endosulfan I | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| pp-DDE | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | LCS-W1 | 87% |
| Dieldrin | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | LCS-W1 | 103% |
| Endrin | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | LCS-W1 | 93% |
| pp-DDD | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | LCS-W1 | 86% |
| Endosulfan II | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| DDT | µg/L | 0.006 | Org-005 | <0.006 | [NT] | [NT] | [NR] | [NR] |
| Endrin Aldehyde | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| Endosulfan Sulphate | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | LCS-W1 | 93% |
| Methoxychlor | µg/L | 0.01 | Org-005 | <0.01 | [NT] | [NT] | [NR] | [NR] |

| QUALITY CONTROL<br><br>OCP in water - low level | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br><br>Base ll Duplicate ll %RPD | Spike Sm# | Spike % Recovery |
|---|---|---|---|---|---|---|---|---|
| *Surrogate* TCMX | % | | Org-005 | 74 | [NT] | [NT] | LCS-W1 | 79% |
| QUALITY CONTROL<br><br>OP in water LL ANZECCF/ADWG | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br><br>Base ll Duplicate ll %RPD | Spike Sm# | Spike % Recovery |
| Date extracted | - | | | 30/01/2015 | [NT] | [NT] | LCS-W1 | 30/01/2015 |
| Date analysed | - | | | 31/01/2015 | [NT] | [NT] | LCS-W1 | 31/01/2015 |
| Azinphos-methyl (Guthion) | µg/L | 0.02 | Org-008 | <0.020 | [NT] | [NT] | [NR] | [NR] |
| Bromophos ethyl | µg/L | 0.01 | Org-008 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| Chlorpyriphos | µg/L | 0.01 | Org-008 | <0.01 | [NT] | [NT] | LCS-W1 | 87% |
| Chlorpyriphos-methyl | µg/L | 0.01 | Org-008 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| Diazinon | µg/L | 0.01 | Org-008 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| Dichlorovos | µg/L | 0.01 | Org-008 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| Dimethoate | µg/L | 0.01 | Org-008 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| Ethion | µg/L | 0.01 | Org-008 | <0.01 | [NT] | [NT] | LCS-W1 | 93% |
| Fenitrothion | µg/L | 0.01 | Org-008 | <0.01 | [NT] | [NT] | LCS-W1 | 97% |
| Malathion | µg/L | 0.05 | Org-008 | <0.05 | [NT] | [NT] | [NR] | [NR] |
| Ronnel | µg/L | 0.01 | Org-008 | <0.01 | [NT] | [NT] | [NR] | [NR] |
| *Surrogate* TCMX | % | | Org-008 | 74 | [NT] | [NT] | LCS-W1 | 84% |
| QUALITY CONTROL<br><br>PCBs in Water - Low Level | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br><br>Base ll Duplicate ll %RPD | Spike Sm# | Spike % Recovery |
| Date extracted | - | | | 30/01/2015 | [NT] | [NT] | LCS-W1 | 30/01/2015 |
| Date analysed | - | | | 31/01/2015 | [NT] | [NT] | LCS-W1 | 31/01/2015 |
| Arochlor 1016 | µg/L | 0.1 | Org-006 | <0.1 | [NT] | [NT] | [NR] | [NR] |
| Arochlor 1221 | µg/L | 0.1 | Org-006 | <0.1 | [NT] | [NT] | [NR] | [NR] |
| Arochlor 1232 | µg/L | 0.1 | Org-006 | <0.1 | [NT] | [NT] | [NR] | [NR] |
| Arochlor 1242 | µg/L | 0.1 | Org-006 | <0.1 | [NT] | [NT] | [NR] | [NR] |
| Arochlor 1248 | µg/L | 0.1 | Org-006 | <0.1 | [NT] | [NT] | [NR] | [NR] |
| Arochlor 1254 | µg/L | 0.1 | Org-006 | <0.1 | [NT] | [NT] | LCS-W1 | 91% |
| Arochlor 1260 | µg/L | 0.1 | Org-006 | <0.1 | [NT] | [NT] | [NR] | [NR] |
| *Surrogate* TCLMX | % | | Org-006 | 74 | [NT] | [NT] | LCS-W1 | 100% |

| QUALITY CONTROL<br>Total Phenolics in Water | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br>Base ll Duplicate ll %RPD | Spike Sm# | Spike % Recovery |
|---|---|---|---|---|---|---|---|---|
| Date extracted | - | | | 30/01/2015 | [NT] | [NT] | LCS-W1 | 30/01/2015 |
| Date analysed | - | | | 30/01/2015 | [NT] | [NT] | LCS-W1 | 30/01/2015 |
| Total Phenolics (as Phenol) | mg/L | 0.05 | Inorg-031 | <0.05 | [NT] | [NT] | LCS-W1 | 100% |
| QUALITY CONTROL<br>HM in water - dissolved | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br>Base ll Duplicate ll %RPD | Spike Sm# | Spike % Recovery |
| Date prepared | - | | | 30/01/2015 | [NT] | [NT] | LCS-W1 | 30/01/2015 |
| Date analysed | - | | | 30/01/2015 | [NT] | [NT] | LCS-W1 | 30/01/2015 |
| Arsenic-Dissolved | µg/L | 1 | Metals-022 ICP-MS | <1 | [NT] | [NT] | LCS-W1 | 99% |
| Cadmium-Dissolved | µg/L | 0.1 | Metals-022 ICP-MS | <0.1 | [NT] | [NT] | LCS-W1 | 103% |
| Chromium-Dissolved | µg/L | 1 | Metals-022 ICP-MS | <1 | [NT] | [NT] | LCS-W1 | 95% |
| Copper-Dissolved | µg/L | 1 | Metals-022 ICP-MS | <1 | [NT] | [NT] | LCS-W1 | 93% |
| Lead-Dissolved | µg/L | 1 | Metals-022 ICP-MS | <1 | [NT] | [NT] | LCS-W1 | 105% |
| Mercury-Dissolved | µg/L | 0.05 | Metals-021 CV-AAS | <0.05 | [NT] | [NT] | LCS-W1 | 92% |
| Nickel-Dissolved | µg/L | 1 | Metals-022 ICP-MS | <1 | [NT] | [NT] | LCS-W1 | 97% |
| Zinc-Dissolved | µg/L | 1 | Metals-022 ICP-MS | <1 | [NT] | [NT] | LCS-W1 | 100% |

| QUALITY CONTROL<br><br>Miscellaneous Inorganics | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br><br>Base II Duplicate II %RPD | Spike Sm# | Spike % Recovery |
|---|---|---|---|---|---|---|---|---|
| Date prepared | - | | | 30/01/2015 | [NT] | [NT] | LCS-W1 | 30/01/2015 |
| Date analysed | - | | | 30/01/2015 | [NT] | [NT] | LCS-W1 | 30/01/2015 |
| Ammonia as N in water | mg/L | 0.005 | Inorg-057 | <0.005 | [NT] | [NT] | LCS-W1 | 100% |
| QUALITY CONTROL<br><br>Cations in water Dissolved | UNITS | PQL | METHOD | Blank | Duplicate Sm# | Duplicate results<br><br>Base II Duplicate II %RPD | Spike Sm# | Spike % Recovery |
| Date digested | - | | | 30/01/2015 | [NT] | [NT] | LCS-W1 | 30/01/2015 |
| Date analysed | - | | | 30/01/2015 | [NT] | [NT] | LCS-W1 | 30/01/2015 |
| Calcium - Dissolved | mg/L | 0.5 | Metals-020 ICP-AES | <0.5 | [NT] | [NT] | LCS-W1 | 96% |
| Magnesium - Dissolved | mg/L | 0.5 | Metals-020 ICP-AES | <0.5 | [NT] | [NT] | LCS-W1 | 98% |
| Hardness | mgCaCO3/L | 3 | | [NT] | [NT] | [NT] | [NR] | [NR] |

**Report Comments:**

VOC/BTEX in water: 122693-4 was sampled from jar.

METALS_WLL_8_D: # Low spike recovery was obtained for this sample. The sample was re-digested and re-spiked and the low recovery was confirmed.
This is due to matrix interferences. However, an acceptable recovery was obtained for the LCS.

| | |
|---|---|
| Asbestos 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 and 10-140% for SVOC 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.

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:**

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666
Fax: 02 9809 4095

Attention: Peter Oitmaa

**Sample log in details:**

| | |
|---|---|
| Your reference: | **73942.00, Sydney Olympic Park** |
| Envirolab Reference: | **122693** |
| Date received: | 29/1/2015 |
| Date results expected to be reported: | **2/02/15** |

| | |
|---|---|
| Samples received in appropriate condition for analysis: | YES |
| No. of samples provided | 6 Waters |
| Turnaround time requested: | 48hr |
| Temperature on receipt (°C) | 16.0 |
| Cooling Method: | Ice |
| Sampling Date Provided: | YES |

**Comments:**

If there is sufficient sample after testing, samples will be held for the following time frames from date of receipt of samples:
Water samples - 1 month
Soil and other solid samples - 2 months
Samples collected in canisters - 1 week. Canisters will then be cleaned.
All other samples are not retained after analysis
If you require samples to be retained for longer periods then retention fees will apply as per our pricelist.

**Contact details:**

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

**Douglas Partners**
Geotechnics · Environment · Groundwater

# CHAIN OF CUSTODY

Project Name: Sydney Olympic Park
Project No: 73942.00 Sampler: JE/KM
Project Mgr: Peter Oitmaa Mob. Phone: 0412 574 518
Email: peter.oitmaa@douglaspartners.com.au
Date Required: Mon 2/2/15 Lab Quote No.

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2067
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

| Sample ID | Sample Depth | Lab ID | Sampling Date | Sample Type S - soil W - water | Container type | Analytes: VOC | TRH BTEX | 8 Heavy Metals | OCP OPP PCB (Cleanup) | PAH | Phenol | Ammonia | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH105 | | 1 | 29/1 | W | Various | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| BH106 | | 2 | " | " | " | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| BD1 | | 3 | " | " | " | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| Rins 1 | | 4 | " | " | " | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | |
| TS | | 5 | 27/1/15 | " | JAR | | ✓ | | | | | | | |
| TB | | 6 | 27/1/15 | " | JAR | ✓ | | | | | | | | |

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 122693
Date Received: 29/1/15
Time Received: 16:45
Received by: PT
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Lab Report No.
Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114 Phone: (02) 9809 0666 Fax: (02) 9809 4095

| | | | | | |
|---|---|---|---|---|---|
| Relinquished by: P. Oitmaa | Signed: | 29/1 1100hrs | Received By: PT | Date & Time: | 29/1/15 16:45 |
| Relinquished by: J ESDAILE | Signed: | 29/1 12:30hrs | Received By: | Date & Time: | |